

Appendix G:
Noise Supporting Information

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September 24, 2018
Revised January 22, 2019,
March 8, 2019 & May 22, 2019

Mr. Christos Hardt, Architectural Designer
MILLER ARCHITECTURE
1177 Idaho Street, Suite 200
Redlands, California 92374

Dear Mr. Hardt:

INTRODUCTION

Ganddini Group, Inc. is pleased to provide this focused noise analysis for the proposed SD Homes Redlands Apartments Project in the City of Redlands. The project site is located adjacent to Orange Avenue between Iowa Street and Alabama Street in the City of Redlands. A vicinity map showing the project location is provided on Figure 1.

To assist the reader with those terms unique to noise analysis, a list of acronyms and a glossary of terms have been provided in Appendix A and Appendix B, respectively.

PROJECT DESCRIPTION

The project proposes to develop the 21.84 gross acre (18.94 net acre) project site with 328 multi-family (low-rise) attached residential dwelling units and a 14,663 square foot clubhouse. The southern portion of the site will include a passive park area which will include shaded rest areas and trails. The proposed project is shown on Figure 2.

APPLICABLE STANDARDS

CITY OF REDLANDS GENERAL PLAN 2035¹

Table 1 shows the City's noise level standards related to land use compatibility. According to this matrix, exterior noise levels of up to 60 CNEL are considered to be "clearly compatible" for multi-family residential uses. The policies that are applicable to the proposed project from the Noise section of the General Plan have been listed below:

Policies

Principles

7-P.41 Ensure that new development is compatible with the noise environment by continuing to use potential noise exposure as a criterion in land use planning.

¹ City of Redlands General Plan 2035, 7.5 Noise. December 2017.

Actions

- 7-A.135 Use the noise and land use compatibility matrix (see Table 1) and Future Noise Contours map (General Plan Figure 7-9) as criteria to determine the acceptability of a given land use, including the improvement/construction of streets, railroads, freeways, and highways. Do not permit new noise-sensitive uses—including schools, hospitals, places of worship, and homes—where noise levels are “normally unacceptable” or higher, if alternative locations are available for the uses in the City.
- 7-A.136 Require a noise analysis be conducted for all development proposals located where projected noise exposure would be other than “clearly” or “normally compatible” as specified in Table 1.
- 7-A.137 For all projects that have noise exposure levels that exceed the standards in Table 1, require site planning and architecture to incorporate noise-attenuating features. With mitigation, development should meet the allowable outdoor and indoor noise exposure standards in Table 2. When a building’s openings to the exterior are required to be closed to meet the interior noise standard, mechanical ventilation shall be provided.

Measure U Policies

- 9.0e Use the criteria specified in Table 1 to assess the compatibility of proposed land uses with the projected noise environment, and apply the noise standards in Table 2, which prescribe interior and exterior noise standards in relation to specific land uses. Do not approve projects that would not comply with the standards in Tables 1 and 2.
- 9.0i Require construction of barriers to mitigate sound emissions where necessary or where feasible, and encourage use of walls and berms to protect residential or other noise sensitive land uses that are adjacent to major roads, commercial, or industrial areas.
- 9.0s Require mitigation to ensure that indoor noise levels for residential living spaces do not exceed 45 dB LDN/CNEL due to combined effect of all exterior noise sources.
- 9.0v Consider the following impacts as possibly “significant”:
- An increase in exposure of 4 or more dB if the resulting noise level would exceed that described as clearly compatible for the affected land use, as established in Tables 1 and 2;
 - Any increase of 6 dB or more, due to potential for adverse community response.
- 9.0w Limit hours of construction or demolition work where site-related noise is audible beyond the site boundary.

CITY OF REDLANDS MUNICIPAL CODE²

City of Redlands Municipal Code

Chapter 8.06 of the City’s Municipal Code establishes the City’s noise standards and regulations.

Section 8.06.070 Exterior Noise Limits.

² City of Redlands Municipal Code. September 2017.

- A. The noise standards for categories of land uses identified below, unless otherwise specifically indicated, apply to all such property within a designated zone.

Maximum Permissible Sound Levels By Receiving Land Use		
Receiving Land Use Category	Time Period	Noise Level - dBA
Single-family residential districts	10:00 PM - 7:00 AM	50
	7:00 AM - 10:00 PM	60
Multi-family residential districts; public space; institutional	10:00 PM - 7:00 AM	50
	7:00 AM - 10:00 PM	60
Commercial	10:00 PM - 7:00 AM	60
	7:00 AM - 10:00 PM	65
Industrial	Anytime	75

- B. No person shall operate, or cause to be operated, any source of sound at any location within the City or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level when measured on any other property to exceed:
1. The noise standard for that land use specified in the table above of this section for a cumulative period of more than thirty (30) minutes in any hour; or
 2. The noise standard specified in the table above of this section plus five (5) dB for a cumulative period of more than fifteen (15) minutes in any hour; or
 3. The noise standard specified in the table above of this section plus ten (10) dB for a cumulative period of more than five (5) minutes in any hour; or
 4. The noise standard specified in the table above of this section plus fifteen (15) dB for a cumulative period of more than one minute in any hour; or
 5. The noise standard specified in the table above of this section plus twenty (20) dB or the maximum measured ambient level, for any period of time.
- C. If the measured ambient level exceeds the allowable noise exposure standard within any of the first four (4) noise limit categories above, the allowable noise exposure standard shall be adjusted in five (5) dB increments in each category as appropriate to encompass or reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

Section 8.06.080 Interior Noise Standards.

- A. No person shall operate or cause to be operated any source of sound, or allow the creation of any noise, which causes the noise level when measured inside a neighboring receiving occupied building to exceed the following standards:
1. The noise standard for that land use specified in the table below for a cumulative period of more than five (5) minutes in any hour.
 2. The noise standard for that land use specified in the table below plus five (5) dB for a cumulative period of more than one minute in any hour.
 3. The noise standard for that land use specified in the table below plus ten (10) dB for the maximum measured ambient noise level for any period of time.
- B. If the measured ambient level exceeds the allowable exterior noise exposure standard in 8.06.070 of this chapter, the allowable interior noise exposure level shall be adjusted in five (5) dB increments as appropriate to reflect the ambient noise level.

Maximum Permissible Interior Sound Levels by Receiving Land Use		
Receiving Land Use Category	Time Period	Noise Level - dBA
Single-family residential districts	Any time	45
Multi-family residential districts; institutional; hotels	Any time	45
Commercial	Any time	50
Industrial	Any time	60

Section 8.06.090 Noise Disturbances Prohibited.

The following acts, and the causing or permitting thereof, are declared to be in violation of the Noise Ordinance:

- F. Construction And/Or Demolition: Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between weekday hours of six o'clock (6:00) PM and seven o'clock (7:00) AM, including Saturdays or at any time on Sundays or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real property line, except for emergency work by public service utilities, the City or another governmental entity. All mobile or stationary internal combustion engine powered equipment or machinery shall be equipped with exhaust and air intake silencers in proper working order, or suitable to meet the standards set forth herein.

- G. Vibration: Operating or permitting the operation of any device that creates a vibration, which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at one hundred fifty feet (150') from the source if on a public space or public right of way. The City of Redlands Municipal Code, Section 8.06.020, defines the vibration perception threshold as 0.01 inches per second (in/sec) RMS. As such, this noise study uses the City of Redlands Municipal Code vibration perception threshold of 0.01 in/sec RMS to assess the potential vibration impacts due to Project construction. Structural damage would not occur at this level.

- K. Noise Sensitive Zones: Creating or causing the creation of any sound within any noise sensitive zone, so as to exceed the specified land use noise standards set forth in 8.06.070A of this chapter and subsection 8.06.070B of this chapter, or so as to interfere with the functions of such activity or annoy the occupants in the activity, provided that conspicuous signs are displayed indicating the presence of the zone.

Section 8.06.120 Exemptions.

Construction Activity: This chapter shall not apply to noise sources associated with new construction, remodeling, rehabilitation or grading of any property provided such activities take place between the hours of seven o'clock (7:00) AM and six o'clock (6:00) PM on weekdays, including Saturdays, with no activities taking place at any time on Sundays or federal holidays. All motorized equipment used in such activity shall be equipped with functioning mufflers.

Further, all mobile or stationary internal combustion engine powered equipment or machinery shall be equipped with exhaust and air intake silencers in proper working order, or suitable to meet the standards set forth herein.

The Ordinance also prohibits the operation of any device that creates a vibration, which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at one hundred fifty feet (150') from the source if on a public space or public right-of-way.

EXISTING NOISE ENVIRONMENT

EXISTING LAND USES AND SENSITIVE RECEPTORS

The project site is bordered by Alabama Street and single-family detached residential dwelling units to the east; single-family detached residential dwelling units, vacant land, and Orange Avenue to the south; single-family detached residential dwelling units and Iowa Street to the west; and vacant land and single-family detached residential dwelling units to the north.

The State of California defines sensitive receptors as those land uses that require serenity or are otherwise adversely affected by noise events or conditions. Schools, libraries, churches, hospitals, single and multi-family residential, including transient lodging, motels and hotel uses make up the majority of these areas.

Sensitive receptors that may be affected by project-generated noise include the single-family detached residential dwelling units located north, west, and south of the project site, and multi-family attached residential dwelling units located east of the project site.

AMBIENT NOISE MEASUREMENTS

In order to document the existing noise environment, an American National Standards Institute (ANSI Section S14 1979, Type 1) Larson Davis model LxT sound level meter was used to document existing ambient noise levels. In order to document existing ambient noise levels in the project area, four (4) 10-minute daytime noise measurements were taken between 2:06 PM and 3:25 PM on March 23, 2018. Field worksheets and noise measurement output data are included in Appendix C.

As shown on Figure 3, the noise measurements were taken along the single-family detached residential dwelling units located to the south and west of the project site, and the multi-family attached residential dwelling units located to the east of the project site. Table 3 provides a summary of the short-term ambient noise data. Ambient noise levels measured between 56.6 and 66.3 dBA L_{eq} during the daytime (7:00 AM to 10:00 PM). Estimated ambient nighttime noise levels are anticipated to decrease by five dBA to between 51.6 and 61.3 dBA L_{eq} during nighttime hours. The dominant noise sources were from vehicles traveling along Alabama Street, Orange Avenue, and Iowa Street.

DISCUSSION AND RECOMMENDATIONS

CONSTRUCTION NOISE IMPACTS

Construction noise is considered a short-term impact and would be considered significant if construction activities are undertaken outside the allowable times as described by the City's Municipal Code Section 8.06.120 (G). Existing single-family detached residential dwelling unit located to the east, south, and west of the project site, and the multi-family attached residential dwelling units located to the east of the project site may be affected by short-term noise impacts associated with the transport of workers, the movement of construction materials to and from the project site, ground clearing, excavation, grading, and building activities.

Project generated construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work. The Federal Highway Administration's Roadway Construction Noise Model (RCNM) was utilized to model worst-case construction and demolition noise levels (see Appendix D).

Demolition activities are expected to produce the highest sustained construction noise levels. Demolition is expected to include the use of a concrete saw, three excavators, and two dozers. Noise levels associated with equipment used during the demolition are shown in Table 4. A worst-case construction noise scenario assuming the above listed equipment was operating between 25 and 200 feet from the property line, assuming a use factor of 40 percent for each piece of equipment, unmitigated noise levels could reach 86.4 dBA L_{eq} and 89.6 dBA L_{max} at the property line, and the nearest sensitive receptors during demolition. These noise levels will vary throughout each workday as equipment are moved around the site. Grading activities will produce slightly lower noise levels but will last for a longer period of time.

As stated earlier, any construction activities that occur outside the allowable time as identified in Section 8.06.120 (G) of the City's Municipal Code would be considered significant. Further, as required in the City's Municipal Code, all motorized equipment used must be equipped with functioning mufflers. Noise reduction measures are provided below to minimize construction noise impacts. The impact is considered less than significant with compliance of hours of operation restrictions outlined in the Municipal Code and implementation of the mitigation measures (MM 1-5) listed below.

- MM1 During all project site excavation and grading on-site, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.
- MM2 The contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.
- MM3 Equipment shall be shut off and not left to idle when not in use.
- MM4 The contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.
- MM5 Jackhammers, pneumatic equipment and all other portable stationary noise sources shall be shielded and noise shall be directed away from sensitive receptors.

VIBRATION IMPACTS

Potential for Damage

Vibration generated by construction activity has the potential to damage structures. This damage could be structural damage, such as cracking of floor slabs, foundations, columns, beams, or wells, or cosmetic architectural damage, such as cracked plaster, stucco, or tile.

Caltrans has produced a guidance manual for evaluating potential vibration impacts "Transportation- and Construction-Induced Vibration Guidance Manual" dated September 2013). The manual provides thresholds for potential impacts on human comfort and damage to buildings, as well as guidance for reducing potential vibration impacts and addressing vibration issues. The manual gathers data from multiple sources including the Federal Transit Administration (FTA). As shown in Table 6, 0.20 PPV is the threshold at which there is a risk to "architectural" damage to normal houses.

Vibration levels in the project area may be influenced by construction. Vibration impacts related to structural damage would generally be considered significant if it involves any construction-related or operations-related impacts in excess of 0.2 inches per second (in/sec) PPV. Further, Section 8.06.090 (G) of the City's Municipal Code prohibits vibration which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at one hundred and fifty feet (150 feet) from the source if on a public space or public right-of-way.

Vibratory rollers and/or large bulldozers are the most vibratory pieces of equipment that may be utilized on the project site. As shown in Table 5, vibratory roller could generate up to 0.21 PPV at a distance of 25 feet; and operation of a large bulldozer (0.089 PPV) at a distance of 25 feet. Sensitive receptors in the vicinity of the project site are located adjacent to the south, east, west, and north of the project site. The only receptors that could possibly be affected by groundborne vibration are the homes located immediately adjacent to the project site if a vibratory roller is utilized within 25 feet of a structure or if a large bulldozer is utilized within 15 feet of a structure. Vibration calculations are provided in Appendix E. With incorporation of mitigation measure 6 listed below, impacts related to groundborne vibration would be less than significant.

MM6 The use of vibratory rollers is to be restricted within 25 feet of the existing structures and the use of large bulldozers is to be restricted within 15 feet of existing structures.

Annoyance

As shown in Table 2, groundborne vibration becomes readily perceptible at 0.8 PPV. A vibratory roller generates vibration levels of 0.8 PPV at a distance of 10 feet and a large bulldozer generates vibration levels of 0.8 PPV at a distance of 6 feet (See Appendix E). Vibratory equipment is not expected to be utilized within 10 feet of an existing structure. Impacts associated annoyance associated with groundborne vibration would be less than significant. Mitigation is not required.

TRAFFIC NOISE IMPACTS

Noise Impacts to Off-Site Receptors Due to Project Generated Trips

A worst-case project generated traffic noise level was modeled utilizing the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108. Traffic noise levels were calculated from the centerline of the roadway to the roadway right-of-way (ROW). The modeling is theoretical and does not take into account any existing barriers, structures, and/or topographical features that may further reduce noise levels. Therefore, the levels are shown for comparative purposes only to show the difference in with and without project conditions. Roadway input parameters including average daily traffic volumes (ADTs), speeds, and vehicle distribution data are shown in Table 7. Existing and Existing Plus Project FHWA worksheets are included in Appendix F. The potential off-site noise impacts caused by an increase of traffic from operation of the proposed project on the nearby roadways were calculated for the following scenarios:

Existing Year (without Project): This scenario refers to existing year traffic noise conditions and is demonstrated in Table 7.

Existing Year (Plus Project): This scenario refers to existing year plus project traffic noise conditions and is also demonstrated in Table 7.

As shown in Table 8, modeled Existing traffic noise levels range between 62.98-75.63 dBA CNEL and the modeled Existing Plus Project traffic noise levels range between 63.35-75.66 dBA CNEL at the right-of-way of each modeled roadway segment. The City's General Plan 2035 identifies a potentially substantial increase as either an increase of four or more dB if the resulting noise level would exceed the clearly compatible

standards as identified in Tables 1 and 2 or any increase of 6 dB.

Table 8 shows that all modeled roadway segments are anticipated to change the noise a nominal amount (approximately 0.01 to 1.5 dBA CNEL). Therefore, a change in noise level would not be audible and would be considered less than significant. No mitigation is required.

Noise Impacts to the Proposed Project

As stated previously, the City of Redlands has identified noise levels of up to 60 CNEL as “clearly compatible” for multi-family attached residential uses (see Table 1). However, if exterior noise levels range between 60 and 75 CNEL, the City’s guidelines recommend discouraging new residential development in that area; and if new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise reduction features included in the design.

The project site is bordered by Orange Avenue, Alabama Street, and Iowa Street. The City of Redlands General Plan 2035 identifies Alabama Street as a Major Arterial roadway and Iowa Street and Orange Avenue as Collector roadways. Future noise levels associated with vehicular traffic traveling on these roadways were modeled using the SoundPLAN model. The Traffic Impact Analysis prepared for the proposed project projects approximately 19,900 average daily traffic volumes to the roadway segment of Alabama Street north of Orange Avenue; 16,400 average daily traffic volumes to the roadway segment of Alabama Street south of Orange Avenue; 3,500 average daily traffic volumes to the roadway segment of Iowa Street along the project site frontage; and 8,000 average daily traffic volumes to the roadway segment of Orange Avenue along the project site frontage. A speed of 30 miles per hour was utilized for modeling input for Orange Avenue and Iowa Street. The posted speed limit for Alabama Street in the vicinity of the project site is 45 miles per hour. SoundPLAN modeling data is included in Appendix G.

As shown on Figure 4, future exterior traffic noise levels at the proposed multi-family (low-rise) attached residential facades along Alabama Street, north of Orange Avenue, are expected to reach up to 68 CNEL at the 1st floor, 71 CNEL at the 2nd floor, and 71 CNEL at the 3rd floor. Windows facing or with a line of sight of Alabama Street, north of Orange Avenue, will need an STC rating of at least 29 to meet the interior noise standard of 45 CNEL.

Future exterior noise levels at the proposed multi-family (low-rise) attached residential facades along Alabama Street, south of Orange Avenue, are expected to reach up to 67 CNEL at the 1st floor, 69 CNEL at the 2nd floor, and 70 CNEL at the 3rd floor. Windows facing or with a line of sight of Alabama Street, north of Orange Avenue, will need an STC rating of at least 28 to meet the interior noise standard of 45 dBA CNEL.

Future exterior noise levels at building facades along Orange Avenue are expected to reach up to 60 CNEL at the 1st floor, 62 CNEL at the 2nd floor, and 63 CNEL at the 3rd floor. For the proposed multi-family (low-rise) attached residential dwelling units located adjacent to Orange Avenue, windows facing or with a line of sight of Orange Street should have an STC rating of at least 28 to meet the interior noise standard of 45 dBA CNEL.

Future exterior noise levels at the proposed multi-family (low-rise) attached residential facades along Iowa Street are expected to reach up to 56 CNEL at the 1st floor, 55 CNEL at the 2nd floor, and 56 CNEL at the 3rd floor. Considering that typical construction provides approximately 20 dB of exterior to interior noise reduction, additional mitigation measures for the proposed multi-family (low-rise) attached residential facades facing Iowa Street are not necessary.

Mr. Christos Hardt, Architectural Designer
MILLER ARCHITECTURE
September 24, 2018 (Revised January 22, 2019, March 8, 2019 & May 22, 2019)

The City's exterior noise level standard for multiple family residential land uses (60 dBA CNEL) would apply to the outdoor active use areas proposed as part of the project, specifically, the recreation center and the pool area. As shown on Figure 4, future noise levels at these locations are expected to reach up to 55 dBA CNEL and would be consistent with the City's Land Use Compatibility criteria. No mitigation is necessary to reduce future noise levels at the active outdoor use areas.

The City's exterior noise level standard of 60 dBA CNEL does not apply to the proposed balconies and patios because they would not be served as exits from the dwelling units, rather, they would be enclosed with a low wall or railing which would prohibit exit from the dwelling. This guidance is contained in footnote 2 of Table 7-11 in the City of Redlands General Plan 2035 and also presented in Table 2 of this letter report. No mitigation would be required to reduce future noise levels at balconies or patios.

With the addition of windows with STC ratings as described above, interior noise levels are expected to meet the State Building Code/City of Redlands standard of 45 CNEL. No other mitigation is necessary. Impacts are less than significant.

OPERATIONAL NOISE IMPACTS

On-site noise sources associated with development of the proposed project will include typical noises associated with residential land uses, including vehicles starting and stopping, passenger loading and unloading; refuse trucks, occasional car alarm activation, landscape maintenance, kids playing. These instantaneous or short-term noise events would range between 55 and 70 dBA at 50 feet from the noise source. Noise associated with proposed park uses will include people talking and socializing along the proposed trails and at the shaded rest areas. Normal conversation is typically 65 dBA. These events and conversation, however, would not occur frequently enough or close enough to sensitive receptors to exceed City of Redlands stationary noise standards or result in a substantial increase in the ambient average (L_{eq}) noise levels, and would not result in significant impacts.

CONCLUSIONS

The noise impacts from the proposed SD Homes Redlands Apartments Project are anticipated to be consistent with applicable General Plan and Municipal Code standards.

It has been a pleasure for Ganddini Group, Inc. to service your needs on this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 795-3100.

Respectfully submitted,



Roma Stromberg, INCE/MS
Senior Noise Analyst

18-0085

**Table 1
City of Redlands Noise/Land Use Compatibility Matrix¹**

Land Use Categories		Community Noise Equivalent Level (CNEL)						
Categories	Uses	< 60	65	70	75	80	85 >	
RESIDENTIAL	Single Family, Duplex, Multi-Family	A	C	C	C	D	D	D
RESIDENTIAL	Mobile Homes	A	C	C	C	D	D	D
COMMERCIAL- Regional, District	Hotels, Motels, Transient Lodging	A	A	B	B	C	C	D
COMMERCIAL- Regional, Village District, Special	Commercial Retail, Bank, Restaurant, Movie Theater	A	A	A	A	B	B	C
COMMERCIAL INDUSTRIAL INSTITUTIONAL	Office Buildings, Research and Development, Professional Offices, City Office Building	A	A	A	B	B	C	D
COMMERCIAL- Recreation INSTITUTIONAL- Civic Center	Amphitheater, Concert Hall, Auditorium, Meeting Hall	B	B	C	C	D	D	D
COMMERCIAL- Recreation	Children's Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	A	A	A	B	B	B
COMMERCIAL- General, Special INDUSTRIAL INSTITUTIONAL	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
INSTITUTIONAL- General	Hospital, Church, Library, School Classroom	A	A	B	C	C	D	D
OPEN SPACE	Parks	A	A	A	B	C	D	D
OPEN SPACE	Golf Course, Cemeteries, Nature Centers, Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
AGRICULTURE	Agriculture	A	A	A	A	A	A	A
Zone A: Clearly Compatible		Specified land use is satisfactory, based up the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.						
Zone B: Normally Compatible		New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.						
Zone C: Normally Incompatible		New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise reduction features included in the design.						
Zone D: Clearly Incompatible:		New construction or development should generally not be undertaken.						

Notes:

(1) Source: City of Redlands General Plan Noise Element (GP Table 9.1), 2010.

**Table 2
City of Redlands Interior and Exterior Noise Standards¹**

Land Use Categories	Community Noise Equivalent Level (CNEL)	
	Interior ¹	Exterior ²
Residential		
Single Family, Duplex, Multiple Family	45 ³	60
Mobile Home	-	60 ⁴
Commercial, Industrial, Institutional		
Hotel, Motel, Transient Lodging	45	65 ⁵
Commercial Retail, Bank, Restaurant	55	-
Office Building, Research & Development, Professional Offices, City Office Building	50	-
Amphitheater, Concert Hall, Auditorium, Meeting Hall	45	-
Gymnasium (Multipurpose)	50	-
Sports Club	55	-
Manufacturing, Warehousing, Wholesale, Utilities	60	-
Movie Theaters	45	-
Institutional		
Hospitals, Schools, Classrooms	45	60
Open Space		
Parks	-	60

Notes:

* CNEL (Community Noise Equivalent Level) - The average equivalent A-Weighted sound level during a 24 hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 PM to 10:00 PM and ten decibels to sound levels at night after 10:00 PM and before 7:00 AM.

(1) Indoor environment excluding bathrooms, toilets, closets, corridors.

(2) Outdoor environment limited to private yard of single-family as measured at the property line; multi-family private patio or balcony which is served by a means of exit from inside; mobile home park; hospital patio; park picnic area; school playground; hotel and recreational area.

(3) Noise level requirement with open windows, if they are used to meet natural ventilation requirement.

(4) Exterior noise level should be such that interior level will not exceed 45 CNEL.

(5) Except those areas affected by aircraft noise.

Table 3
Short-Term Noise Measurement Summary (dBA)^{1,2}

Daytime								
Site Location	Time Started	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
NM1	2:06 PM	64.6	80.3	41.6	73.8	68.5	63.9	57.8
NM2	2:27 PM	59.4	73.9	40.2	68.1	64.9	58.8	51.0
NM3	2:49 PM	56.6	77.0	41.3	64.1	61.0	55.7	50.5
NM4	3:15 PM	66.3	80.4	45.0	73.5	70.2	67.1	63.3

Notes:

(1) See Figure 3 for noise measurement locations. Each noise measurement was performed over a 10-minute duration.

(2) Noise measurements performed on March 23, 2018.

**Table 4
Typical Construction Equipment Noise Levels**

Type of Equipment	Sound Levels Measured (dBA at 50 feet)	Suggested Maximum Sound Levels for Analysis (dBA at 50 feet)
Rock Drills	83-99	96
Jack Hammers	75-85	82
Pneumatic Tools	78-88	85
Pumps	74-84	80
Dozers	77-90	85
Scrappers	83-91	87
Haul Trucks	83-94	88
Cranes	79-86	82
Portable Generators	71-87	80
Rollers	75-82	80
Tractors	77-82	80
Front-End Loaders	77-90	86
Hydraulic Excavators	81-90	86
Graders	79-89	86
Air Compressors	76-89	86
Trucks	81-87	86

Notes:

(1) Source: Bolt, Beranek & Newman; Noise Control for Buildings and Manufacturing Plants, 1987.

Table 5
Construction Equipment Vibration Source Levels¹

Equipment	Community Noise Equivalent Level (CNEL) or Day-Night Level (Ldn), dB		
	at 25 feet	at 50 feet	at 100 feet
Clam Shovel Drop (slurry wall)	0.202	0.071	0.025
Vibratory Roller	0.210	0.074	0.026
Hoe Ram	0.089	0.031	0.011
Large Bulldozer	0.089	0.031	0.011
Caisson Drilling	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Jackhammer	0.035	0.012	0.004
Small Bulldozer	0.003	0.001	0.0004

Notes:

- (1) Source: Federal Transit Administration, [Transit Noise and Vibration Impact Assessment](#), 2006.
 (2) Bold values are considered annoying to people.

**Table 6
Typical Human Reaction and Effect on Buildings Due to Groundborne Vibration**

Vibration Level Peak Particle Velocity (PPV)	Human Reaction	Effect on Buildings
0.006–0.019 in/sec	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08 in/sec	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10 in/sec	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e., not structural) damage to normal buildings
0.20 in/sec	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6 in/sec	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Notes:

(1) Source: California Department of Transportation, Transportation and Construction Vibration Guidance Manual Chapter 6 Tables 5 and 12, September 2013.

**Table 7
Project Average Daily Traffic Volumes and Roadway Parameters**

Roadway	Segment	Average Daily Traffic Volume ¹		Posted Travel Speeds (MPH)
		Existing	Existing Plus Project	
Iowa Street	Orange Avenue to Barton Road	2,600	2,830	35
Alabama Street	North of Redlands Boulevard	22,300	22,750	35
	Redlands Boulevard to Park Avenue	17,100	18,230	35
	Park Avenue to Citrus Avenue	15,400	16,530	45
	Citrus Avenue to Orange Avenue	14,900	16,030	45
	Orange Avenue to Barton Road	14,900	15,350	45
Redlands Boulevard	West of Alabama Street	20,600	20,940	40
	East of Alabama Street	18,000	18,340	40
Orange Avenue	West of Iowa Street	3,400	3,740	35
	East of Iowa Street	3,600	4,160	35
	West of Alabama Street	3,600	5,290	35
	East of Alabama Street	4,100	4,210	35
Barton Road	West of Iowa Street	20,600	20,940	45
	Iowa Street to Alabama Street	20,400	20,510	45
	East of Alabama Street	18,500	18,840	40

Vehicle Distribution (Heavy Mix) ²			
Motor-Vehicle Type	Daytime % (7:00 AM - 7:00 PM)	Evening % (7:00 PM - 10:00 PM)	Night % (10:00 PM - 7:00 AM)
Automobiles	75.5	14.0	10.4
Medium Trucks	48.0	2.0	50.0
Heavy Trucks	48.0	2.0	50.0

Vehicle Distribution (Light Mix) ²			
Motor-Vehicle Type	Daytime % (7:00 AM - 7:00 PM)	Evening % (7:00 PM - 10:00 PM)	Night % (10:00 PM - 7:00 AM)
Automobiles	75.6	14.0	10.5
Medium Trucks	48.9	2.2	48.9
Heavy Trucks	47.3	5.4	47.3

Notes:

- (1) Average daily traffic volumes and project vehicle percentages obtained from the SD Homes Redlands Apartments Project Traffic Impact Analysis prepared by Ganddini Group, Inc. (March 4, 2019).
- (2) Existing vehicle percentages are based on the Riverside County Industrial Hygiene Letter for Traffic Noise (November 23, 2009). Neither the City of Redlands nor the County of San Bernardino provide published vehicle mix or day/evening/night splits.

**Table 8
Comparison of Existing and Existing Plus Project Traffic Noise Levels**

Roadway	Segment	Distance from roadway centerline to receiver (feet) ¹	Modeled Noise Levels (dBA CNEL)					
			Existing	Existing Plus Project	Increase	Exceeds Land Use Compatibility Standards	Over 4 dB Increase?	Substantial Increase?
Iowa Street	Orange Avenue to Barton Road	32	62.98	63.35	0.37	NO	NO	NO
Alabama Street	North of Redlands Boulevard	55	74.44	74.48	0.04	YES	NO	NO
	Redlands Boulevard to Park Avenue	55	73.29	73.39	0.10	YES	NO	NO
	Park Avenue to Citrus Avenue/State Street	55	74.37	74.50	0.13	YES	NO	NO
	Citrus Avenue/State Street to Orange Avenue	55	74.23	74.37	0.14	YES	NO	NO
	Orange Avenue to Barton Road	55	74.23	74.28	0.05	YES	NO	NO
Redlands Boulevard	West of Alabama Street	55	74.89	74.92	0.03	YES	NO	NO
	East of Alabama Street	55	74.31	74.34	0.03	YES	NO	NO
Orange Avenue	West of Iowa Street	32	64.15	64.56	0.41	NO	NO	NO
	East of Iowa Street	32	64.39	65.02	0.63	NO	NO	NO
	West of Alabama Street	32	64.96	66.46	1.50	NO	NO	NO
	East of Alabama Street	32	64.96	65.07	0.11	NO	NO	NO
Barton Road	West of Iowa Street	55	75.63	75.66	0.03	YES	NO	NO
	Iowa Street to Alabama Street	55	75.59	75.60	0.01	YES	NO	NO
	East of Alabama Street	55	74.43	74.46	0.03	YES	NO	NO

Notes:

(1) Distance from the roadway centerline to the roadway ROW. ROW distances were estimated based on the Illustrative Street Sections provided in the City of Redlands General Plan 2035 (December 2017).

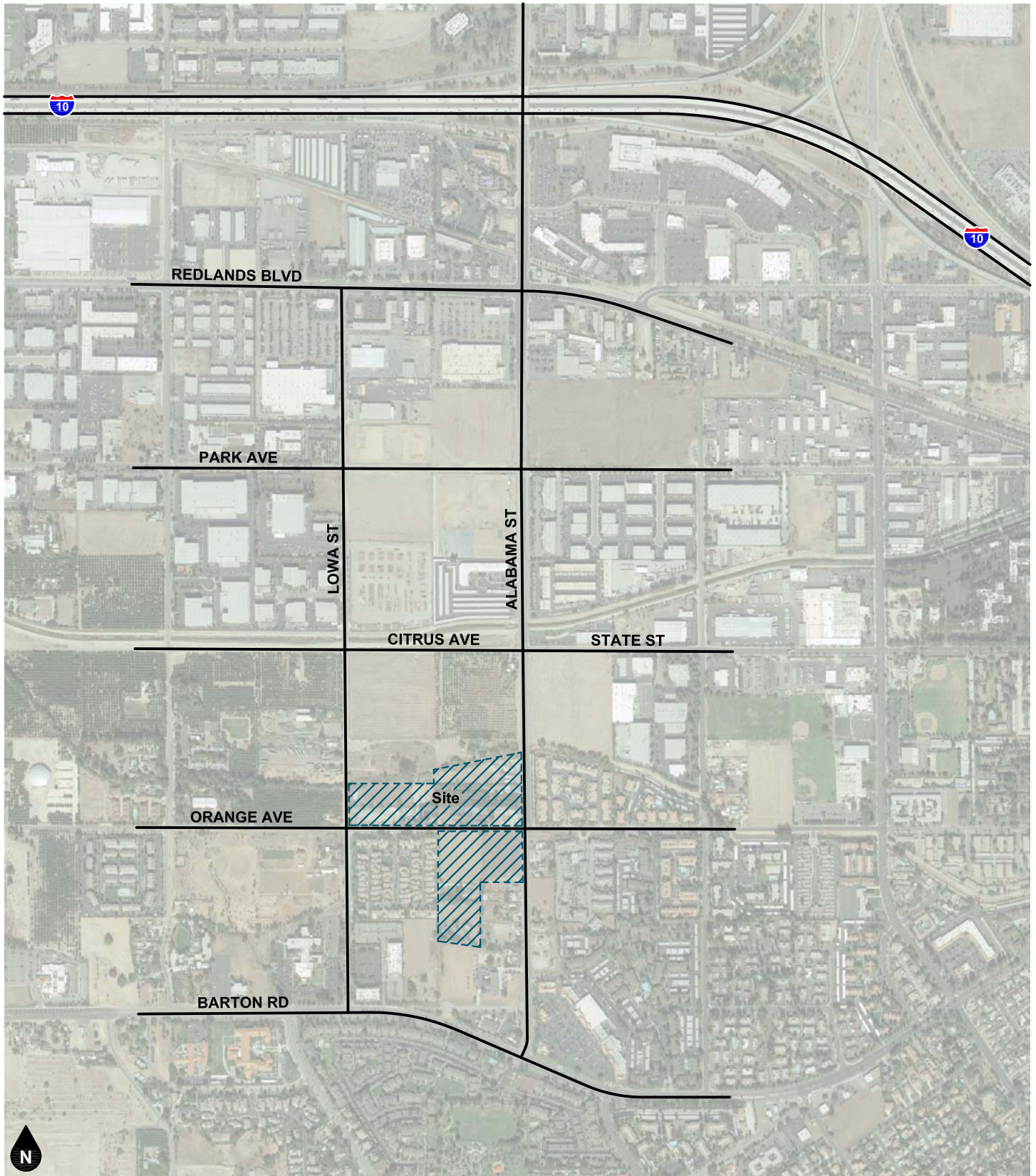


Figure 1
Project Location Map

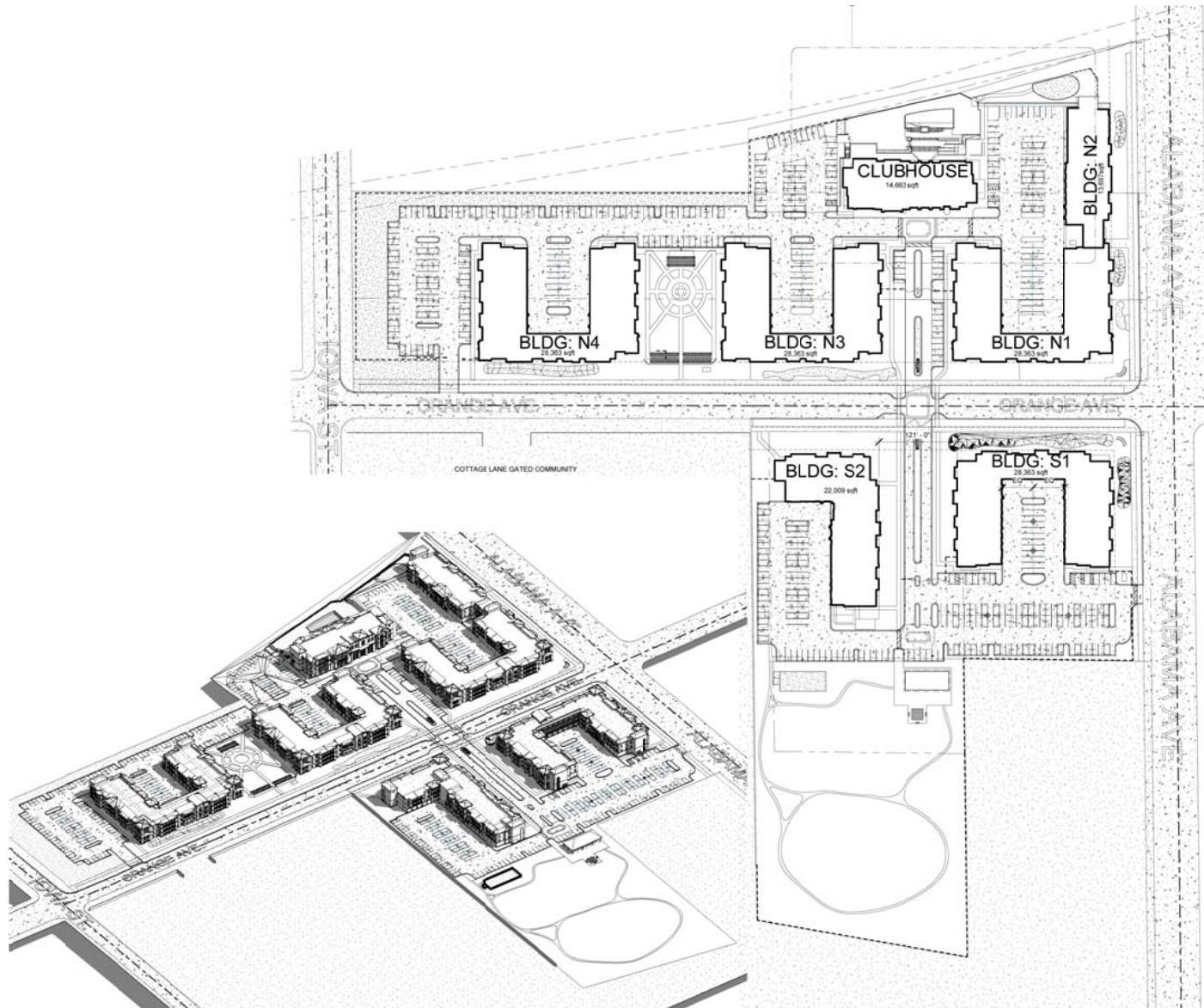


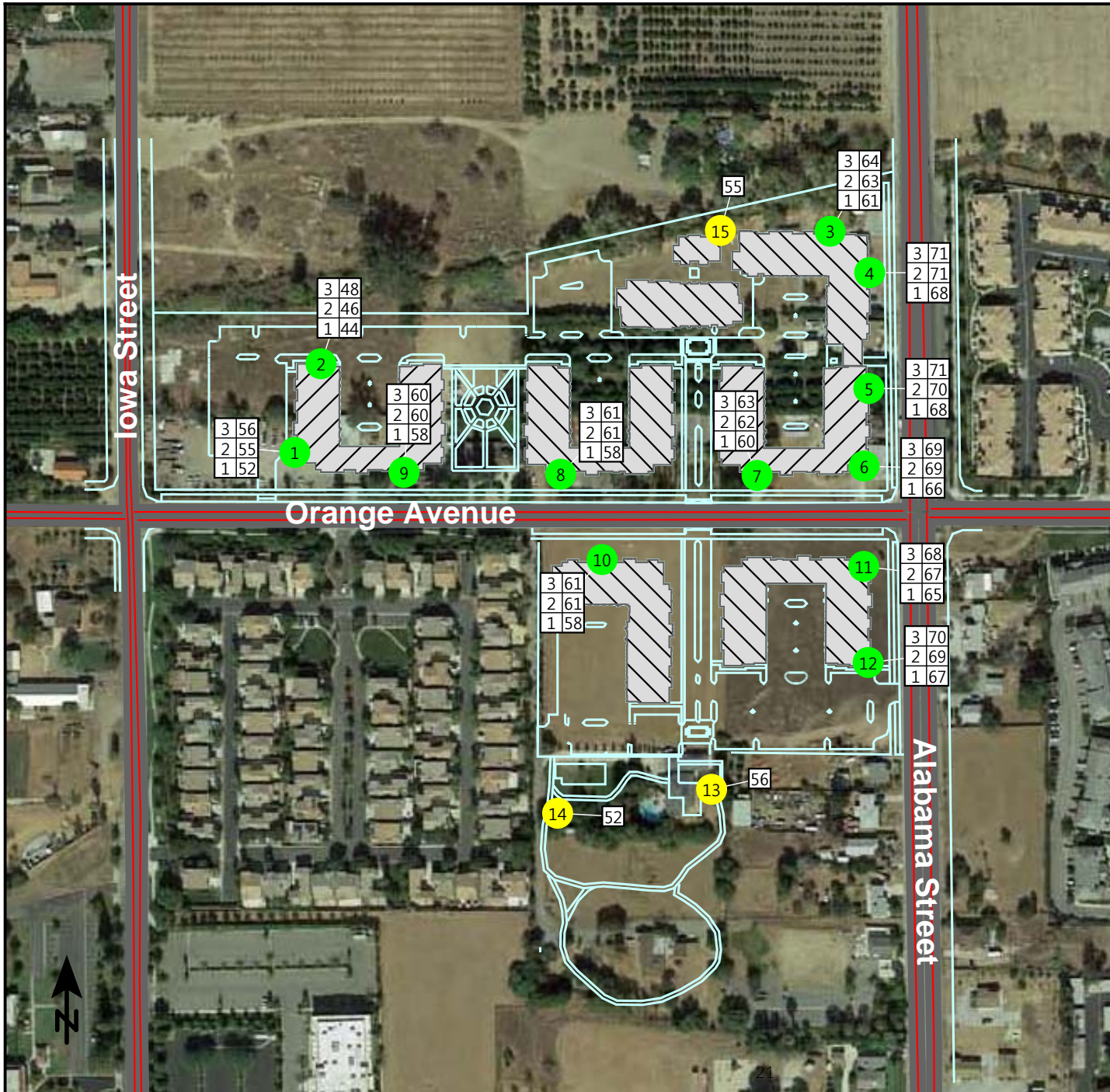
Figure 2
Site Plan



Legend
 ⊕ Noise Measurement Location
 NM 1

Figure 3
Noise Measurement Location Map

Figure 4
 Horizon Year 2040
 Future Traffic Noise Levels



Signs and symbols

- Parking Areas & Project Boundary
- Proposed Buildings
- Receiver
- Receiver at building
- Roads
- Noise Levels (1st, 2nd, 3rd Floors)

1 : 250



APPENDIX A
LIST OF ACRONYMS

TERMS

ADT
ANSI
APN
Caltrans
Calveno
CEQA
CFR
CNEL
D/E/N
dB
dBA or dB(A)
EIR
EPA
FAA
FHWA
FTA
Hz
INCE
L₀₂, L₀₈, L₅₀, L₉₀

DNL
L_{eq(x)}
L_{max}
L_{min}
LOS C
MPH
NEPA
OPR
Peak Hour L_{eq}
PPV
RCNM
RMS
SEL
SPL
STC
VdB

DEFINITIONS

Average Daily Traffic volume
American National Standard Institute
Assessor's Parcel Number
California Department of Transportation
California Vehicle Noise
California Environmental Quality Act
Code of Federal Regulations
Community Noise Equivalent Level
Day/Evening/Night
Decibel
Decibel "A-Weighted"
Environmental Impact Report
Environmental Protection Agency
Federal Aviation Administration
Federal Highway Administration
Federal Transit Administration
Hertz
Institute of Noise Control Engineering
A-weighted Noise Levels at 2 percent, 8 percent, 50 percent, and 90 percent, respectively, of the time period
Day-Night Average Noise Level
Equivalent Noise Level for "x" period of Time
Maximum Level of Noise (measured using a sound level meter)
Minimum Level of Noise (measured using a sound level meter)
Level of Service C
Miles Per Hour
National Environmental Policy Act
California Governor's Office of Planning and Research
Peak Hour Equivalent Sound Level
Peak Particle Velocity
Road Construction Noise Model
Root Mean Square
Single Event Level or Sound Exposure Level
Sound Pressure Level
Sound Transmission Class
Vibration Velocity Decibels

APPENDIX B
DEFINITIONS OF ACOUSTICAL TERMS

Term	Definition
Ambient Noise Level	The all-encompassing noise environment associated with a given environment, at a specified time, usually a composite of sound from many sources, at many directions, near and far, in which usually no particular sound is dominant.
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear.
CNEL	Community Noise Equivalent Level. CNEL is a weighted 24-hour noise level that is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours.
Decibel, dB	A logarithmic unit of noise level measurement that relates the energy of a noise source to that of a constant reference level; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
DNL, Ldn	Day Night Level. The DNL, or Ldn is a weighted 24-hour noise level that is obtained by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the nighttime hours.
Equivalent Continuous Noise Level, L_{eq}	A level of steady state sound that in a stated time period, and a stated location, has the same A-weighted sound energy as the time-varying sound.
Fast/Slow Meter Response	The fast and slow meter responses are different settings on a sound level meter. The fast response setting takes a measurement every 100 milliseconds, while a slow setting takes one every second.
Frequency, Hertz	In a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., the number of cycles per second).
L_{02} , L_{08} , L_{50} , L_{90}	The A-weighted noise levels that are equaled or exceeded by a fluctuating sound level, 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period, respectively.
L_{max} , L_{min}	L_{max} is the RMS (root mean squared) maximum level of a noise source or environment measured on a sound level meter, during a designated time interval, using fast meter response. L_{min} is the minimum level.
Offensive/ Offending/ Intrusive Noise	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of sound depends on its amplitude, duration, frequency, and time of occurrence, and tonal information content as well as the prevailing ambient noise level.
Root Mean Square (RMS)	A measure of the magnitude of a varying noise source quantity. The name derives from the calculation of the square root of the mean of the squares of the values. It can be calculated from either a series of lone values or a continuous varying function.

APPENDIX C
NOISE MONITORING FIELD WORKSHEETS

Noise Measurement
Field Data

Project Name: SD Homes Date: 23-Mar-18
Project #: 18-0085
Noise Measurement #: NM1 3099 LxT_Data131.xlsx Technician: Ian Edward Gallagher

Nearest Address or Cross Street: Alabama Street & Orange Avenue
Site Description (Type of Existing Land Use and any other notable features) Empty lot, grassy field. Surrounding, rural, farm style homes, citrus groves, developing compact residential.

Weather: ~30% cloudy, cumulus above and heavy rain clouds to the North, sunshine and blue sky between the clouds. Settings: **SLOW** **FAST** (Circle one)

Temperature: 68 deg F Wind: Calm - 3 mph Humidity: 47% Flat

Start Time: 2:06 PM End Time: 2:16 PM Run Time: 10 minutes

Leq: 64.6 dB Primary Noise Source: Traffic noise from vehicles running along Alabama Street

Lmax 80.3 dB

L2 73.8 dB Secondary Noise Sources: Overhead aircraft, propellor planes and higher altitude commercial jet aircraft

L8 68.5 dB Bird song

L25 63.9 dB Occasional dog bark from distant residence.

L50 57.8 dB

NOISE METER: SoundTrack LxT Class 1 ; CALIBRATOR: Larson Davis CAL250 Acoustic Calibrator

MAKE: Larson Davis MAKE: Larson Davis

MODEL: LxT1 MODEL: Cal250

SERIAL NUMBER: 3099 SERIAL NUMBER: 2723

FACTORY CALIBRATION DATE: 6/23/2017 FACTORY CALIBRATION DATE: 6/9/2017

FIELD CALIBRATION DATE: 3/23/2018

Noise Measurement
Field Data

Additional Notes/Sketch



JN 18-0085 NM1 looking North towards Alabama Street & Orange Avenue intersection.



JN 18-0085 NM1 looking East across Alabama Street towards 76 Alabama Street residence

Summary

File Name	LxT_Data.131
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.301
User	Ian Edward Gallagher
Location	JN18-0085 NM1
Job Description	10 minute noise sample
Start	2018-03-23 14:06:26
Stop	2018-03-23 14:16:26
Duration	0:10:00.0
Run Time	0:10:00.0
Pause	0:00:00.0
Pre Calibration	2018-03-23 14:06:14
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.5 dB

Results

LAeq	64.6 dB
LAE	92.4 dB
EA	190.905 $\mu\text{Pa}^2\text{h}$
EA8	9.163 mPa^2h
EA40	45.817 mPa^2h
LZpeak (max)	2018-03-23 14:08:22 102.3 dB
LASmax	2018-03-23 14:08:22 80.3 dB
LASmin	2018-03-23 14:16:13 41.6 dB
SEA	-99.9 dB

Statistics

LCeq	72.5 dB	LAS2.00	73.8 dB
LAeq	64.6 dB	LAS8.00	68.5 dB
LCeq - LAeq	7.9 dB	LAS25.00	63.9 dB
LALeq	66.5 dB	LAS50.00	57.8 dB
LAeq	64.6 dB	LAS66.60	54.8 dB
LALeq - LAeq	1.9 dB	LAS90.00	48.5 dB
# Overloads	0		

Noise Measurement
Field Data

Project Name: SD Homes Date: 23-Mar-18

Project #: 18-0085

Noise Measurement #: NM2 3099 LxT_Data132.xlsx Technician: Ian Edward Gallagher

Nearest Address or Cross Street: Alabama Street & Orange Avenue

Site Description (Type of Existing Land Use and any other notable features) Empty lot, grassy field. Surrounding, rural, farm style homes, citrus groves, developing compact residences.

Weather: ~30% cloudy, cumulus above and heavy rain clouds to the North, sunshine and blue sky between the clouds. Settings: **SLOW** **FAST** (Circle one)

Temperature: 68 deg F Wind: Calm - 3 mph Humidity: 47% Flat

Start Time: 2:27 PM End Time: 2:37 PM Run Time: 10 minutes

Leq: 59.4 dB Primary Noise Source: Traffic noise from vehicles running along Orange Avenue

Lmax 73.9 dB

L2 68.1 dB Secondary Noise Sources: Overhead aircraft, propellor planes and higher altitude commercial jet aircraft

L8 64.9 dB Bird song

L25 58.8 dB Occasional dog bark from distant residence.

L50 51.0 dB Residential ambiance, children playing near by.

NOISE METER: SoundTrack LxT Class 1 ; CALIBRATOR: Larson Davis CAL250 Acoustic Calibrator

MAKE: ; Larson Davis MAKE: Larson Davis

MODEL: LxT1 MODEL: Cal250

SERIAL NUMBER: 3099 SERIAL NUMBER: 2723

FACTORY CALIBRATION DATE: 6/23/2017 FACTORY CALIBRATION DATE: 6/9/2017

FIELD CALIBRATION DATE: 3/23/2018

Noise Measurement
Field Data

Additional Notes/Sketch



JN 18-0085 NM2 looking East down Orange Avenue towards Alabama Street.



JN 18-0085 NM2 looking North across Orange Ave towards 27154 Orange Ave residence.

Summary

File Name	LxT_Data.132
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.301
User	Ian Edward Gallagher
Location	JN18-0085 NM2
Job Description	10 minute noise sample
Start	2018-03-23 14:27:57
Stop	2018-03-23 14:37:57
Duration	0:10:00.0
Run Time	0:10:00.0
Pause	0:00:00.0
Pre Calibration	2018-03-23 14:27:37
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.6 dB

Results

LAeq	59.4 dB
LAE	87.2 dB
EA	58.137 $\mu\text{Pa}^2\text{h}$
EA8	2.791 mPa^2h
EA40	13.953 mPa^2h
LZpeak (max)	2018-03-23 14:30:50 94.2 dB
LASmax	2018-03-23 14:29:29 73.9 dB
LASmin	2018-03-23 14:31:50 40.2 dB
SEA	-99.9 dB

Statistics

LCeq	65.7 dB	LAS2.00	68.1 dB
LAeq	59.4 dB	LAS8.00	64.9 dB
LCeq - LAeq	6.3 dB	LAS25.00	58.8 dB
LAleq	61.5 dB	LAS50.00	51.0 dB
LAeq	59.4 dB	LAS66.60	47.1 dB
LAleq - LAeq	2.1 dB	LAS90.00	43.6 dB
# Overloads	0		

Noise Measurement
Field Data

Project Name: SD Homes Date: 23-Mar-18
Project #: 18-0085
Noise Measurement #: NM3 3099 LxT_Data133.xlsx Technician: Ian Edward Gallagher

Nearest Address or Cross Street: Iowa Street & Orange Avenue
Site Description (Type of Existing Land Use and any other notable features) Empty lot, grassy field. Surrounding, rural, farm style homes, citrus groves, developing compact residences.

Weather: ~30% cloudy, cumulus above and heavy rain clouds to the North, sunshine and blue sky between the clouds. Settings: SLOW FAST (Circle one)

Temperature: 69 deg F Wind: Calm - 3 mph Humidity: 45% Flat

Start Time: 2:49 PM End Time: 2:59 PM Run Time: 10 minutes

Leq: 56.6 dB Primary Noise Source: Traffic noise from vehicles running along Iowa Street & Orange Avenue

Lmax 77 dB Truck parks on Iowa St at 2:58 PM ~50' from NM3 location. Air brakes, diesel engine noise.

L2 64.1 dB Secondary Noise Sources: Overhead aircraft, propellor planes and higher altitude commercial jet aircraft

L8 61.0 dB Bird song.

L25 55.7 dB Occasional dog bark from distant residence.

L50 50.5 dB

NOISE METER: SoundTrack LxT Class 1 ; CALIBRATOR: Larson Davis CAL250 Acoustic Calibrator

MAKE: ; Larson Davis MAKE: Larson Davis

MODEL: LxT1 MODEL: Cal250

SERIAL NUMBER: 3099 SERIAL NUMBER: 2723

FACTORY CALIBRATION DATE: 6/23/2017 FACTORY CALIBRATION DATE: 6/9/2017

FIELD CALIBRATION DATE: 3/23/2018

Noise Measurement
Field Data

Additional Notes/Sketch



JN 18-0085 NM1 looking South towards Iowa Street & Orange Avenue intersection



JN 18-0085 NM3 looking West at empty residence .

Summary

File Name LxT_Data.133
Serial Number 0003099
Model SoundTrack LxT®
Firmware Version 2.301

User

Location

Measurement Description

Start 2018-03-23 14:49:11
Stop 2018-03-23 14:59:11
Duration 0:10:00.0
Run Time 0:10:00.0
Pause 0:00:00.0

Pre Calibration 2018-03-23 14:48:57

Post Calibration None

Calibration Deviation ---

Overall Settings

RMS Weight A Weighting
Peak Weight Z Weighting
Detector Slow
Preamp PRMLxT1L
Microphone Correction Off
Integration Method Linear
OBA Range Low
OBA Bandwidth 1/1 and 1/3
OBA Freq. Weighting Z Weighting
OBA Max Spectrum Bin Max
Overload 122.5 dB

Results

LAeq 56.6 dB
LAE 84.4 dB
EA 30.364 $\mu\text{Pa}^2\text{h}$
EA8 1.457 mPa^2h
EA40 7.287 mPa^2h
LZpeak (max) 2018-03-23 14:58:20 98.5 dB
LASmax 2018-03-23 14:58:20 77.0 dB
LASmin 2018-03-23 14:53:28 41.3 dB
SEA -99.9 dB

Statistics

LCeq 66.2 dB **LAS2.00** 64.1 dB
LAeq 56.6 dB **LAS8.00** 61.0 dB
LCeq - LAeq 9.6 dB **LAS25.00** 55.7 dB
LAleq 62.3 dB **LAS50.00** 50.5 dB
LAeq 56.6 dB **LAS66.60** 47.9 dB
LAleq - LAeq 5.7 dB **LAS90.00** 44.7 dB
Overloads 0

Noise Measurement
Field Data

Project Name: SD Homes Date: 23-Mar-18
Project #: 18-0085
Noise Measurement #: NM4 3099 LxT_Data134.xlsx Technician: Ian Edward Gallagher

Nearest Address or Cross Street: Alabama Street & Orange Avenue
Site Description (Type of Existing Land Use and any other notable features) Empty lot, grassy field. Surrounding, rural, farm style homes, citrus groves, developing compact residences.

Weather: ~30% cloudy, cumulus above and heavy rain clouds to the North, sunshine and blue sky between the clouds. Settings: **SLOW** **FAST** (Circle one)

Temperature: 69 deg F Wind: Calm - 3 mph Humidity: 43% Flat

Start Time: 3:15 PM End Time: 3:25 PM Run Time: 10 minutes

Leq: 66.3 dB Primary Noise Source: Traffic noise from vehicles running along Alabama Street

Lmax 80.4 dB

L2 73.5 dB Secondary Noise Sources: Overhead aircraft, propellor planes and higher altitude commercial jet aircraft

L8 70.2 dB Bird song.

L25 67.1 dB

L50 63.3 dB

NOISE METER: SoundTrack LxT Class 1 ; CALIBRATOR: Larson Davis CAL250 Acoustic Calibrator

MAKE: ; Larson Davis MAKE: Larson Davis

MODEL: LxT1 MODEL: Cal250

SERIAL NUMBER: 3099 SERIAL NUMBER: 2723

FACTORY CALIBRATION DATE: 6/23/2017 FACTORY CALIBRATION DATE: 6/9/2017

FIELD CALIBRATION DATE: 3/23/2018

Noise Measurement
Field Data

Additional Notes/Sketch



JN 18-0085 NM4 looking South down Alabama Street towards Orange Avenue.



JN 18-0085 NM4 looking West across Alabama Street towards residences.

Summary

File Name	LxT_Data.134
Serial Number	0003099
Model	SoundTrack LxT®
Firmware Version	2.301
User	Ian Edward Gallagher
Location	JN 18-0085 NM4
Job Description	10 minute noise sample
Start	2018-03-23 15:15:25
Stop	2018-03-23 15:25:25
Duration	0:10:00.0
Run Time	0:10:00.0
Pause	0:00:00.0
Pre Calibration	2018-03-23 15:15:08
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.6 dB

Results

LAeq	66.3 dB
LAE	94.1 dB
EA	284.340 $\mu\text{Pa}^2\text{h}$
EA8	13.648 mPa^2h
EA40	68.242 mPa^2h
LZpeak (max)	2018-03-23 15:22:01 97.8 dB
LASmax	2018-03-23 15:22:02 80.4 dB
LASmin	2018-03-23 15:22:48 45.0 dB
SEA	-99.9 dB

Statistics

LCeq	72.3 dB	LAS2.00	73.5 dB
LAeq	66.3 dB	LAS8.00	70.2 dB
LCeq - LAeq	6.0 dB	LAS25.00	67.1 dB
LAleq	67.4 dB	LAS50.00	63.3 dB
LAeq	66.3 dB	LAS66.60	60.9 dB
LAleq - LAeq	1.1 dB	LAS90.00	53.4 dB
# Overloads	0		

APPENDIX D
RCNM NOISE MODELING OUTPUT

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/24/2018

Case Description: SD Homes

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Demolition	Residential	65	65	45

Description	Impact	Device	Usage(%)	Equipment			
				Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No		20		89.6	50	0
Excavator	No		40		80.7	50	0
Excavator	No		40		80.7	25	0
Dozer	No		40		81.7	100	0
Dozer	No		40		81.7	200	0

Equipment	Calculated (dBA)		Results
	*Lmax	Leq	
Concrete Saw	89.6	82.6	
Excavator	80.7	76.7	
Excavator	86.7	82.8	
Dozer	75.6	71.7	
Dozer	69.6	65.6	
Total	89.6	86.4	

*Calculated Lmax is the Loudest value.

APPENDIX E
VIBRATION WORKSHEETS

GROUNDBORNE VIBRATION ANALYSIS			
Project:	SD Homes	Date:	3/8/19
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Project Site		
Address:			
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment =	1	Vibratory Roller	INPUT SECTION IN GREEN
Type			
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	25.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.21	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	SD Homes	Date:	3/8/19
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Project Site		
Address:			
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	2	Large Bulldozer	INPUT SECTION IN GREEN
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	15.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.2	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	SD Homes	Date:	3/8/19
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Project Site		
Address:			
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment =	1	Vibratory Roller	INPUT SECTION IN GREEN
Type			
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	10.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.8	IN/SEC	OUTPUT IN BLUE

GROUNDBORNE VIBRATION ANALYSIS			
Project:	SD Homes	Date:	3/8/19
Source:	Large Bulldozer		
Scenario:	Unmitigated		
Location:	Project Site		
Address:			
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment =	2	Large Bulldozer	INPUT SECTION IN GREEN
Type			
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	6.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.8	IN/SEC	OUTPUT IN BLUE

APPENDIX F

PROJECT-GENERATED TRAFFIC FHWA WORKSHEETS

Existing Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Iowa Street**
 Segment: **Orange Avenue to Barton Road**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
										DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	159.46	1.95	0.76	117.84	0.35	0.35	29.52	2.60	1.01	% A	97.4
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	0.74
ADJUSTMENTS											
Flow	16.28	-2.85	-6.95	14.97	-10.36	-10.34	8.95	-1.60	-5.70		
Distance	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	62.98
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	59.27
LEQ	58.26	48.85	49.97	56.94	41.34	46.57	50.93	50.10	51.22	Day hour	89.00
	DAY LEQ	59.27		EVENING LEQ	57.43		NIGHT LEQ	55.55		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	62.98								

Existing Plus Project Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Iowa Street**
 Segment: **Orange Avenue to Barton Road**

	DAYTIME			EVENING			NIGHTTIME			ADT	2829.95
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	35.00
										DISTANCE	32.00
INPUT PARAMETERS											
Vehicles per hour	173.56	2.12	0.83	128.27	0.38	0.38	32.13	2.83	1.10	% A	97.40
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	0.74
ADJUSTMENTS											
Flow	16.65	-2.48	-6.58	15.33	-9.99	-9.98	9.32	-1.23	-5.33		
Distance	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	63.35
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	59.64
LEQ	58.63	49.22	50.33	57.31	41.71	46.94	51.30	50.47	51.58	Day hour	89.00
	DAY LEQ	59.64		EVENING LEQ	57.80		NIGHT LEQ	55.91		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	63.35								

Existing Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Alabama Street**
 Segment: **North of Redlands Boulevard**

	DAYTIME			EVENING			NIGHTTIME			ADT	22300.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	35.00
										DISTANCE	55.00
INPUT PARAMETERS											
Vehicles per hour	1291.54	26.76	44.60	958.90	4.46	7.43	237.87	37.17	61.94	% A	92
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	5
ADJUSTMENTS											
Flow	25.36	8.53	10.75	24.07	0.75	2.97	18.02	9.96	12.17		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	74.44
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	68.55
LEQ	64.99	57.87	65.31	63.70	50.09	57.53	57.64	59.30	66.74	Day hour	89.00
	DAY LEQ	68.55		EVENING LEQ	64.79		NIGHT LEQ	67.89		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	74.44								

Existing Plus Project Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Alabama Street**
 Segment: **North of Redlands Boulevard**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
										DISTANCE	22749.91
INPUT PARAMETERS											
Vehicles per hour	1319.13	27.09	44.73	979.39	4.52	7.46	242.95	37.63	62.13	% A	92.11
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.98
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	4.92
ADJUSTMENTS											
Flow	25.46	8.58	10.76	24.16	0.80	2.98	18.11	10.01	12.19		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	74.48
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	68.60
LEQ	65.08	57.93	65.32	63.79	50.14	57.54	57.73	59.35	66.75	Day hour	89.00
										Absorbitive?	no
	DAY LEQ	68.60		EVENING LEQ	64.86		NIGHT LEQ	67.91		Use hour?	no
		CNEL	74.48							GRADE dB	0.00

Existing Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Alabama Street**
 Segment: **Redlands Boulevard to Park Avenue**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
										DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	990.38	20.52	34.20	735.30	3.42	5.70	182.40	28.50	47.50	% A	92
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	5
ADJUSTMENTS											
Flow	24.21	7.38	9.59	22.92	-0.41	1.81	16.86	8.80	11.02		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	73.29
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	67.40
LEQ	63.84	56.72	64.16	62.54	48.94	56.37	56.49	58.15	65.58	Day hour	89.00
	DAY LEQ	67.40		EVENING LEQ	63.63		NIGHT LEQ	66.73		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	73.29								

Existing Plus Project Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Alabama Street**
 Segment: **Redlands Boulevard to Park Avenue**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
	-----									DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	1059.66	21.35	34.53	786.74	3.56	5.76	195.16	29.66	47.96	% A	92.34
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.93
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	4.74
ADJUSTMENTS											
Flow	24.51	7.55	9.64	23.21	-0.23	1.85	17.16	8.97	11.06		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	73.39
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	67.56
LEQ	64.13	56.89	64.20	62.84	49.11	56.42	56.78	58.32	65.62	Day hour	89.00
										Absorbitive?	no
	DAY LEQ	67.56		EVENING LEQ	63.88		NIGHT LEQ	66.82		Use hour?	no
		CNEL	73.39							GRADE dB	0.00

Existing Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Alabama Street**
 Segment: **Park Avenue to Citrus Avenue/State Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	15400.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	55.00
INPUT PARAMETERS											
Vehicles per hour	891.92	18.48	30.80	662.20	3.08	5.13	164.27	25.67	42.78	% A	92
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	5
ADJUSTMENTS											
Flow	22.67	5.83	8.05	21.37	-1.95	0.27	15.32	7.26	9.47		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	74.37
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	69.07
LEQ	66.53	57.97	64.71	65.23	50.19	56.92	59.18	59.39	66.13	Day hour	89.00
	DAY LEQ	69.07		EVENING LEQ	65.95		NIGHT LEQ	67.64		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	74.37								

Existing Plus Project Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Alabama Street**
 Segment: **Park Avenue to Citrus Avenue/State Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
	-----									DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	961.20	19.31	31.13	713.64	3.22	5.19	177.03	26.82	43.24	% A	92.37
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.92
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	4.71
ADJUSTMENTS											
Flow	22.99	6.02	8.09	21.70	-1.76	0.31	15.64	7.45	9.52		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	74.50
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	69.29
LEQ	66.85	58.16	64.75	65.56	50.38	56.97	59.50	59.59	66.18	Day hour	89.00
										Absorbitive?	no
	DAY LEQ	69.29		EVENING LEQ	66.23		NIGHT LEQ	67.74		Use hour?	no
		CNEL	74.50							GRADE dB	0.00

Existing Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Alabama Street**
 Segment: **Citrus Avenue/State Street to Orange Avenue**

	DAYTIME			EVENING			NIGHTTIME			ADT	14900.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	55.00
INPUT PARAMETERS											
Vehicles per hour	862.96	17.88	29.80	640.70	2.98	4.97	158.93	24.83	41.39	% A	92
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	5
ADJUSTMENTS											
Flow	22.52	5.69	7.90	21.23	-2.10	0.12	15.17	7.11	9.33		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	74.23
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	68.93
LEQ	66.38	57.82	64.56	65.09	50.04	56.78	59.03	59.25	65.99	Day hour	89.00
	DAY LEQ	68.93		EVENING LEQ	65.80		NIGHT LEQ	67.49		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	74.23								

Existing Plus Project Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Alabama Street**
 Segment: **Citrus Avenue/State Street to Orange Avenue**

	DAYTIME			EVENING			NIGHTTIME			ADT	16029.77
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	55.00
INPUT PARAMETERS											
Vehicles per hour	932.25	18.71	30.13	692.14	3.12	5.02	171.69	25.99	41.85	% A	92.38
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.92
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	4.70
ADJUSTMENTS											
Flow	22.86	5.88	7.95	21.56	-1.90	0.17	15.51	7.31	9.38		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	74.37
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	69.15
LEQ	66.72	58.02	64.61	65.42	50.24	56.83	59.37	59.45	66.04	Day hour	89.00
	DAY LEQ	69.15		EVENING LEQ	66.10		NIGHT LEQ	67.60		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	74.37								

Existing Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Alabama Street**
 Segment: **Orange Avenue to Barton Road**

	DAYTIME			EVENING			NIGHTTIME			ADT	14900.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	55.00
INPUT PARAMETERS											
Vehicles per hour	862.96	17.88	29.80	640.70	2.98	4.97	158.93	24.83	41.39	% A	92
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	5
ADJUSTMENTS											
Flow	22.52	5.69	7.90	21.23	-2.10	0.12	15.17	7.11	9.33		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	74.23
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	68.93
LEQ	66.38	57.82	64.56	65.09	50.04	56.78	59.03	59.25	65.99	Day hour	89.00
	DAY LEQ	68.93		EVENING LEQ	65.80		NIGHT LEQ	67.49		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	74.23								

Existing Plus Project Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Alabama Street**
 Segment: **Orange Avenue to Barton Road**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
	-----									DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	890.55	18.21	29.93	661.19	3.04	4.99	164.02	25.29	41.57	% A	92.16
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.97
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	4.88
ADJUSTMENTS											
Flow	22.66	5.77	7.92	21.37	-2.02	0.14	15.31	7.19	9.35		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	74.28
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	69.02
LEQ	66.52	57.90	64.58	65.23	50.12	56.80	59.17	59.33	66.01	Day hour	89.00
	DAY LEQ	69.02		EVENING LEQ	65.92		NIGHT LEQ	67.54		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	74.28								

Existing Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Redlands Boulevard**
 Segment: **West of Alabama Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	20600.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	40.00
										DISTANCE	55.00
INPUT PARAMETERS											
Vehicles per hour	1193.08	24.72	41.20	885.80	4.12	6.87	219.73	34.33	57.22	% A	92
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16	% HT	5
ADJUSTMENTS											
Flow	24.44	7.60	9.82	23.15	-0.18	2.04	17.09	9.03	11.25		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	74.89
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	69.31
LEQ	66.32	58.43	65.50	65.02	50.65	57.72	58.97	59.86	66.92	Day hour	89.00
	DAY LEQ	69.31		EVENING LEQ	65.90		NIGHT LEQ	68.25		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	74.89								

Existing Plus Project Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Redlands Boulevard**
 Segment: **West of Alabama Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	20939.93
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	40.00
	-----									DISTANCE	55.00
INPUT PARAMETERS											
Vehicles per hour	1213.93	24.97	41.30	901.28	4.16	6.88	223.57	34.68	57.36	% A	92.09
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.98
NOISE CALCULATIONS											
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16	% HT	4.93
ADJUSTMENTS											
Flow	24.52	7.65	9.83	23.22	-0.13	2.05	17.17	9.07	11.26		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	74.92
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	69.35
LEQ	66.39	58.48	65.51	65.10	50.70	57.73	59.04	59.90	66.94	Day hour	89.00
	DAY LEQ	69.35		EVENING LEQ	65.96		NIGHT LEQ	68.27		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	74.92								

Existing Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Redlands Boulevard**
 Segment: **East of Alabama Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	18000.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	40.00
										DISTANCE	55.00
INPUT PARAMETERS											
Vehicles per hour	1042.50	21.60	36.00	774.00	3.60	6.00	192.00	30.00	50.00	% A	92
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16	% HT	5
ADJUSTMENTS											
Flow	23.85	7.02	9.24	22.56	-0.76	1.46	16.51	8.44	10.66		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	74.31
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	68.72
LEQ	65.73	57.85	64.91	64.44	50.07	57.13	58.38	59.27	66.34	Day hour	89.00
	DAY LEQ	68.72		EVENING LEQ	65.31		NIGHT LEQ	67.66		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	74.31								

Existing Plus Project Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Redlands Boulevard**
 Segment: **East of Alabama Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	18339.93
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	40.00
										DISTANCE	55.00
INPUT PARAMETERS											
Vehicles per hour	1063.35	21.85	36.10	789.48	3.64	6.02	195.84	30.35	50.14	% A	92.10
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.98
NOISE CALCULATIONS											
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16	% HT	4.92
ADJUSTMENTS											
Flow	23.94	7.07	9.25	22.65	-0.71	1.47	16.59	8.49	10.68		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	74.34
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	68.77
LEQ	65.82	57.90	64.92	64.52	50.12	57.14	58.47	59.32	66.35	Day hour	89.00
	DAY LEQ	68.77		EVENING LEQ	65.38		NIGHT LEQ	67.69		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	74.34								

Existing Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Orange Avenue**
 Segment: **West of Iowa Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
	-----									DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	208.52	2.55	0.99	154.10	0.45	0.45	38.60	3.40	1.32	% A	3400.00
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	0.74
ADJUSTMENTS											
Flow	17.44	-1.68	-5.78	16.13	-9.19	-9.18	10.12	-0.43	-4.53		
Distance	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	64.15
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	60.44
LEQ	59.42	50.01	51.13	58.11	42.51	47.74	52.10	51.26	52.38	Day hour	89.00
	DAY LEQ	60.44		EVENING LEQ	58.60		NIGHT LEQ	56.71		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	64.15								

Existing Plus Project Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Orange Avenue**
 Segment: **West of Iowa Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
	-----									DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	229.37	2.80	1.09	169.51	0.50	0.50	42.46	3.74	1.45	% A	3739.93
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	0.74
ADJUSTMENTS											
Flow	17.86	-1.27	-5.37	16.55	-8.78	-8.76	10.53	-0.02	-4.12		
Distance	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	64.56
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	60.85
LEQ	59.84	50.43	51.55	58.52	42.92	48.15	52.51	51.68	52.79	Day hour	89.00
	DAY LEQ	60.85		EVENING LEQ	59.01		NIGHT LEQ	57.12		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	64.56								

Existing Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Orange Avenue**
 Segment: **East of Iowa Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
										DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	220.79	2.70	1.05	163.16	0.48	0.48	40.87	3.60	1.40	% A	97.4
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	0.74
ADJUSTMENTS											
Flow	17.69	-1.43	-5.53	16.38	-8.94	-8.93	10.37	-0.18	-4.28		
Distance	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	64.39
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	60.68
LEQ	59.67	50.26	51.38	58.36	42.75	47.98	52.35	51.51	52.63	Day hour	89.00
	DAY LEQ	60.68		EVENING LEQ	58.85		NIGHT LEQ	56.96		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	64.39								

Existing Plus Project Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Orange Avenue**
 Segment: **East of Iowa treet**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
	-----									DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	255.13	3.12	1.21	188.55	0.55	0.56	47.23	4.16	1.62	% A	4159.89
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	0.74
ADJUSTMENTS											
Flow	18.32	-0.81	-4.91	17.01	-8.31	-8.30	11.00	0.44	-3.66		
Distance	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	65.02
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	61.31
LEQ	60.30	50.89	52.01	58.99	43.38	48.61	52.97	52.14	53.26	Day hour	89.00
	DAY LEQ	61.31		EVENING LEQ	59.47		NIGHT LEQ	57.59		Absorbitive?	no
										Use hour?	no
		CNEL	65.02							GRADE dB	0.00

Existing Traffic Noise

Project: **7221a SD Homes**
 Road: **Orange Avenue**
 Segment: **East of Alabama Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
										DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	251.45	3.07	1.20	185.83	0.55	0.55	46.55	4.10	1.59	% A	4100.00
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	0.74
ADJUSTMENTS											
Flow	18.26	-0.87	-4.97	16.94	-8.38	-8.37	10.93	0.38	-3.72		
Distance	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	64.96
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	61.25
LEQ	60.24	50.83	51.94	58.92	43.32	48.55	52.91	52.08	53.19	Day hour	89.00
	DAY LEQ	61.25		EVENING LEQ	59.41		NIGHT LEQ	57.52		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	64.96								

Existing Plus Project Traffic Noise

Project: **7221a SD Homes**
 Road: **Orange Avenue**
 Segment: **East of Alabama Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
	-----									DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	355.10	4.34	1.69	262.42	0.77	0.77	65.73	5.79	2.25	% A	5789.66
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	0.74
ADJUSTMENTS											
Flow	19.76	0.63	-3.47	18.44	-6.88	-6.87	12.43	1.88	-2.22		
Distance	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	66.46
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	62.75
LEQ	61.73	52.33	53.44	60.42	44.82	50.05	54.41	53.58	54.69	Day hour	89.00
										Absorbitive?	no
	DAY LEQ	62.75		EVENING LEQ	60.91		NIGHT LEQ	59.02		Use hour?	no
		CNEL	66.46							GRADE dB	0.00

Existing Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Orange Avenue**
 Segment: **East of Alabama Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
										DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	251.45	3.07	1.20	185.83	0.55	0.55	46.55	4.10	1.59	% A	4100.00
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	0.74
ADJUSTMENTS											
Flow	18.26	-0.87	-4.97	16.94	-8.38	-8.37	10.93	0.38	-3.72		
Distance	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	64.96
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	61.25
LEQ	60.24	50.83	51.94	58.92	43.32	48.55	52.91	52.08	53.19	Day hour	89.00
	DAY LEQ	61.25		EVENING LEQ	59.41		NIGHT LEQ	57.52		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	64.96								

Existing Plus Project Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Orange Avenue**
 Segment: **East of Alabama Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
	-----									DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	258.20	3.16	1.23	190.81	0.56	0.56	47.79	4.21	1.64	% A	4209.98
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		35.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	1.84
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	0.74
ADJUSTMENTS											
Flow	18.37	-0.75	-4.85	17.06	-8.26	-8.25	11.05	0.50	-3.61		
Distance	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	65.07
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	61.36
LEQ	60.35	50.94	52.06	59.04	43.43	48.66	53.03	52.19	53.31	Day hour	89.00
	DAY LEQ	61.36		EVENING LEQ	59.53		NIGHT LEQ	57.64		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	65.07								

Existing Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Barton Road**
 Segment: **West of Iowa Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	20600.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	55.00
INPUT PARAMETERS											
Vehicles per hour	1193.08	24.72	41.20	885.80	4.12	6.87	219.73	34.33	57.22	% A	92
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	5
ADJUSTMENTS											
Flow	23.93	7.09	9.31	22.64	-0.69	1.53	16.58	8.52	10.74		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	75.63
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	70.33
LEQ	67.79	59.23	65.97	66.50	51.45	58.19	60.44	60.66	67.40	Day hour	89.00
	DAY LEQ	70.33		EVENING LEQ	67.21		NIGHT LEQ	68.90		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	75.63								

Existing Plus Project Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Barton Road**
 Segment: **West of Iowa Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
	-----									DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	1213.93	24.97	41.30	901.28	4.16	6.88	223.57	34.68	57.36	% A	20939.93
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.98
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	4.93
ADJUSTMENTS											
Flow	24.00	7.14	9.32	22.71	-0.65	1.54	16.66	8.56	10.75		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	75.66
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	70.38
LEQ	67.86	59.27	65.98	66.57	51.49	58.20	60.52	60.70	67.41	Day hour	89.00
	DAY LEQ	70.38		EVENING LEQ	67.28		NIGHT LEQ	68.92		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	75.66								

Existing Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Barton Road**
 Segment: **Iowa Street to Alabama Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	20400.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	45.00
										DISTANCE	55.00
INPUT PARAMETERS											
Vehicles per hour	1181.50	24.48	40.80	877.20	4.08	6.80	217.60	34.00	56.67	% A	92
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	5
ADJUSTMENTS											
Flow	23.89	7.05	9.27	22.59	-0.73	1.49	16.54	8.48	10.70		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	75.59
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	70.29
LEQ	67.75	59.19	65.93	66.45	51.41	58.14	60.40	60.62	67.35	Day hour	89.00
	DAY LEQ	70.29		EVENING LEQ	67.17		NIGHT LEQ	68.86		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	75.59								

Existing Plus Project Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Barton Road**
 Segment: **Iowa Street to Alabama Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	
	-----									DISTANCE	
INPUT PARAMETERS											
Vehicles per hour	1188.24	24.56	40.83	882.21	4.09	6.81	218.84	34.11	56.71	% A	20509.98
Speed in MPH	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00		45.00
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.99
NOISE CALCULATIONS											
Reference levels	69.34	77.62	82.14	69.34	77.62	82.14	69.34	77.62	82.14	% HT	4.98
ADJUSTMENTS											
Flow	23.91	7.06	9.27	22.62	-0.72	1.49	16.56	8.49	10.70		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	75.60
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	70.31
LEQ	67.77	59.20	65.93	66.48	51.42	58.15	60.42	60.63	67.36	Day hour	89.00
	DAY LEQ	70.31		EVENING LEQ	67.19		NIGHT LEQ	68.86		Absorbitive?	no
										Use hour?	no
		CNEL	75.60							GRADE dB	0.00

Existing Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Barton Road**
 Segment: **East of Alabama Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	18500.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	40.00
										DISTANCE	55.00
INPUT PARAMETERS											
Vehicles per hour	1071.46	22.20	37.00	795.50	3.70	6.17	197.33	30.83	51.39	% A	92
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16	% HT	5
ADJUSTMENTS											
Flow	23.97	7.14	9.36	22.68	-0.64	1.57	16.63	8.56	10.78		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	74.43
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	68.84
LEQ	65.85	57.97	65.03	64.56	50.18	57.25	58.50	59.39	66.46	Day hour	89.00
	DAY LEQ	68.84		EVENING LEQ	65.43		NIGHT LEQ	67.78		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	74.43								

Existing Plus Project Traffic Noise

Project: **18-0085 SD Homes**
 Road: **Barton Road**
 Segment: **East of Alabama Street**

	DAYTIME			EVENING			NIGHTTIME			ADT	18839.93
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	40.00
	-----									DISTANCE	55.00
INPUT PARAMETERS											
Vehicles per hour	1092.31	22.45	37.10	810.98	3.74	6.18	201.17	31.18	51.53	% A	92.10
Speed in MPH	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.98
NOISE CALCULATIONS											
Reference levels	67.36	76.31	81.16	67.36	76.31	81.16	67.36	76.31	81.16	% HT	4.92
ADJUSTMENTS											
Flow	24.06	7.19	9.37	22.76	-0.60	1.59	16.71	8.61	10.79		
Distance	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	74.46
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	68.89
LEQ	65.93	58.01	65.04	64.64	50.23	57.26	58.59	59.44	66.47	Day hour	89.00
	DAY LEQ	68.89		EVENING LEQ	65.50		NIGHT LEQ	67.81		Absorbitive?	no
										Use hour?	no
										GRADE dB	0.00
		CNEL	74.46								

APPENDIX G
SOUNDPLAN INPUTS AND OUTPUTS

Noise emissions of road traffic

Station km	ADT Veh/24	Vehicles type	Traffic values					Control device	Constr Speed km/h	Affect. veh. %	Road surface	Gradien Min / M %
			Vehicle name	day Veh/h	evenin Veh/h	night Veh/h	Speed km/h					
N Alabama- Northbound Traffic direction: In entry direction												
0+000	10231	Total	-	608	433	150	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	576	428	106	72					
		Medium trucks	-	12	2	17	72					
		Heavy trucks	-	20	3	28	72					
		Buses	-	-	-	-	72					
		Motorcycles	-	-	-	-	72					
		Auxiliary vehicle	-	-	-	-	72					
0+288	10180	Total	-	605	431	150	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	573	426	106	72					
		Medium trucks	-	12	2	17	72					
		Heavy trucks	-	20	3	28	72					
		Buses	-	-	-	-	72					
		Motorcycles	-	-	-	-	72					
		Auxiliary vehicle	-	-	-	-	72					
0+401	-							-	-	-		-
N Alabama- Southbound Traffic direction: In entry direction												
0+288	10231	Total	-	608	433	150	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	576	428	106	72					
		Medium trucks	-	12	2	17	72					
		Heavy trucks	-	20	3	28	72					
		Buses	-	-	-	-	72					
		Motorcycles	-	-	-	-	72					
		Auxiliary vehicle	-	-	-	-	72					
0+516	10180	Total	-	605	431	150	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	573	426	106	72					
		Medium trucks	-	12	2	17	72					
		Heavy trucks	-	20	3	28	72					
		Buses	-	-	-	-	72					
		Motorcycles	-	-	-	-	72					
		Auxiliary vehicle	-	-	-	-	72					
0+689	-							-	-	-		-
N Alabama- Southbound1 Traffic direction: In entry direction												
0+288	8432	Total	-	501	357	124	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	475	353	87	72					
		Medium trucks	-	10	2	14	72					
		Heavy trucks	-	16	3	23	72					
		Buses	-	-	-	-	72					
		Motorcycles	-	-	-	-	72					
		Auxiliary vehicle	-	-	-	-	72					
0+780	-							-	-	-		-
N Alabama- Northbound1 Traffic direction: In entry direction												
0+288	8432	Total	-	501	357	124	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	475	353	87	72					
		Medium trucks	-	10	2	14	72					
		Heavy trucks	-	16	3	23	72					
		Buses	-	-	-	-	72					
		Motorcycles	-	-	-	-	72					
		Auxiliary vehicle	-	-	-	-	72					
0+620	8381	Total	-	498	355	123	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	472	350	87	72					
		Medium trucks	-	10	2	14	72					
		Heavy trucks	-	16	3	23	72					
		Buses	-	-	-	-	72					
		Motorcycles	-	-	-	-	72					
		Auxiliary vehicle	-	-	-	-	72					
0+780	-							-	-	-		-

Noise emissions of road traffic

Station km	ADT Veh/24h	Vehicles type	Traffic values					Control device	Const Speed km/h	Affect. veh. %	Road surface	Gradient Min / Max %
			Vehicle name	day Veh/h	evenin Veh/h	night Veh/h	Speed km/h					
Iowa St -Northbound Traffic direction: In entry direction												
0+288	1807	Total	-	109	80	22	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	107	79	20	48					
		Medium trucks	-	1	0	2	48					
		Heavy trucks	-	1	0	1	48					
		Buses	-	-	-	-	48					
		Motorcycles	-	-	-	-	48					
		Auxiliary vehicle	-	-	-	-	48					
0+847	1807	Total	-	109	80	22	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	107	79	20	72					
		Medium trucks	-	1	0	2	72					
		Heavy trucks	-	1	0	1	72					
		Buses	-	-	-	-	72					
		Motorcycles	-	-	-	-	72					
		Auxiliary vehicle	-	-	-	-	72					
0+868	1807	Total	-	109	80	22	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	107	79	20	48					
		Medium trucks	-	1	0	2	48					
		Heavy trucks	-	1	0	1	48					
		Buses	-	-	-	-	48					
		Motorcycles	-	-	-	-	48					
		Auxiliary vehicle	-	-	-	-	48					
1+269	-							-	-	-		-
Iowa Street Southbound Traffic direction: In entry direction												
0+288	1807	Total	-	109	80	22	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	107	79	20	72					
		Medium trucks	-	1	0	2	48					
		Heavy trucks	-	1	0	1	48					
		Buses	-	-	-	-	48					
		Motorcycles	-	-	-	-	48					
		Auxiliary vehicle	-	-	-	-	48					
0+542	1807	Total	-	109	80	22	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	107	79	20	48					
		Medium trucks	-	1	0	2	48					
		Heavy trucks	-	1	0	1	48					
		Buses	-	-	-	-	48					
		Motorcycles	-	-	-	-	48					
		Auxiliary vehicle	-	-	-	-	48					
1+267	-							-	-	-		-
Orange Ave Eastbound Traffic direction: In entry direction												
0+712	4131	Total	-	250	182	51	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	245	181	45	48					
		Medium trucks	-	3	1	4	48					
		Heavy trucks	-	1	1	2	48					
		Buses	-	-	-	-	48					
		Motorcycles	-	-	-	-	48					
		Auxiliary vehicle	-	-	-	-	48					
1+099	-							-	-	-		-
Orange Ave Eastbound1 Traffic direction: In entry direction												
0+712	4131	Total	-	250	182	51	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	245	181	45	48					
		Medium trucks	-	3	1	4	48					
		Heavy trucks	-	1	1	2	48					
		Buses	-	-	-	-	48					
		Motorcycles	-	-	-	-	48					
		Auxiliary vehicle	-	-	-	-	48					
1+105	-							-	-	-		-

Noise emissions of road traffic

Station km	ADT Veh/24h	Vehicles type	Traffic values					Control device	Constr Speed km/h	Affect. veh. %	Road surface	Gradient Min / Max %
			Vehicle name	day Veh/h	evenin Veh/h	night Veh/h	Speed km/h					
Orange Ave Eastbound 2 Traffic direction: In entry direction												
0+712	4131	Total	-	250	182	51	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	245	181	45	48					
		Medium trucks	-	3	1	4	48					
		Heavy trucks	-	1	1	2	48					
		Buses	-	-	-	-	48					
		Motorcycles	-	-	-	-	48					
		Auxiliary vehicle	-	-	-	-	48					
1+225	-							-	-	-		-
Orange Ave Westbound Traffic direction: In entry direction												
0+712	4131	Total	-	250	182	51	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	245	181	45	48					
		Medium trucks	-	3	1	4	48					
		Heavy trucks	-	1	1	2	48					
		Buses	-	-	-	-	48					
		Motorcycles	-	-	-	-	48					
		Auxiliary vehicle	-	-	-	-	48					
1+225	-							-	-	-		-
Orange Ave Westbound1 Traffic direction: In entry direction												
0+712	4131	Total	-	250	182	51	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	245	181	45	48					
		Medium trucks	-	3	1	4	48					
		Heavy trucks	-	1	1	2	48					
		Buses	-	-	-	-	48					
		Motorcycles	-	-	-	-	48					
		Auxiliary vehicle	-	-	-	-	48					
1+105	-							-	-	-		-
Orange Ave Westbound2 Traffic direction: In entry direction												
0+712	4082	Total	-	247	180	50	-	none	-	-	Average (of DGAC and PCC)	0.0
		Automobiles	-	242	179	45	48					
		Medium trucks	-	3	1	4	48					
		Heavy trucks	-	1	1	2	48					
		Buses	-	-	-	-	48					
		Motorcycles	-	-	-	-	48					
		Auxiliary vehicle	-	-	-	-	48					
1+097	-							-	-	-		-

Receiver list

No.	Receiver name	Building side	Floor	Limit Lden dB(A)	Level w/o NP Lden dB(A)	Level w NP Lden dB(A)	Difference Lden dB	Conflict Lden dB
1	1	West	GF	-	52.4	52.4	0.0	-
			1.FI	-	55.0	55.0	0.0	-
			2.FI	-	56.0	56.0	0.0	-
2	2	North	GF	-	44.1	44.0	-0.1	-
			1.FI	-	46.5	46.5	0.0	-
			2.FI	-	47.9	47.9	0.0	-
3	3	North	GF	-	60.6	60.6	0.0	-
			1.FI	-	62.8	62.8	0.0	-
			2.FI	-	64.4	64.4	0.0	-
4	4	East	GF	-	68.3	65.5	-2.7	-
			1.FI	-	70.7	70.7	0.0	-
			2.FI	-	70.9	70.9	0.0	-
5	5	East	GF	-	68.0	67.8	-0.2	-
			1.FI	-	70.5	70.5	0.0	-
			2.FI	-	70.7	70.7	0.0	-
6	6	South	GF	-	66.4	66.4	0.0	-
			1.FI	-	68.8	68.8	0.0	-
			2.FI	-	69.0	69.0	0.0	-
7	7	South	GF	-	60.2	60.2	0.0	-
			1.FI	-	62.3	62.3	0.0	-
			2.FI	-	62.7	62.7	0.0	-
8	8	South	GF	-	58.3	58.3	0.0	-
			1.FI	-	60.7	60.7	0.0	-
			2.FI	-	61.0	60.9	0.0	-
9	9	South	GF	-	57.6	57.6	0.0	-
			1.FI	-	60.2	60.2	0.0	-
			2.FI	-	60.4	60.4	0.0	-
10	10	North	GF	-	58.2	58.2	0.0	-
			1.FI	-	60.7	60.7	0.0	-
			2.FI	-	61.0	61.0	0.0	-
11	11	North	GF	-	65.2	65.1	0.0	-
			1.FI	-	67.5	67.5	0.0	-
			2.FI	-	67.9	67.9	0.0	-
12	12	East	GF	-	66.8	66.8	0.0	-
			1.FI	-	69.2	69.2	0.0	-
			2.FI	-	69.6	69.6	0.0	-
13	Park 1	-	GF	-	55.9	0.0	-55.9	-
14	Park 2	-	GF	-	51.6	0.0	-51.6	-
15	Pool	-	GF	-	54.5	54.5	0.0	-

Contribution levels of the receivers

Source name	Traffic lane	Level w/o NP Lden dB(A)	Level w NP Lden dB(A)
1 GF		52.4	52.4
Iowa St -Northbound	-	42.1	42.0
Iowa Street Southbound	-	41.3	41.3
N Alabama- Northbound	-	17.7	17.6
N Alabama- Northbound1	-	17.5	18.2
N Alabama- Southbound	-	17.6	17.6
N Alabama- Southbound1	-	17.5	18.2
Orange Ave Eastbound	-	39.5	39.4
Orange Ave Eastbound1	-	48.0	48.0
Orange Ave Eastbound 2	-	7.9	7.9
Orange Ave Westbound	-	7.2	7.1
Orange Ave Westbound1	-	48.2	48.2
Orange Ave Westbound2	-	38.6	38.6
1 1.FI		55.0	55.0
Iowa St -Northbound	-	44.0	44.0
Iowa Street Southbound	-	43.2	43.2
N Alabama- Northbound	-	22.2	22.2
N Alabama- Northbound1	-	21.9	22.4
N Alabama- Southbound	-	22.0	22.0
N Alabama- Southbound1	-	21.9	22.3
Orange Ave Eastbound	-	41.4	41.4
Orange Ave Eastbound1	-	50.8	50.8
Orange Ave Eastbound 2	-	11.5	11.5
Orange Ave Westbound	-	11.5	11.4
Orange Ave Westbound1	-	50.8	50.8
Orange Ave Westbound2	-	40.6	40.6
1 2.FI		56.0	56.0
Iowa St -Northbound	-	45.1	45.1
Iowa Street Southbound	-	44.5	44.5
N Alabama- Northbound	-	27.6	27.6
N Alabama- Northbound1	-	27.1	27.6
N Alabama- Southbound	-	27.4	27.4
N Alabama- Southbound1	-	27.1	27.6
Orange Ave Eastbound	-	43.1	43.1
Orange Ave Eastbound1	-	51.8	51.8
Orange Ave Eastbound 2	-	17.2	17.1
Orange Ave Westbound	-	17.2	17.2
Orange Ave Westbound1	-	51.8	51.8
Orange Ave Westbound2	-	42.0	42.0
2 GF		44.1	44.0
Iowa St -Northbound	-	36.7	36.7
Iowa Street Southbound	-	37.4	37.3
N Alabama- Northbound	-	38.8	38.7
N Alabama- Northbound1	-	15.9	16.3
N Alabama- Southbound	-	38.9	38.8
N Alabama- Southbound1	-	15.8	16.2
Orange Ave Eastbound	-	14.6	14.5
Orange Ave Eastbound1	-	18.1	18.0
Orange Ave Eastbound 2	-	14.8	14.7
Orange Ave Westbound	-	14.9	14.8
Orange Ave Westbound1	-	17.8	17.8
Orange Ave Westbound2	-	14.7	14.6
2 1.FI		46.5	46.5
Iowa St -Northbound	-	38.5	38.5
Iowa Street Southbound	-	39.6	39.6
N Alabama- Northbound	-	41.2	41.2
N Alabama- Northbound1	-	22.2	22.8
N Alabama- Southbound	-	41.4	41.4
N Alabama- Southbound1	-	22.0	22.7
Orange Ave Eastbound	-	20.3	20.3
Orange Ave Eastbound1	-	22.8	22.7
Orange Ave Eastbound 2	-	18.9	18.8

Contribution levels of the receivers

Source name	Traffic lane	Level w/o NP Lden dB(A)	Level w NP Lden dB(A)
Orange Ave Westbound	-	18.8	18.7
Orange Ave Westbound1	-	22.8	22.8
Orange Ave Westbound2	-	20.3	20.2
2	2.FI	47.9	47.9
Iowa St -Northbound	-	39.7	39.7
Iowa Street Southbound	-	41.0	41.0
N Alabama- Northbound	-	42.5	42.5
N Alabama- Northbound1	-	27.7	28.4
N Alabama- Southbound	-	42.7	42.7
N Alabama- Southbound1	-	27.6	28.3
Orange Ave Eastbound	-	25.6	26.4
Orange Ave Eastbound1	-	27.0	27.0
Orange Ave Eastbound 2	-	21.5	21.5
Orange Ave Westbound	-	21.0	21.0
Orange Ave Westbound1	-	27.0	27.0
Orange Ave Westbound2	-	25.5	26.3
3	GF	60.6	60.6
Iowa St -Northbound	-	25.2	25.1
Iowa Street Southbound	-	26.6	26.5
N Alabama- Northbound	-	57.5	57.5
N Alabama- Northbound1	-	20.9	20.9
N Alabama- Southbound	-	57.7	57.7
N Alabama- Southbound1	-	19.3	19.3
Orange Ave Eastbound	-	6.2	6.1
Orange Ave Eastbound1	-	12.4	12.5
Orange Ave Eastbound 2	-	14.2	14.1
Orange Ave Westbound	-	14.2	14.1
Orange Ave Westbound1	-	12.3	12.4
Orange Ave Westbound2	-	5.8	5.7
3	1.FI	62.8	62.8
Iowa St -Northbound	-	26.5	26.5
Iowa Street Southbound	-	28.2	28.2
N Alabama- Northbound	-	59.9	59.9
N Alabama- Northbound1	-	24.1	24.0
N Alabama- Southbound	-	59.8	59.8
N Alabama- Southbound1	-	23.5	23.4
Orange Ave Eastbound	-	10.4	10.4
Orange Ave Eastbound1	-	17.5	17.6
Orange Ave Eastbound 2	-	17.4	17.3
Orange Ave Westbound	-	17.4	17.4
Orange Ave Westbound1	-	17.4	17.5
Orange Ave Westbound2	-	10.2	10.1
3	2.FI	64.4	64.4
Iowa St -Northbound	-	27.8	27.8
Iowa Street Southbound	-	29.9	29.9
N Alabama- Northbound	-	61.4	61.4
N Alabama- Northbound1	-	29.2	29.1
N Alabama- Southbound	-	61.3	61.3
N Alabama- Southbound1	-	28.9	28.9
Orange Ave Eastbound	-	15.9	15.9
Orange Ave Eastbound1	-	23.3	23.4
Orange Ave Eastbound 2	-	22.7	22.7
Orange Ave Westbound	-	22.8	22.7
Orange Ave Westbound1	-	23.2	23.3
Orange Ave Westbound2	-	15.7	15.6
4	GF	68.3	65.5
Iowa St -Northbound	-	7.9	7.9
Iowa Street Southbound	-	8.4	8.3
N Alabama- Northbound	-	64.9	61.8
N Alabama- Northbound1	-	49.4	48.7
N Alabama- Southbound	-	65.3	62.9
N Alabama- Southbound1	-	47.5	47.4

Contribution levels of the receivers

Source name	Traffic lane	Level w/o NP Lden dB(A)	Level w NP Lden dB(A)
Orange Ave Eastbound	-	6.6	6.6
Orange Ave Eastbound1	-	30.0	29.9
Orange Ave Eastbound 2	-	39.1	36.4
Orange Ave Westbound	-	39.0	36.4
Orange Ave Westbound1	-	29.9	29.8
Orange Ave Westbound2	-	6.6	6.3
4	1.FI	70.7	70.7
Iowa St -Northbound	-	12.4	12.4
Iowa Street Southbound	-	12.7	12.7
N Alabama- Northbound	-	67.3	67.3
N Alabama- Northbound1	-	50.9	50.8
N Alabama- Southbound	-	67.9	67.8
N Alabama- Southbound1	-	49.3	49.3
Orange Ave Eastbound	-	11.1	11.0
Orange Ave Eastbound1	-	32.0	31.9
Orange Ave Eastbound 2	-	40.5	40.4
Orange Ave Westbound	-	40.3	40.3
Orange Ave Westbound1	-	31.8	31.7
Orange Ave Westbound2	-	10.8	10.8
4	2.FI	70.9	70.9
Iowa St -Northbound	-	17.7	17.7
Iowa Street Southbound	-	18.0	17.9
N Alabama- Northbound	-	67.4	67.4
N Alabama- Northbound1	-	52.3	52.3
N Alabama- Southbound	-	68.1	68.1
N Alabama- Southbound1	-	50.8	50.8
Orange Ave Eastbound	-	16.5	16.4
Orange Ave Eastbound1	-	33.4	33.3
Orange Ave Eastbound 2	-	41.1	41.2
Orange Ave Westbound	-	41.0	41.0
Orange Ave Westbound1	-	33.1	33.0
Orange Ave Westbound2	-	16.2	16.2
5	GF	68.0	67.8
Iowa St -Northbound	-	7.0	7.0
Iowa Street Southbound	-	7.0	7.0
N Alabama- Northbound	-	64.4	64.2
N Alabama- Northbound1	-	53.5	53.4
N Alabama- Southbound	-	65.0	64.8
N Alabama- Southbound1	-	52.1	52.1
Orange Ave Eastbound	-	7.1	7.1
Orange Ave Eastbound1	-	36.9	36.9
Orange Ave Eastbound 2	-	43.3	43.3
Orange Ave Westbound	-	43.1	43.0
Orange Ave Westbound1	-	36.9	36.9
Orange Ave Westbound2	-	6.7	6.6
5	1.FI	70.5	70.5
Iowa St -Northbound	-	11.7	11.7
Iowa Street Southbound	-	11.7	11.8
N Alabama- Northbound	-	66.8	66.7
N Alabama- Northbound1	-	55.3	55.3
N Alabama- Southbound	-	67.6	67.6
N Alabama- Southbound1	-	54.1	54.1
Orange Ave Eastbound	-	11.4	11.4
Orange Ave Eastbound1	-	39.0	39.0
Orange Ave Eastbound 2	-	44.5	44.5
Orange Ave Westbound	-	44.3	44.3
Orange Ave Westbound1	-	38.7	38.7
Orange Ave Westbound2	-	11.1	11.1
5	2.FI	70.7	70.7
Iowa St -Northbound	-	17.5	17.5
Iowa Street Southbound	-	17.6	17.6
N Alabama- Northbound	-	66.9	66.9

Contribution levels of the receivers

Source name	Traffic lane	Level w/o NP	Level w NP
		Lden dB(A)	Lden dB(A)
N Alabama- Northbound1	-	56.3	56.3
N Alabama- Southbound	-	67.7	67.7
N Alabama- Southbound1	-	55.6	55.6
Orange Ave Eastbound	-	16.8	16.8
Orange Ave Eastbound1	-	40.9	40.9
Orange Ave Eastbound 2	-	45.4	45.4
Orange Ave Westbound	-	45.0	45.0
Orange Ave Westbound1	-	40.2	40.2
Orange Ave Westbound2	-	16.5	16.5
6	GF	66.4	66.4
Iowa St -Northbound	-	17.7	17.4
Iowa Street Southbound	-	18.1	17.8
N Alabama- Northbound	-	60.8	60.8
N Alabama- Northbound1	-	57.9	57.9
N Alabama- Southbound	-	61.7	61.7
N Alabama- Southbound1	-	57.7	57.7
Orange Ave Eastbound	-	10.6	10.6
Orange Ave Eastbound1	-	52.2	52.2
Orange Ave Eastbound 2	-	48.5	48.5
Orange Ave Westbound	-	48.0	48.0
Orange Ave Westbound1	-	52.4	52.4
Orange Ave Westbound2	-	9.6	9.6
6	1.FI	68.8	68.8
Iowa St -Northbound	-	18.6	18.6
Iowa Street Southbound	-	18.9	18.8
N Alabama- Northbound	-	63.3	63.3
N Alabama- Northbound1	-	59.5	59.5
N Alabama- Southbound	-	64.5	64.5
N Alabama- Southbound1	-	59.6	59.6
Orange Ave Eastbound	-	16.3	16.2
Orange Ave Eastbound1	-	54.9	54.9
Orange Ave Eastbound 2	-	49.8	49.8
Orange Ave Westbound	-	49.4	49.4
Orange Ave Westbound1	-	55.2	55.1
Orange Ave Westbound2	-	15.5	15.4
6	2.FI	69.0	69.0
Iowa St -Northbound	-	20.0	20.7
Iowa Street Southbound	-	20.5	21.4
N Alabama- Northbound	-	63.5	63.5
N Alabama- Northbound1	-	60.2	60.2
N Alabama- Southbound	-	64.3	64.3
N Alabama- Southbound1	-	60.5	60.5
Orange Ave Eastbound	-	16.2	16.3
Orange Ave Eastbound1	-	54.9	54.9
Orange Ave Eastbound 2	-	50.7	50.7
Orange Ave Westbound	-	50.5	50.5
Orange Ave Westbound1	-	55.2	55.2
Orange Ave Westbound2	-	14.9	15.0
7	GF	60.2	60.2
Iowa St -Northbound	-	26.8	27.1
Iowa Street Southbound	-	26.3	26.6
N Alabama- Northbound	-	49.0	49.0
N Alabama- Northbound1	-	50.2	50.2
N Alabama- Southbound	-	49.3	49.3
N Alabama- Southbound1	-	50.3	50.3
Orange Ave Eastbound	-	30.8	30.7
Orange Ave Eastbound1	-	55.0	55.0
Orange Ave Eastbound 2	-	41.5	41.4
Orange Ave Westbound	-	40.3	40.3
Orange Ave Westbound1	-	55.2	55.2
Orange Ave Westbound2	-	29.2	29.1

Contribution levels of the receivers

Source name	Traffic lane	Level w/o NP Lden dB(A)	Level w NP Lden dB(A)
7 1.FI		62.3	62.3
Iowa St -Northbound	-	27.9	28.5
Iowa Street Southbound	-	27.3	27.8
N Alabama- Northbound	-	50.6	50.6
N Alabama- Northbound1	-	51.7	51.7
N Alabama- Southbound	-	50.5	50.5
N Alabama- Southbound1	-	51.8	51.8
Orange Ave Eastbound	-	31.7	31.7
Orange Ave Eastbound1	-	57.4	57.4
Orange Ave Eastbound 2	-	43.2	43.2
Orange Ave Westbound	-	42.2	42.2
Orange Ave Westbound1	-	57.7	57.7
Orange Ave Westbound2	-	30.3	30.3
7 2.FI		62.7	62.7
Iowa St -Northbound	-	29.1	29.8
Iowa Street Southbound	-	28.5	29.2
N Alabama- Northbound	-	52.0	52.0
N Alabama- Northbound1	-	52.6	52.6
N Alabama- Southbound	-	51.6	51.6
N Alabama- Southbound1	-	52.6	52.6
Orange Ave Eastbound	-	33.0	33.0
Orange Ave Eastbound1	-	57.3	57.3
Orange Ave Eastbound 2	-	44.5	44.5
Orange Ave Westbound	-	43.7	43.7
Orange Ave Westbound1	-	57.9	57.9
Orange Ave Westbound2	-	31.5	31.5
8 GF		58.3	58.3
Iowa St -Northbound	-	32.4	32.6
Iowa Street Southbound	-	31.8	31.6
N Alabama- Northbound	-	39.2	39.0
N Alabama- Northbound1	-	42.0	41.9
N Alabama- Southbound	-	39.4	39.3
N Alabama- Southbound1	-	42.1	41.9
Orange Ave Eastbound	-	33.7	33.6
Orange Ave Eastbound1	-	54.8	54.7
Orange Ave Eastbound 2	-	36.3	36.2
Orange Ave Westbound	-	35.0	34.8
Orange Ave Westbound1	-	54.9	54.9
Orange Ave Westbound2	-	32.4	32.2
8 1.FI		60.7	60.7
Iowa St -Northbound	-	33.8	34.1
Iowa Street Southbound	-	33.1	33.1
N Alabama- Northbound	-	40.6	40.6
N Alabama- Northbound1	-	43.3	43.3
N Alabama- Southbound	-	40.8	40.8
N Alabama- Southbound1	-	43.4	43.3
Orange Ave Eastbound	-	34.9	34.9
Orange Ave Eastbound1	-	57.3	57.2
Orange Ave Eastbound 2	-	37.5	37.4
Orange Ave Westbound	-	36.3	36.3
Orange Ave Westbound1	-	57.5	57.5
Orange Ave Westbound2	-	33.7	33.7
8 2.FI		61.0	60.9
Iowa St -Northbound	-	34.9	35.4
Iowa Street Southbound	-	34.3	34.3
N Alabama- Northbound	-	41.9	41.9
N Alabama- Northbound1	-	44.3	44.3
N Alabama- Southbound	-	41.9	42.0
N Alabama- Southbound1	-	44.4	44.3
Orange Ave Eastbound	-	36.5	36.5
Orange Ave Eastbound1	-	57.3	57.2
Orange Ave Eastbound 2	-	39.0	39.0

Contribution levels of the receivers

Source name	Traffic lane	Level w/o NP Lden dB(A)	Level w NP Lden dB(A)
Orange Ave Westbound	-	37.7	37.7
Orange Ave Westbound1	-	57.8	57.8
Orange Ave Westbound2	-	35.1	35.1
9	GF	57.6	57.6
Iowa St -Northbound	-	36.1	36.1
Iowa Street Southbound	-	35.2	35.1
N Alabama- Northbound	-	34.3	34.7
N Alabama- Northbound1	-	39.4	37.9
N Alabama- Southbound	-	34.5	34.9
N Alabama- Southbound1	-	39.6	38.2
Orange Ave Eastbound	-	37.0	36.9
Orange Ave Eastbound1	-	54.2	54.2
Orange Ave Eastbound 2	-	33.7	33.6
Orange Ave Westbound	-	32.8	32.6
Orange Ave Westbound1	-	54.4	54.4
Orange Ave Westbound2	-	35.6	35.5
9	1.FI	60.2	60.2
Iowa St -Northbound	-	37.8	37.9
Iowa Street Southbound	-	36.7	36.7
N Alabama- Northbound	-	36.4	36.8
N Alabama- Northbound1	-	41.2	39.3
N Alabama- Southbound	-	36.6	37.0
N Alabama- Southbound1	-	41.4	39.5
Orange Ave Eastbound	-	38.6	38.6
Orange Ave Eastbound1	-	56.8	56.8
Orange Ave Eastbound 2	-	34.6	34.6
Orange Ave Westbound	-	33.8	33.8
Orange Ave Westbound1	-	57.1	57.1
Orange Ave Westbound2	-	37.3	37.3
9	2.FI	60.4	60.4
Iowa St -Northbound	-	38.8	38.9
Iowa Street Southbound	-	37.7	37.7
N Alabama- Northbound	-	37.9	38.3
N Alabama- Northbound1	-	42.3	40.4
N Alabama- Southbound	-	38.0	38.3
N Alabama- Southbound1	-	42.5	40.5
Orange Ave Eastbound	-	40.3	40.3
Orange Ave Eastbound1	-	56.8	56.8
Orange Ave Eastbound 2	-	35.9	35.9
Orange Ave Westbound	-	34.9	35.0
Orange Ave Westbound1	-	57.3	57.3
Orange Ave Westbound2	-	38.9	38.9
10	GF	58.2	58.2
Iowa St -Northbound	-	31.2	31.1
Iowa Street Southbound	-	29.6	29.6
N Alabama- Northbound	-	43.6	43.5
N Alabama- Northbound1	-	41.2	41.3
N Alabama- Southbound	-	43.6	43.6
N Alabama- Southbound1	-	41.2	41.3
Orange Ave Eastbound	-	32.9	32.8
Orange Ave Eastbound1	-	54.7	54.7
Orange Ave Eastbound 2	-	34.9	34.8
Orange Ave Westbound	-	36.2	36.1
Orange Ave Westbound1	-	54.5	54.5
Orange Ave Westbound2	-	33.8	33.7
10	1.FI	60.7	60.7
Iowa St -Northbound	-	32.5	32.5
Iowa Street Southbound	-	30.8	30.9
N Alabama- Northbound	-	45.1	45.1
N Alabama- Northbound1	-	42.7	42.8
N Alabama- Southbound	-	45.1	45.2
N Alabama- Southbound1	-	42.6	42.8

Contribution levels of the receivers

Source name	Traffic lane	Level w/o NP Lden dB(A)	Level w NP Lden dB(A)
Orange Ave Eastbound	-	34.1	34.1
Orange Ave Eastbound1	-	57.3	57.3
Orange Ave Eastbound 2	-	36.4	36.4
Orange Ave Westbound	-	37.6	37.5
Orange Ave Westbound1	-	57.1	57.1
Orange Ave Westbound2	-	34.8	34.8
10 2.FI		61.0	61.0
Iowa St -Northbound	-	33.9	33.9
Iowa Street Southbound	-	32.0	32.1
N Alabama- Northbound	-	46.0	46.1
N Alabama- Northbound1	-	43.8	44.0
N Alabama- Southbound	-	45.9	45.9
N Alabama- Southbound1	-	43.6	44.0
Orange Ave Eastbound	-	35.4	35.4
Orange Ave Eastbound1	-	57.6	57.6
Orange Ave Eastbound 2	-	38.0	38.0
Orange Ave Westbound	-	39.2	39.2
Orange Ave Westbound1	-	57.2	57.2
Orange Ave Westbound2	-	36.3	36.3
11 GF		65.2	65.1
Iowa St -Northbound	-	17.5	17.4
Iowa Street Southbound	-	18.2	18.1
N Alabama- Northbound	-	58.2	58.1
N Alabama- Northbound1	-	58.4	58.4
N Alabama- Southbound	-	57.8	57.7
N Alabama- Southbound1	-	59.5	59.5
Orange Ave Eastbound	-	9.7	9.7
Orange Ave Eastbound1	-	52.1	52.0
Orange Ave Eastbound 2	-	47.8	47.8
Orange Ave Westbound	-	48.1	48.1
Orange Ave Westbound1	-	51.7	51.7
Orange Ave Westbound2	-	10.1	10.1
11 1.FI		67.5	67.5
Iowa St -Northbound	-	18.8	19.0
Iowa Street Southbound	-	19.1	19.3
N Alabama- Northbound	-	59.8	59.7
N Alabama- Northbound1	-	60.9	60.9
N Alabama- Southbound	-	59.6	59.6
N Alabama- Southbound1	-	62.4	62.4
Orange Ave Eastbound	-	16.1	16.1
Orange Ave Eastbound1	-	54.9	54.8
Orange Ave Eastbound 2	-	49.3	49.3
Orange Ave Westbound	-	49.5	49.5
Orange Ave Westbound1	-	54.4	54.4
Orange Ave Westbound2	-	16.3	16.2
11 2.FI		67.9	67.9
Iowa St -Northbound	-	20.7	21.8
Iowa Street Southbound	-	20.9	22.0
N Alabama- Northbound	-	60.6	60.6
N Alabama- Northbound1	-	61.3	61.3
N Alabama- Southbound	-	60.7	60.7
N Alabama- Southbound1	-	62.4	62.4
Orange Ave Eastbound	-	16.0	16.0
Orange Ave Eastbound1	-	55.0	54.9
Orange Ave Eastbound 2	-	50.4	50.4
Orange Ave Westbound	-	50.5	50.5
Orange Ave Westbound1	-	54.5	54.4
Orange Ave Westbound2	-	16.7	16.7
12 GF		66.8	66.8
Iowa St -Northbound	-	7.9	8.4
Iowa Street Southbound	-	8.0	8.2
N Alabama- Northbound	-	51.3	51.3

Contribution levels of the receivers

Source name	Traffic lane	Level w/o NP Lden dB(A)	Level w NP Lden dB(A)
N Alabama- Northbound1	-	63.1	63.1
N Alabama- Southbound	-	48.8	48.8
N Alabama- Southbound1	-	63.9	63.9
Orange Ave Eastbound	-	3.4	4.9
Orange Ave Eastbound1	-	31.5	31.5
Orange Ave Eastbound 2	-	42.0	42.0
Orange Ave Westbound	-	42.0	42.0
Orange Ave Westbound1	-	29.3	29.2
Orange Ave Westbound2	-	3.7	5.2
12	1.FI	69.2	69.2
Iowa St -Northbound	-	12.5	13.1
Iowa Street Southbound	-	12.6	12.9
N Alabama- Northbound	-	53.4	53.4
N Alabama- Northbound1	-	65.4	65.4
N Alabama- Southbound	-	50.9	50.9
N Alabama- Southbound1	-	66.6	66.6
Orange Ave Eastbound	-	8.7	9.9
Orange Ave Eastbound1	-	33.4	33.4
Orange Ave Eastbound 2	-	43.3	43.3
Orange Ave Westbound	-	43.3	43.3
Orange Ave Westbound1	-	31.4	31.3
Orange Ave Westbound2	-	8.8	10.1
12	2.FI	69.6	69.6
Iowa St -Northbound	-	18.2	18.7
Iowa Street Southbound	-	18.3	18.6
N Alabama- Northbound	-	54.5	54.5
N Alabama- Northbound1	-	65.8	65.8
N Alabama- Southbound	-	52.5	52.5
N Alabama- Southbound1	-	66.8	66.8
Orange Ave Eastbound	-	14.8	15.8
Orange Ave Eastbound1	-	35.0	35.1
Orange Ave Eastbound 2	-	44.0	44.0
Orange Ave Westbound	-	44.1	44.1
Orange Ave Westbound1	-	33.4	33.4
Orange Ave Westbound2	-	14.8	15.9
Park 1	GF	55.9	0.0
Iowa St -Northbound	-	31.3	9.2
Iowa Street Southbound	-	31.0	9.2
N Alabama- Northbound	-	31.4	30.2
N Alabama- Northbound1	-	52.4	52.8
N Alabama- Southbound	-	31.0	29.7
N Alabama- Southbound1	-	52.9	53.2
Orange Ave Eastbound	-	28.1	6.3
Orange Ave Eastbound1	-	36.1	25.1
Orange Ave Eastbound 2	-	32.0	32.0
Orange Ave Westbound	-	32.0	31.9
Orange Ave Westbound1	-	36.1	25.1
Orange Ave Westbound2	-	28.0	6.2
Park 2	GF	51.6	0.0
Iowa St -Northbound	-	34.0	33.6
Iowa Street Southbound	-	33.7	33.3
N Alabama- Northbound	-	28.4	20.2
N Alabama- Northbound1	-	47.9	24.4
N Alabama- Southbound	-	27.9	20.5
N Alabama- Southbound1	-	48.1	24.5
Orange Ave Eastbound	-	30.1	29.8
Orange Ave Eastbound1	-	37.4	37.5
Orange Ave Eastbound 2	-	28.1	9.0
Orange Ave Westbound	-	28.1	9.0
Orange Ave Westbound1	-	37.3	37.3
Orange Ave Westbound2	-	29.9	29.6

Contribution levels of the receivers

Source name	Traffic lane	Level w/o NP Lden dB(A)	Level w NP Lden dB(A)
Pool	GF	54.5	54.5
Iowa St -Northbound	-	29.5	29.4
Iowa Street Southbound	-	30.7	30.5
N Alabama- Northbound	-	51.3	51.3
N Alabama- Northbound1	-	24.8	24.8
N Alabama- Southbound	-	51.6	51.6
N Alabama- Southbound1	-	24.7	24.6
Orange Ave Eastbound	-	14.9	14.9
Orange Ave Eastbound1	-	18.7	18.6
Orange Ave Eastbound 2	-	16.2	16.2
Orange Ave Westbound	-	16.2	16.2
Orange Ave Westbound1	-	18.4	18.4
Orange Ave Westbound2	-	14.8	14.8



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