Appendix E

Noise Modeling Results

1090 S. De Anza Boulevard – Summary of Noise Modeling Analysis and Results

The following is a summary of the noise modeling methodology and results for the 1090 S. De Anza Boulevard – Hotel Project Initial Study-Mitigation Negative Declaration (IS-MND).

Rincon Consultants, Inc. (Rincon) used the Department of Housing and Urban Development (HUD) Day/Night Noise Level (DNL) Calculator to estimate existing and with-project traffic noise at the project site and nearby sensitive receptors. This model incorporates a range of inputs, such traffic volumes on nearby roadways, the distance to sensitive receptors, average vehicle speeds, and the nighttime fraction of vehicle trips. Average daily traffic (ADT) volumes were taken from the City of Cupertino General Plan Amendment Draft Environmental Impact Report and calculated from the number of vehicles counted during 15-minute ambient noise measurements taken by Rincon Consultants on March 27, 2017. The nighttime fraction of ADT was assumed to be 10 percent. The model does not account for topographic features and existing buildings (including the proposed hotel) that could attenuate roadway noise to the specified receiver locations.

The HUD DNL Calculator estimates average noise levels in terms of DNL over a 24-hour period, additional weighting given to nighttime traffic noise. Ambient noise was modeled at these locations: the exterior wall of the proposed guest rooms along S. De Anza Boulevard, the proposed outdoor pool area, and two existing sensitive receptors located approximately 100 feet southeast (single family residences) and 200 feet east (multi-family residences) of the project site. The results of the HUD DNL Calculator are summarized in Table 1 and Table 2 below.

Table 1 HUD DNL Calculator Results for Existing Ambient Noise Levels (dBA DNL)

Modeled Location Number	Modeled Location	Approximate Existing Conditions (dBA DNL)	City of San José Exterior Noise Threshold	Applicable Noise Threshold Exceeded?
1	Proposed outdoor pool area	70.3	60	**Yes**
2	Proposed rooms along S. De Anza Boulevard	76.6	60	**Yes**
3	Multi-family residences east of the project site	61.3	60	**Yes**
4	Single family residences southeast of the project site	64.9	60	**Yes**

Notes: dBA = A-weighted decibel; DNL = Day/night noise level
See Figure 9 for Noise Sensitive Receptor locations (modeled number 3 and 4)
Applicable City of San José threshold is Policy EC-1.1
Refer to Appendix E for full HUD DNL Calculator outputs.

The modeled noise levels shown in Table 1 were evaluated based on the City of San José's applicable noise thresholds, as described in General Plan Policies EC-1.1 through EC-1.2. As shown in Table 1, the existing ambient noise levels exceed the City's threshold of "normally acceptable" exterior noise for the proposed hotel land use as well as for the existing residential land uses in the vicinity. However, the use of standard modern building materials in construction of the proposed hotel would reduce exterior noise by an estimated 25 dBA in the indoor environment of hotel rooms facing S. De Anza Boulevard and Via Vico. In addition, the proposed building itself would shield hotel rooms in the interior of the site

from roadway noise, providing further attenuation of ambient noise. It is estimated that exterior wall assemblies at the hotel along S. De Anza Boulevard would reduce ambient noise from approximately 70.3 dBA DNL to approximately 45.3 dBA DNL within hotel rooms.

Although the applicable City noise thresholds are exceeded for the proposed project land use, the California Supreme Court in a December 2015 opinion [California Building Industry Association (CBIA) versus Bay Area Air Quality Management District, 62 Cal. 4th 369 (No. S 213478)] confirmed that CEQA, with several specific exceptions, does not require analysis of the existing environment's impacts on a project. Therefore, the exposure of new hotel guests at the project site to ambient noise is not a required topic of analysis. However, as there are City policies regarding interior noise, the above-mentioned discussion is included for informational purposes.

Table 2 shows the estimated increase in traffic noise with the addition of project-generated traffic. It is expected that traffic noise heard by existing noise-sensitive receptors would increase by no more than 0.2 dBA DNL. This incremental increase in noise would not exceed the City of San José's threshold for hotel and residential uses, as described in General Plan Policy EC-1.2, of 3 dBA DNL where existing ambient noise already equals or exceeds 60 dBA DNL.

Table 2 HUD DNL Calculator Results for Existing plus Project Ambient Noise Levels (dBA DNL)

Measurement Number	Receptor Location	Approximate Existing Conditions (dBA DNL)	Approximate Existing plus Project Conditions (dBA DNL)	Change in Sound Levels (dBA DNL)	City of San José Increase of Noise Threshold	Applicable Noise Thresholds Exceeded?
1	East of S. De Anza Boulevard, approximate center of project site	70.3	70.4	+0.1	+3.0	No
2	East of S. De Anza Boulevard, western boundary of project site	76.6	76.7	+0.1	+3.0	No
3	North of Via Vico, east of the project site	61.3	61.5	+0.2	+3.0	No
4	South of Via Vico, southeast of the project site	64.9	64.9	0.0	+3.0	No

Notes: dBA = A-weighted decibel, DNL = Day/night noise level, HUD = Department of Housing and Urban Development, ADT = average daily traffic, FTA = Federal Transit Administration
The Traffic Analysis p.m. peak hour estimate was multiplied by 10 to equate the average daily traffic generated by the project (total of 630 vehicles, distributed in the same manner as existing ADT).
See Figure 9 for Noise Sensitive Receptor locations
Refer to Appendix E for full HUD DNL Calculator estimates.
City of San José Noise Increase Thresholds provided in under the *Regulatory Setting* (EC-1.2).

In addition, based on the exterior noise levels shown in Table 2, the attenuated indoor noise levels at existing sensitive receptors along Via Vico, multi-family residences and single family residences, are estimated to reduce from 61.5 dBA DNL to 36.5 dBA DNL and 64.9 dBA DNL to 39.9 dBA DNL, respectively. These interior ambient noise levels would not exceed policy thresholds outlined in Policy EC-1.1.

Existing Ambient Noise Levels at Proposed Swimming Pool Area

DNL Calculator

The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the **Day/Night Noise Level Calculator Electronic Assessment Tool Overview (/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/)**.

Guidelines

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.
- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	1090 S. De Anza Boulevard - Hotel Project Proposed Pool
Record Date	07/17/2017
User's Name	Abagale Taylor

Road # 1 Name:	**S. De Anza Boulevard**

Road #1

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☑
Effective Distance	105	105	105
Distance to Stop Sign			
Average Speed	40	40	25
Average Daily Trips (ADT)	34918	919	919
Night Fraction of ADT	10	10	10
Road Gradient (%)			2.0
Vehicle DNL	65.1	49.3	68.6
Calculate Road #1 DNL	70.3	Reset	

Road # 2 Name:	**Via Vico**

Road #2

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☐
Effective Distance	100	100	
Distance to Stop Sign	110	110	
Average Speed	25	25	
Average Daily Trips (ADT)	1294	13	

Average Daily Trips (ADT)	1294	13	
Night Fraction of ADT	10	10	
Road Gradient (%)			
Vehicle DNL	41.3	31.3	
Calculate Road #2 DNL	41.7	Reset	

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	Yes No
Combined DNL for all Road and Rail sources	**70.3**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers. See ***The Noise Guidebook (/resource/313/hud-noise-guidebook/)***
  - Construct noise barrier. See the **Barrier Performance Module (/programs/environmental-review/bpm-calculator/)**

Tools and Guidance

Day/Night Noise Level Assessment Tool User Guide (/resource/3822/day-night-noise-level-assessment-tool-user-guide/)

Day/Night Noise Level Assessment Tool Flowcharts (/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

Existing Ambient Noise Levels At Proposed Hotel Rooms Along S. De Anza Boulevard

DNL Calculator

The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the **Day/Night Noise Level Calculator Electronic Assessment Tool Overview (/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/)**.

Guidelines

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- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.
- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	1090 S. De Anza Boulevard - Hotel Project Proposed Rooms
Record Date	07/17/2017
User's Name	Abagale Taylor

Road # 1 Name:	**S. De Anza Boulevard**

Road #1

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☑
Effective Distance	40	40	40
Distance to Stop Sign			
Average Speed	40	40	25
Average Daily Trips (ADT)	34918	919	919
Night Fraction of ADT	10	10	10
Road Gradient (%)			2.0
Vehicle DNL	71.4	55.6	74.9
Calculate Road #1 DNL	76.6	Reset	

Road # 2 Name:	**Via Vico**

Road #2

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☐
Effective Distance	65	65	
Distance to Stop Sign	110	110	
Average Speed	25	25	
Average Daily Trips (ADT)	1294	13	

Average Daily Trips (ADT)	1294	13	
Night Fraction of ADT	10	10	
Road Gradient (%)			
Vehicle DNL	44.1	34.1	
Calculate Road #2 DNL	44.5	Reset	

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	Yes No
Combined DNL for all Road and Rail sources	**76.6**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers. See ***The Noise Guidebook (/resource/313/hud-noise-guidebook/)***
  - Construct noise barrier. See the **Barrier Performance Module (/programs/environmental-review/bpm-calculator/)**

Tools and Guidance

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Day/Night Noise Level Assessment Tool Flowcharts (/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

Existing Ambient Noise Levels at Nearby Multi-Family Residences (Sensitive Noise Receptor)

DNL Calculator

The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the **Day/Night Noise Level Calculator Electronic Assessment Tool Overview (/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/)**.

Guidelines

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- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
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DNL Calculator

Site ID	1090 S. De Anza Boulevard - Hotel Project SR Multi-Family
Record Date	07/17/2017
User's Name	Abagale Taylor

Road # 1 Name:	**S. De Anza Boulevard**

Road #1

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☑
Effective Distance	440	440	440
Distance to Stop Sign			
Average Speed	40	40	25
Average Daily Trips (ADT)	34918	919	919
Night Fraction of ADT	10	10	10
Road Gradient (%)			2.0
Vehicle DNL	55.8	40	59.3
Calculate Road #1 DNL	61	Reset	

Road # 2 Name:	**Via Vico**

Road #2

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☐
Effective Distance	60	60	
Distance to Stop Sign	400	400	
Average Speed	25	25	
Average Daily Trips (ADT)	1294	13	

Average Daily Trips (ADT)	1294	13	
Night Fraction of ADT	10	10	
Road Gradient (%)			
Vehicle DNL	48.8	38.9	
Calculate Road #2 DNL	49.2	Reset	

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	Yes No
Combined DNL for all Road and Rail sources	**61.3**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers. See ***The Noise Guidebook (/resource/313/hud-noise-guidebook/)***
  - Construct noise barrier. See the **Barrier Performance Module (/programs/environmental-review/bpm-calculator/)**

Tools and Guidance

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Existing Ambient Noise Levels at Single Family Residences (Sensitive Noise Receptor)

DNL Calculator

The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the **Day/Night Noise Level Calculator Electronic Assessment Tool Overview (/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/)**.

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DNL Calculator

Site ID	1090 S. De Anza Boulevard - Hotel Project SR Single Family
Record Date	07/17/2017
User's Name	Abagale Taylor

Road # 1 Name:	**S. De Anza Boulevard**

Road #1

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☑
Effective Distance	250	250	250
Distance to Stop Sign			
Average Speed	40	40	25
Average Daily Trips (ADT)	34918	919	919
Night Fraction of ADT	10	10	10
Road Gradient (%)			2.0
Vehicle DNL	59.5	43.7	63
Calculate Road #1 DNL	64.7	Reset	

Road # 2 Name:	**Via Vico**

Road #2

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☐
Effective Distance	40	40	
Distance to Stop Sign	230	230	
Average Speed	25	25	
Average Daily Trips (ADT)	1294	13	

Average Daily Trips (ADT)	1294	13	
Night Fraction of ADT	10	10	
Road Gradient (%)			
Vehicle DNL	49.5	39.5	
Calculate Road #2 DNL	49.9	Reset	

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	Yes No
Combined DNL for all Road and Rail sources	**64.9**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers. See ***The Noise Guidebook (/resource/313/hud-noise-guidebook/)***
  - Construct noise barrier. See the **Barrier Performance Module (/programs/environmental-review/bpm-calculator/)**

Tools and Guidance

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Day/Night Noise Level Assessment Tool Flowcharts (/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

Existing Ambient Noise Levels plus Project Traffic-Related Noise Levels at Proposed Hotel Rooms Along S. De Anza Boulevard

DNL Calculator

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DNL Calculator

Site ID	1090 S. De Anza Boulevard - Hotel Project Proposed Rooms w/ Project
Record Date	07/17/2017
User's Name	Abagale Taylor

Road # 1 Name:	**S. De Anza Boulevard**

Road #1

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☑
Effective Distance	40	40	40
Distance to Stop Sign			
Average Speed	40	40	25
Average Daily Trips (ADT)	35517	935	935
Night Fraction of ADT	10	10	10
Road Gradient (%)			2.0
Vehicle DNL	71.5	55.7	75
Calculate Road #1 DNL	76.7	Reset	

Road # 2 Name:	**Via Vico**

Road #2

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☐
Effective Distance	65	65	
Distance to Stop Sign	110	110	
Average Speed	25	25	
Average Daily Trips (ADT)	1911	20	

Average Daily Trips (ADT)	1911	20	
Night Fraction of ADT	10	10	
Road Gradient (%)			
Vehicle DNL	45.8	36	
Calculate Road #2 DNL	46.2	Reset	

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	○ **Yes** ◉ **No**
Combined DNL for all Road and Rail sources	**76.7**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers. See ***The Noise Guidebook (/resource/313/hud-noise-guidebook/)***
  - Construct noise barrier. See the **Barrier Performance Module (/programs/environmental-review/bpm-calculator/)**

Tools and Guidance

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Day/Night Noise Level Assessment Tool Flowcharts (/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

Existing Ambient Noise Levels plus Project Traffic-Related Noise Levels at Proposed Swimming Pool Area

DNL Calculator

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DNL Calculator

Site ID	1090 S. De Anza Boulevard - Hotel Project Proposed Pool w/ Project
Record Date	07/17/2017
User's Name	Abagale Taylor

Road # 1 Name:	**S. De Anza Boulevard**

Road #1

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☑
Effective Distance	105	105	105
Distance to Stop Sign			
Average Speed	40	40	25
Average Daily Trips (ADT)	35517	935	935
Night Fraction of ADT	10	10	10
Road Gradient (%)			2.0
Vehicle DNL	65.2	49.4	68.7
Calculate Road #1 DNL	70.4	Reset	

Road # 2 Name:	**Via Vico**

Road #2

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☐
Effective Distance	100	100	
Distance to Stop Sign	110	110	
Average Speed	25	25	
Average Daily Trips (ADT)	1911	20	

Average Daily Trips (ADT)	1911	20	
Night Fraction of ADT	10	10	
Road Gradient (%)			
Vehicle DNL	43	33.2	
Calculate Road #2 DNL	43.4	Reset	

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	○ Yes ◉ No
Combined DNL for all Road and Rail sources	**70.4**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers. See ***The Noise Guidebook (/resource/313/hud-noise-guidebook/)***
  - Construct noise barrier. See the **Barrier Performance Module (/programs/environmental-review/bpm-calculator/)**

Tools and Guidance

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Existing Ambient Noise Levels plus Project Traffic-Related Noise Levels at Multi-Family Residences (Sensitive Noise Receptor)

DNL Calculator

The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the **Day/Night Noise Level Calculator Electronic Assessment Tool Overview (/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/)**.

Guidelines

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DNL Calculator

Site ID	1090 S. De Anza Boulevard - Hotel Project SR Mutli-Family w/ Project
Record Date	07/17/2017
User's Name	Abagale Taylor

Road # 1 Name:	**S. De Anza Boulevard**

Road #1

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☑
Effective Distance	440	440	440
Distance to Stop Sign			
Average Speed	40	40	25
Average Daily Trips (ADT)	35517	935	935
Night Fraction of ADT	10	10	10
Road Gradient (%)			2.0
Vehicle DNL	55.9	40.1	59.4
Calculate Road #1 DNL	61.1	Reset	

Road # 2 Name:	**Via Vico**

Road #2

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☐
Effective Distance	60	60	
Distance to Stop Sign	400	400	
Average Speed	25	25	
Average Daily Trips (ADT)	1911	20	

Average Daily Trips (ADT)	1911	20	
Night Fraction of ADT	10	10	
Road Gradient (%)			
Vehicle DNL	50.5	40.7	
Calculate Road #2 DNL	50.9	Reset	

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	Yes / No
Combined DNL for all Road and Rail sources	**61.5**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers. See ***The Noise Guidebook (/resource/313/hud-noise-guidebook/)***
  - Construct noise barrier. See the **Barrier Performance Module (/programs/environmental-review/bpm-calculator/)**

Tools and Guidance

Day/Night Noise Level Assessment Tool User Guide (/resource/3822/day-night-noise-level-assessment-tool-user-guide/)

Day/Night Noise Level Assessment Tool Flowcharts (/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

Existing Ambient Noise Levels plus Project Traffic-Related Noise Levels at Single Family Residences (Sensitive Noise Receptor)

DNL Calculator

The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the **Day/Night Noise Level Calculator Electronic Assessment Tool Overview (/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/)**.

Guidelines

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.
- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	1090 S. De Anza Boulevard - Hotel Project SR Single Family w/ Project
Record Date	07/17/2017
User's Name	Abagale Taylor

Road # 1 Name:	**S. De Anza Boulevard**

Road #1

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☑
Effective Distance	250	250	250
Distance to Stop Sign			
Average Speed	40	40	25
Average Daily Trips (ADT)	35517	935	935
Night Fraction of ADT	10	10	10
Road Gradient (%)			2.0
Vehicle DNL	59.6	43.8	63
Calculate Road #1 DNL	64.7	Reset	

Road # 2 Name:	**Via Vico**

Road #2

Vehicle Type	**Cars** ☑	**Medium Trucks** ☑	**Heavy Trucks** ☐
Effective Distance	40	40	
Distance to Stop Sign	230	230	
Average Speed	25	25	
Average Daily Trips (ADT)	1911	20	

Average Daily Trips (ADT)	1911	20	
Night Fraction of ADT	10	10	
Road Gradient (%)			
Vehicle DNL	51.2	41.4	
Calculate Road #2 DNL	51.6	Reset	

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	○ **Yes** ◉ **No**
Combined DNL for all Road and Rail sources	**64.9**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
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Tools and Guidance

Day/Night Noise Level Assessment Tool User Guide (/resource/3822/day-night-noise-level-assessment-tool-user-guide/)

Day/Night Noise Level Assessment Tool Flowcharts (/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)