

HUD Noise Assessment - Mission Bay South Block 6 West

Noise Assessment Location (NAL) = Affordable Housing Project at Mission Bay South Block 6 West, San Francisco, CA

Sources:

1. San Francisco County Transportation Authority, 2017. Modeling and Travel Forecasting. Accessed at: <http://www.sfcta.org/modeling-and-travel-forecasting>. Assessed on April 26, 2017.
2. Percent vehicle split based on Event Center and Mixed-Use Development at Mission Bay Blocks 29-32 EIR, SCH No. 2014112045, Appendix NO, 2015.
3. Traffic distribution based on Potrero HOPE SF Master Plan EIR, SCH No. 2010112029, Appendix 4.8A, 2014.

Existing condition

ADT

Source 1: China Basin Street, east of 3rd Street	144
China Basin Street ADT¹	144

24-Hour Traffic Distribution^{2,3}	% Vehicle	Day	Evening	Night*
Automobiles	95%	77.70%	12.70%	9.60%
Medium-Duty Trucks	3%	87.43%	5.05%	7.52%
Heavy-Duty Trucks	2%	89.10%	2.84%	8.06%
ADT Traffic Volumes				
Automobiles	137	106	17	13
Medium-Duty Trucks	4	4	0	0
Heavy-Duty Trucks	3	3	0	0

** Based on the source data, the nighttime vehicle distribution is less than 15%.
 Values are conservatively rounded up to the nearest integer for input into the HUD DNL Calculator.*

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Existing condition

ADT

Source 1: 4th Street, south of Long Bridge Street	251
4th Street ADT¹	251

24-Hour Traffic Distribution^{2,3}	% Vehicle	Day	Evening	Night*
Automobiles	95%	77.70%	12.70%	9.60%
Medium-Duty Trucks	3%	87.43%	5.05%	7.52%
Heavy-Duty Trucks	2%	89.10%	2.84%	8.06%
 ADT Traffic Volumes				
Automobiles	238	185	30	23
Medium-Duty Trucks	8	7	0	1
Heavy-Duty Trucks	5	4	0	0

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Existing condition

ADT

Source 1: Long Bridge Street, west of 4th Street 842

4th Street ADT¹ **842**

24-Hour Traffic Distribution^{2,3}	% Vehicle	Day	Evening	Night*
Automobiles	95%	77.70%	12.70%	9.60%
Medium-Duty Trucks	3%	87.43%	5.05%	7.52%
Heavy-Duty Trucks	2%	89.10%	2.84%	8.06%
ADT Traffic Volumes				
Automobiles	800	622	102	77
Medium-Duty Trucks	25	22	1	2
Heavy-Duty Trucks	17	15	0	1

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Existing condition

ADT

Source 1: 3rd Street, south of Mission Rock Street

6,877

4th Street ADT¹

6,877

24-Hour Traffic Distribution^{2,3}

	% Vehicle	Day	Evening	Night*
Automobiles	95%	77.70%	12.70%	9.60%
Medium-Duty Trucks	3%	87.43%	5.05%	7.52%
Heavy-Duty Trucks	2%	89.10%	2.84%	8.06%

ADT Traffic Volumes

Automobiles	6,533	5,076	830	627
Medium-Duty Trucks	206	180	10	16
Heavy-Duty Trucks	138	123	4	11

* Based on the source data, the nighttime vehicle distribution is less than 15%.

Values are conservatively rounded up to the nearest integer for input into the HUD DNL Calculator.

HUD Noise Assessment - SFMTA Route T-Owl and KT

Daily Train volumes	Daytime	Nighttime	Day + Night	Average # of days/year	Annual Factor	Average Train Operations
Inbound Weekday volume based on SFMTA schedule ^{1,2}	95	28	123	251	0.69	84.58
Outbound Weekday volume based on SFMTA schedule ^{1,2}	98	25	123	251	0.69	84.58
Inbound Saturday volume based on SFMTA schedule ^{1,2}	88	40	128	53	0.15	18.59
Outbound Saturday volume based on SFMTA schedule ^{1,2}	91	22	113	53	0.15	16.41
Inbound Sunday/Holiday volume based on SFMTA schedule ^{1,2}	107	15	122	61	0.17	20.39
Outbound Sunday/Holiday volume based on SFMTA schedule ^{1,2}	72	6	78	61	0.17	13.04
	551	136	687	365	1	237.59

¹ SFMTA, Route KT, 2018, <https://511.org/transit/schedules-agency-info/agency/SF/schedules/route/KT>

¹ SFMTA, Route T-Owl, 2018, <https://511.org/transit/schedules-agency-info/agency/SF/schedules/route/T-OWL>

Effective Distance (ft)	685	Measured from NAL to center of tracks via Google Earth
Average Train Speed (mph)	10	Assumption based on orientation of trains approaching and leaving
Engines per Train	2	Observation from Google Earth imagery of trains on Route T
Railway cars per Train	2	Observation from Google Earth imagery of trains on Route T
Average Train Operations	238	See calculations above
Night Fraction	0.20	See calculations above
Railway whistles or horns	No	Trains do not whistle/horn as they approach station
Bolted tracks	No	Observations of tracks from Google Earth imagery
Caltrain DNL from HUD DNL Calculator	37.0	

HUD Noise Assessment - Caltrain

Daily Train volumes	Daytime	Nighttime	Day + Night	Average # of days/year	Annual Factor	Average Train Operations
Northbound Weekday volume based on Caltrain schedule ¹	40	6	46	251	0.69	31.63
Southbound Weekday volume based on Caltrain schedule ¹	37	9	46	251	0.69	31.63
Northbound Saturday volume based on Caltrain schedule ¹	10	3	13	53	0.15	1.89
Southbound Saturday volume based on Caltrain schedule ¹	12	2	14	53	0.15	2.03
Northbound Sunday/Holiday volume based on Caltrain schedule ¹	0	0	0	61	0.17	0.00
Southbound Sunday/Holiday volume based on Caltrain schedule ¹	0	0	0	61	0.17	0.00
	99	20	119	365	1	67.19

¹ Caltrain, 2018, http://www.caltrain.com/Assets/Assets/Schedules/Full-Timetable_10012017.pdf

Effective Distance (ft)	1,500	Measured from NAL to center of tracks via Google Earth
Average Train Speed (mph)	50	Assumption based on orientation of trains approaching and leaving
Engines per Train	6	Observation from Google Earth imagery of trains on Caltrain tracks
Railway cars per Train	2	Observation from Google Earth imagery of trains on Caltrain tracks
Average Train Operations	67	See calculations above
Night Fraction	0.17	See calculations above
Railway whistles or horns	No	Trains do not whistle/horn as they approach station
Bolted tracks	No	Observations of tracks from Google Earth imagery

Caltrain DNL from HUD DNL Calculator	50.0
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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 \(/programs/environmental-review/day-night-noise-level-electronic-assessment-tool/\)](/programs/environmental-review/day-night-noise-level-electronic-assessment-tool/).

Note: HUD updated the Calculator December 12, 2017. If you used the Calculator prior to December 12, you may need to clear your cache to perform an accurate calculation. **View instructions to clear your cache** (<https://support.google.com/accounts/answer/32050>).

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	Mission Bay South Block 6 West
Record Date	02/13/2018
User's Name	Stan Armstrong

Road # 1 Name:	China Basin Street
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Road #1			
Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>

Effective Distance	30	30	30
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Effective Distance	30	30	30
Distance to Stop Sign	180	180	180
Average Speed	30	30	30
Average Daily Trips (ADT)	137	4	3
Night Fraction of ADT	15	15	15
Road Gradient (%)			0
Vehicle DNL	43.3455	47.9989	53.9778
Calculate Road #1 DNL	55.2753	Reset	

Road # 2 Name:

4th Street

Road #2

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	230	230	230
Distance to Stop Sign			
Average Speed	30	30	30
Average Daily Trips (ADT)	238	8	5
Night Fraction of ADT	15	15	15
Road Gradient (%)			0
Vehicle DNL	36.793	32.0581	40.3745
Calculate Road #2 DNL	42.3839	Reset	

Road # 3 Name:

Long Bridge Street

Road #3

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	170	170	170
Distance to Stop Sign			
Average Speed	30	30	30
Average Daily Trips (ADT)	800	25	17
Night Fraction of ADT	15	15	15
Road Gradient (%)			0
Vehicle DNL	44.0273	38.9758	47.6584
Calculate Road #3 DNL	49.626	Reset	

Road # 4 Name:

3rd Street

Road #4

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	722	722	722
Distance to Stop Sign			
Average Speed	30	30	30
Average Daily Trips (ADT)	6533	206	138
Night Fraction of ADT	15	15	15
Road Gradient (%)			0
Vehicle DNL	43.7262	38.7137	47.3314
Calculate Road #4 DNL	49.3091	Reset	

Road #4 Truck Identifier:

SEMTA Route T Owl and KT

Railroad #1 Track Identifier:

SPRINTA ROUTE 1-OWI and R1

Rail # 1

Train Type	Electric <input checked="" type="checkbox"/>	Diesel <input type="checkbox"/>
Effective Distance	<input type="text" value="685"/>	<input type="text"/>
Average Train Speed	<input type="text" value="10"/>	<input type="text"/>
Engines per Train	<input type="text" value="1"/>	<input type="text"/>
Railway cars per Train	<input type="text" value="2"/>	<input type="text"/>
Average Train Operations (ATO)	<input type="text" value="238"/>	<input type="text"/>
Night Fraction of ATO	<input type="text" value="20"/>	<input type="text"/>
Railway whistles or horns?	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
Bolted Tracks?	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
Train DNL	<input type="text" value="36.7329"/>	<input type="text"/>
<input type="button" value="Calculate Rail #1 DNL"/>	<input type="text" value="36.7329"/>	<input type="button" value="Reset"/>

Railroad #2 Track Identifier:

Caltrain

Rail # 2

Train Type	Electric <input type="checkbox"/>	Diesel <input checked="" type="checkbox"/>
Effective Distance	<input type="text"/>	<input type="text" value="1500"/>
Average Train Speed	<input type="text"/>	<input type="text" value="50"/>
Engines per Train	<input type="text"/>	<input type="text" value="1"/>
Railway cars per Train	<input type="text"/>	<input type="text" value="6"/>
Average Train Operations (ATO)	<input type="text"/>	<input type="text" value="67"/>
Night Fraction of ATO	<input type="text"/>	<input type="text" value="17"/>

Night Fraction of A/C

1 /

Railway whistles or horns?

Yes: No: Yes: No:

Bolted Tracks?

Yes: No: Yes: No:

Train DNL

50.2834

Calculate Rail #2 DNL

50.2834

Reset

Add Road Source

Add Rail Source

Airport Noise Level

Loud Impulse Sounds?

 Yes NoCombined DNL for all
Road and Rail sources

58.1425

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/>)

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Record Date	02/13/2018
User's Name	Stan Armstrong

Road # 1 Name:	China Basin Street
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Road #1			
Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>

Effective Distance	30	30	30
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Effective Distance	30	30	30
Distance to Stop Sign	180	180	180
Average Speed	30	30	30
Average Daily Trips (ADT)	137	4	3
Night Fraction of ADT	15	15	15
Road Gradient (%)			0
Vehicle DNL	43.3455	47.9989	53.9778
Calculate Road #1 DNL	55.2753	Reset	

Road # 2 Name:

4th Street

Road #2

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	230	230	230
Distance to Stop Sign			
Average Speed	30	30	30
Average Daily Trips (ADT)	238	8	5
Night Fraction of ADT	15	15	15
Road Gradient (%)			0
Vehicle DNL	36.793	32.0581	40.3745
Calculate Road #2 DNL	42.3839	Reset	

Road # 3 Name:

Long Bridge Street

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Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	170	170	170
Distance to Stop Sign			
Average Speed	30	30	30
Average Daily Trips (ADT)	800	25	17
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Road #4 Truck Identifier:

SEMTA Route T Owl and KT

Railroad #1 Track Identifier:

SPRINTA ROUTE 1-OWI and R1

Rail # 1

Train Type

Electric Diesel

Effective Distance

685

Average Train Speed

10

Engines per Train

1

Railway cars per Train

2

Average Train Operations (ATO)

238

Night Fraction of ATO

20

Railway whistles or horns?

Yes: No: Yes: No:

Bolted Tracks?

Yes: No: Yes: No:

Train DNL

36.7329

Calculate Rail #1 DNL

36.7329

Reset

Railroad #2 Track Identifier:

Caltrain

Rail # 2

Train Type

Electric Diesel

Effective Distance

1500

Average Train Speed

50

Engines per Train

1

Railway cars per Train

6

Average Train Operations (ATO)

67

Night Fraction of ATO

17

Night Fraction of A/C

1 /

Railway whistles or horns?

Yes: No: Yes: No:

Bolted Tracks?

Yes: No: Yes: No:

Train DNL

50.2834

Calculate Rail #2 DNL

50.2834

Reset

Add Road Source

Add Rail Source

Airport Noise Level

Loud Impulse Sounds?

 Yes NoCombined DNL for all
Road and Rail sources

58.1425

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:

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