

HMFA02890

The following noise sources must be considered in a DNL calculation:

- Arterial roadways (or greater) within 1,000 feet
- Railroads within 3,000 feet
- Airports within 15 miles*

*Please note: Based on DEP guidance, only commercial services airports and military airfields are to be considered. The only commercial services airport within 15 miles is Newark Liberty International (approximately 3 miles to the south of the project site). Teterboro Airport is located within 15 miles of the site, however, this airport is classified as general aviation and not commercial. No military airfields are within 15 miles of the project site. According to 2003 noise contour maps for Newark Liberty International (the latest publicly available), the project site is well outside of the 60 decibel (dB) noise contour; therefore, noise impacts from this airport are considered negligible for the purposes of this analysis. (See HMFA02890_EWRNoiseMap).

Roads

According to the NJDOT's roadway functional classification map for Essex County (<http://www.state.nj.us/transportation/refdata/roadway/gismaps/Essex.pdf>) the following arterial (or greater) roadways are within 1,000 feet of the site (see HMFA02890_NoiseMap):

- Central Avenue: 160 feet to the north
- West Market Street: 870 feet to the northeast
- North 6th Street: 900 feet to the northeast

Based on traffic count data obtained from the NJDOT (see attachments below), the average annual daily traffic (AADT) was tabulated for each roadway and input into the DNL calculator. The number of each vehicle type was calculated by using the fraction of each vehicle type from the NJDOT Travel Activity by Vehicle Type (data year 2012, see NJDOT Travel Activity by Vehicle Type within attachments below). This tells what proportion of the AADT is each type of vehicle. The HUD DNL calculator assumes that Cars consist of motorcycles, passenger cars, and light trucks (2-axle, 4 tire); medium trucks consist of all vehicles within the Single-Unit Truck category, and Heavy Trucks consist of all vehicles in the Busses, Single-Trailer Trucks and Multi-Trailer Trucks categories. These factors were used to determine the number of each class of vehicle to be used in the DNL calculator.

It is noted that no traffic count data was available from NJDOT for North 6th Street, which is classified as a minor arterial by NJDOT. This street is a single-lane one-way roadway and significant intervening development exists between it and the project site; therefore, noise impacts from this roadway would be considered negligible. See HMFA02890_NoiseMap.

Rail

According to NJ Transit's Rail System map (http://www.njtransit.com/pdf/rail/Rail_System_Map.pdf) the following rail lines are within 3,000 feet of the site (see HMFA02890_NoiseMap):

- NJ Transit Light Rail: 2,700 feet to the east
- NJ Transit Morristown and Gladstone Branch: 2,700 feet to the north
- NJ Transit Montclair-Boonton Line: 2,950 feet to the north

The NJ Transit Montclair-Boonton Line was not included in the DNL calculations because based on aerial photography it is depressed beneath the grade surface in this part of Newark and therefore would not be expected to impact noise levels at the site.

Daily operations were tabulated from NJ Transit's online schedules and estimated to be a total of 354 trains (177 inbound and 177 outbound on a typical weekday) for the NJ Transit Light Rail and 55 trains (25 inbound and 30 outbound) for the NJ Transit Morristown and Gladstone Branch. For the light rail, it was assumed that each train operates with two cars, and contains one locomotive. It was also assumed that the speed would be approximately 30 miles per hour. For the Morristown and Gladstone Branch, it was assumed that each train operates with one locomotive and contains eight cars. These numbers were also input into the DNL calculator.

Results

The combined DNL at the site is 62.9 decibels (dB) which is below the 65 dB threshold. Therefore, the project is in compliance.

[Environmental Review Main \(/programs/environmental-review/\)](/programs/environmental-review/)

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 (<https://onecpd.info/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

Record Date

User's Name

Road # 1 Name:

Road #1

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	<input type="text" value="160"/>	<input type="text" value="160"/>	<input type="text" value="160"/>
Distance to Stop Sign	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Speed	<input type="text" value="40"/>	<input type="text" value="40"/>	<input type="text" value="40"/>
Average Daily Trips (ADT)	<input type="text" value="12281"/>	<input type="text" value="322"/>	<input type="text" value="188"/>
Night Fraction of ADT	<input type="text" value="15"/>	<input type="text" value="15"/>	<input type="text" value="15"/>
Road Gradient (%)	<input type="text"/>	<input type="text"/>	<input type="text" value="2"/>
Vehicle DNL	58.8	43	59.9
<input type="button" value="Calculate Road #1 DNL"/>	<input type="text" value="62.4"/>	<input type="button" value="Reset"/>	

Road # 2 Name:

Road #2

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	<input type="text" value="870"/>	<input type="text" value="870"/>	<input type="text" value="870"/>
Distance to Stop Sign	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Speed	<input type="text" value="40"/>	<input type="text" value="40"/>	<input type="text" value="40"/>
Average Daily Trips (ADT)	<input type="text" value="18200"/>	<input type="text" value="474"/>	<input type="text" value="279"/>
Night Fraction of ADT	<input type="text" value="15"/>	<input type="text" value="15"/>	<input type="text" value="15"/>
Road Gradient (%)	<input type="text"/>	<input type="text"/>	<input type="text" value="2"/>

Vehicle DNL	49.5	33.6	50.6
-------------	------	------	------

Calculate Road #2 DNL	53.1	Reset
-----------------------	------	-------

Railroad #1 Track Identifier:

Rail # 1

Train Type	Electric <input checked="" type="checkbox"/>	Diesel <input type="checkbox"/>
-------------------	---	--

Effective Distance	<input type="text" value="2700"/>	<input type="text"/>
--------------------	-----------------------------------	----------------------

Average Train Speed	<input type="text" value="30"/>	<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="354"/>	<input type="text"/>
--------------------------------	----------------------------------	----------------------

Night Fraction of ATO	<input type="text" value="15"/>	<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 checked="" type="checkbox"/> No: <input type="checkbox"/>	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
----------------	---	--

Train DNL	42.3	<input type="text"/>
------------------	------	----------------------

Calculate Rail #1 DNL	42.3	Reset
-----------------------	------	-------

Railroad #2 Track Identifier:

Rail # 2

Train Type	Electric <input checked="" type="checkbox"/>	Diesel <input type="checkbox"/>
-------------------	---	--

Effective Distance	<input type="text" value="2700"/>	<input type="text"/>
--------------------	-----------------------------------	----------------------

Average Train Speed	<input type="text" value="30"/>	<input type="text"/>
---------------------	---------------------------------	----------------------

Engines per Train	<input type="text" value="1"/>	<input type="text"/>
-------------------	--------------------------------	----------------------

Railway cars per Train	<input type="text" value="8"/>	<input type="text"/>
------------------------	--------------------------------	----------------------

Average Train Operations (ATO)	<input type="text" value="55"/>	<input type="text"/>
--------------------------------	---------------------------------	----------------------

Night Fraction of ATO	<input type="text" value="15"/>	<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 checked="" type="checkbox"/> No: <input type="checkbox"/>	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
Train DNL	<input type="text" value="38.2"/>	<input type="text"/>
<input type="button" value="Calculate Rail #2 DNL"/>	<input type="text" value="38.2"/>	<input type="button" value="Reset"/>

Airport Noise Level	<input type="text"/>
Loud Impulse Sounds?	<input type="radio"/> Yes <input checked="" type="radio"/> No
Combined DNL for all Road and Rail sources	<input type="text" value="62.9"/>
Combined DNL including Airport	<input type="text" value="N/A"/>
Site DNL with Loud Impulse Sound	<input type="text"/>
<input type="button" value="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 (<https://www.onecpd.info/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* (<https://www.onecpd.info/resource/313/hud-noise-guidebook/>)
 - Construct noise barrier. See the Barrier Performance Module (<https://onecpd.info/programs/environmental-review/bpm-calculator/>)

Tools and Guidance

Day/Night Noise Level Assessment Tool User Guide (<https://www.onecpd.info/resource/3822/day-night-noise-level-assessment-tool-user-guide/>)

Day/Night Noise Level Assessment Tool Flowcharts (<https://www.onecpd.info/resource/3823/day-night-noise-level-assessment-tool-flowcharts/>)

New Jersey Department of Transportation

Daily Volume from 08/22/2012 through 08/24/2012

Site Names: 090711, , RT 508, Northfield Ave-10.4, 00000508__, Newark City
 County: ESSEX
 Funct. Class: Urban Minor Arterial
 Location: Bet Hudson St and Joy St

Seasonal Factor Group:
 Daily Factor Group:
 Axle Factor Group:
 Growth Factor Group: 2 Urban Other Roadways

	Sun 08/19/2012			Mon 08/20/2012			Tue 08/21/2012			Wed 08/22/2012			Thu 08/23/2012			Fri 08/24/2012			Sat 08/25/2012		
	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E
00:00													144	85	59	202	147	55			
01:00													95	66	29	121	79	42			
02:00													66	40	26	79	53	26			
03:00													57	35	22	45	28	17			
04:00													72	35	37	72	40	32			
05:00													125	46	79	136	48	88			
06:00													420	97	323	410	105	305			
07:00													866	286	580	845	267	578			
08:00													912	283	629	878	302	576			
09:00									774	328	446	807	353	454							
10:00									709	312	397	707	308	399							
11:00									684	315	369	675	302	373							
12:00									791	354	437	798	367	431							
13:00									827	370	457	832	399	433							
14:00									783	388	395	868	444	424							
15:00									805	411	394	826	412	414							
16:00									1,004	516	488	923	474	449							
17:00									924	530	394	957	481	476							
18:00									707	424	283	656	359	297							
19:00									523	287	236	530	274	256							
20:00									439	259	180	482	249	233							
21:00									320	174	146	428	248	180							
22:00									333	203	130	421	251	170							
23:00									210	124	86	298	196	102							
Volume									9,833	4,995	4,838	12,965	6,090	6,875	1,910	767	1,143				
AM Peak Vol												968	353	650							
AM Peak Fct												0.96	0.83	0.97							
AM Peak Hr												7:30	9:00	7:30							
PM Peak Vol									1,004	546	488	987	492	495							
PM Peak Fct									0.95	0.89	0.95	0.98	0.92	0.92							
PM Peak Hr									16:00	16:30	16:00	16:45	16:45	16:45							
Seasonal Fct									1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000			
Daily Fct									1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000			
Axle Fct									0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500			
Pulse Fct									2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000			

New Jersey Department of Transportation

Daily Volume from 03/31/2009 through 04/02/2009

Site Names: 3-4-505, , CO633-0
 County: ESSEX
 Funct. Class: Urban Principal Arterial - Other
 Location: BET NORTH SECOND & NORTH THIRD STS

Seasonal Factor Type: 2 Urban Other Roadways
 Daily Factor Type: 2 Urban Other Roadways
 Axle Factor Type: 14
 Growth Factor Type: 2 Urban Other Roadways

	03/29/2009			03/30/2009			03/31/2009			04/01/2009			04/02/2009			04/03/2009	
	Road	S	N	Road	S	N	Road	S	N	Road	S	N	Road	S	N	Road	S
00:00										283	169	114	260	151	109		
01:00										151	88	63	149	99	50		
02:00										119	77	42	105	58	47		
03:00										86	48	38	58	28	30		
04:00										121	41	80	98	32	66		
05:00										238	88	150	218	72	146		
06:00										529	168	361	548	182	366		
07:00										1,195	388	807	1,240	405	835		
08:00										1,733	602	1,131	1,710	588	1,122		
09:00										1,273	520	753	1,310	603	707		
10:00										996	478	518	1,034	526	508		
11:00										1,139	602	537	1,147	627	520		
12:00										1,241	633	608	1,259	692	567		
13:00										1,296	728	568	1,280	705	575		
14:00										1,254	677	577	1,339	748	591		
15:00										1,574	892	682	1,499	862	637		
16:00							1,636	1,009	627	1,678	1,045	633	1,754	1,113	641		
17:00							1,698	1,085	613	1,703	1,076	627	1,679	1,043	636		
18:00							1,305	781	524	1,407	822	585	1,429	775	654		
19:00							1,090	640	450	1,017	576	441	1,155	649	506		
20:00							953	576	377	779	467	312	1,000	574	426		
21:00							799	500	299	723	445	278	834	522	312		
22:00							571	323	248	540	285	255					
23:00							434	251	183	432	239	193					
Volume							8,486	5,165	3,321	21,507	11,154	10,353	21,105	11,054	10,051		
AM Peak Vol										1,746	602	1,144	1,743	627	1,152		
AM Peak Fct										0.89	0.92	0.86	0.97	0.91	0.98		
AM Peak Hr										7.45	7.45	7.45	7.45	11.00	7.45		
PM Peak Vol										1,725	1,087	691					
PM Peak Fct										0.95	0.89	0.92					
PM Peak Hr										16.45	16.45	15.15					
Seasonal Fct							0.997	0.997	0.997	0.968	0.968	0.968	0.968	0.968	0.968		
Daily Fct							0.950	0.950	0.950	0.933	0.933	0.933	0.915	0.915	0.915		
Axle Fct							0.481	0.481	0.481	0.483	0.483	0.483	0.483	0.483	0.483		
Pulse Fct							2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000		

**New Jersey Department of Transportation
Bureau of Transportation Data and Safety
Traffic & Technology Section
Travel Activity by Vehicle Type
Data Year 2012**

Region 2 Average

FUNCTIONAL SYSTEM	REGION 2 ANNUAL AVERAGE PERCENT OF TRAVEL														TOTAL
	Motorcycles (Optional)	Passenger Cars (2 Axle, 4 Tire)	Light Trucks Cars (2 Axle, 4 Tire)	Buses	SINGLE-UNIT TRUCKS			SINGLE-TRAILER TRUCKS			MULTI-TRAILER TRUCKS				
					2 Axle, 6 Tire	3 Axle	4 Axle or More	4 Axle or Less	5 Axle	6 Axle or More	5 Axle or Less	6 Axle	7 Axle or More		
RURAL															
PRINCIPLE ARTERIAL INTERSTATE	0.04	69.09	15.19	0.50	1.62	0.57	0.13	0.63	11.42	0.11	0.50	0.20	0.01	100.00	
PRINCIPLE ARTERIAL OTHER	0.16	73.52	19.04	0.15	1.99	0.49	0.30	0.36	3.86	0.08	0.01	0.00	0.01	100.00	
MINOR ARTERIAL	0.03	77.78	19.33	0.04	1.74	0.34	0.06	0.14	0.53	0.01	0.00	0.00	0.00	100.00	
MAJOR COLLECTOR	0.16	65.85	29.01	0.04	1.96	0.57	0.16	0.12	2.12	0.00	0.00	0.00	0.00	100.00	
MINOR COLLECTOR															
LOCAL SYSTEM															
URBAN															
PRINCIPLE ARTERIAL INTERSTATE	0.03	73.40	17.40	0.35	1.66	0.74	0.24	0.35	5.46	0.09	0.20	0.07	0.01	100.00	
PRINCIPLE ARTERIAL OTHER FREEWAYS	0.27	67.44	28.18	0.11	2.18	0.67	0.42	0.09	0.62	0.02	0.00	0.00	0.00	100.00	
PRINCIPLE ARTERIAL OTHER	0.24	77.28	19.21	0.13	1.63	0.41	0.15	0.11	0.83	0.02	0.00	0.00	0.00	100.00	
MINOR ARTERIAL	0.03	77.78	19.33	0.04	1.74	0.34	0.06	0.14	0.53	0.01	0.00	0.00	0.00	100.00	
COLLECTOR															
LOCAL SYSTEM															

Region 3 Average

FUNCTIONAL SYSTEM	REGION 3 ANNUAL AVERAGE PERCENT OF TRAVEL														TOTAL
	Motorcycles (Optional)	Passenger Cars (2 Axle, 4 Tire)	Light Trucks Cars (2 Axle, 4 Tire)	Buses	SINGLE-UNIT TRUCKS			SINGLE-TRAILER TRUCKS			MULTI-TRAILER TRUCKS				
					2 Axle, 6 Tire	3 Axle	4 Axle or More	4 Axle or Less	5 Axle	6 Axle or More	5 Axle or Less	6 Axle	7 Axle or More		
RURAL															
PRINCIPLE ARTERIAL INTERSTATE	0.13	78.59	15.92	0.18	1.65	0.59	0.43	0.37	2.07	0.03	0.02	0.01	0.00	100.00	
PRINCIPLE ARTERIAL OTHER	0.64	67.96	21.29	0.10	1.44	0.62	0.32	0.24	7.32	0.05	0.03	0.00	0.00	100.00	
MINOR ARTERIAL	0.38	76.41	20.22	0.12	1.25	0.43	0.16	0.10	0.89	0.03	0.00	0.00	0.00	100.00	
MAJOR COLLECTOR	0.16	65.85	29.01	0.04	1.96	0.57	0.16	0.12	2.12	0.00	0.00	0.00	0.00	100.00	
MINOR COLLECTOR															
LOCAL SYSTEM															
URBAN															
PRINCIPLE ARTERIAL INTERSTATE	0.04	76.11	16.51	0.17	1.77	0.60	0.21	0.47	4.04	0.04	0.03	0.01	0.01	100.00	
PRINCIPLE ARTERIAL OTHER FREEWAYS	0.14	77.17	17.38	0.13	2.29	0.57	0.22	0.29	1.75	0.03	0.02	0.00	0.00	100.00	
PRINCIPLE ARTERIAL OTHER	0.10	76.19	19.58	0.08	1.83	0.50	0.10	0.19	1.40	0.03	0.01	0.00	0.00	100.00	
MINOR ARTERIAL	0.57	74.79	21.55	0.21	1.26	0.40	0.10	0.10	0.99	0.02	0.00	0.00	0.00	100.00	
COLLECTOR															
LOCAL SYSTEM															

