

**NOISE IMPACT ANALYSIS**  
**YUCCA VALLEY HAULING AND TRANSFER STATION**  
**CITY OF YUCCA VALLEY, CALIFORNIA**

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Date:

August 6, 2015

Project No.: P15-034

## NOISE SETTING

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is commonly defined as unwanted sound. Sound can be characterized by a variety of parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound wave. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. The unit of sound pressure ratioed to an assumed zero sound level is called a decibel (dB).

Because sound or noise can vary in intensity by over one million times within the range of human hearing, a logarithmic loudness scale similar to the Richter Scale is used to keep sound intensity numbers at a convenient and manageable level. Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, noise levels at maximum human sensitivity are factored more heavily into sound descriptions in a process called "A-weighting," written as dB(A). Any further reference to decibels in this discussion written as "dB" should be understood to be A-weighted.

Time variations in noise exposure are typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called LEQ), or, alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. Finally, because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dB increment be added to quiet time noise levels in a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL). An interior CNEL of 45 dB(A) is mandated for multiple family dwellings in Title 24 of the California Code of Regulations, and is considered a desirable noise exposure for single-family dwelling units as well. Since typical noise attenuation within residential structures is about 15-20 dB, an exterior noise exposure of 60-65 dB CNEL is generally the noise/ land use compatibility guideline for new residential dwellings in California.

## NOISE STANDARDS

All jurisdictions have noise exposure standards designed to insure that noise does not excessively impact the quality of life of its citizens. For noise sources amenable to local control, noise exposure to noise-sensitive land uses is regulated by ordinance. These ordinances limit the allowable noise levels at the property line of the transmitter/generator. For the most common noise sources, however, such as cars, trucks, trains or airplanes, local jurisdictions are preempted from regulating the emissions from the source. Control of exposure due to preempted sources is effected by discretionary land use decisions relative to the receiver.

Noise ordinance standards are typically stated in terms of the "LEQ" metric, or in terms of allowable exposures over stated short time periods. The land use decision standards use the weighted 24-hour CNEL. Noise ordinances are part of the Municipal Code. CNEL-based land use standards are articulated in the Noise Element of the General Plan.

a. Land Use Planning Standards

The state model guideline is the basis for the City’s noise compatibility criteria. In the Noise Element of the General Plan, the California General Plan Guidelines (1987) have been adopted as the City's noise/land use compatibility criteria. The General Plan Noise Element shows that a 60 dB CNEL exposure is considered the normally acceptable exterior noise level for noise sensitive land uses such as homes, schools, churches, libraries, etc. It is also recognized that such a level may not always be possible in areas of substantial traffic noise intrusion. New noise-sensitive land uses are generally not approved in noise environments that cannot be mitigated to below 65 dB CNEL.

An industrial facility such as a hauling yard and transfer station facility is not considered noise-sensitive. Siting standards for such a facility are the least stringent. Levels up to 80 dB CNEL are generally considered an acceptable noise environment for such uses. Whereas the residential standard of 65 dB CNEL is designed to limit speech intrusion, levels of 80 dB CNEL generally require shouting or voice amplification for effective communication. A level of 85 dB is the trigger level for requiring an occupational hearing conservation program (ear protectors and periodic testing), and 90 dB is the threshold for hearing damage under prolonged exposure.

b. Yucca Valley Noise Ordinance

As shown in Table 1, the City of Yucca Valley has adopted numerical standards related to noise from an industrial activity affecting off-site uses. Section 9.34.080 of the Municipal Code limits the stationary source noise level that may be propagated across the property line from a commercial or manufacturing facility.

The ordinance makes allowances for deviation from this baseline up to a maximum of 20 dB for less than one (1) minute per hour. These levels are generally not exceeded at the property line of a when there are no noise-sensitive uses in close proximity.

<b>Affected Land Uses</b>	<b>7 AM to 10 PM Leq</b>	<b>10 PM to 7 AM Leq</b>
Residential	55 dB(A)	45 dB(A)
Professional Services	55 dB(A)	55 dB(A)
Other Commercial	60 dB(A)	60 dB(A)
Industrial	70 dB(A)	70 dB(A)

## BASELINE NOISE LEVELS

Ambient noise levels in the project area are low. According to the project traffic report , there are currently only 100 vehicles per day on Sunnyslope Drive adjacent to the project site. The Black Rock Continuation/Alternative High School is located northeast of the project site, at 59273 Sunnyslope Drive. There are 122 students listed as being enrolled at this campus. The La Contenta Middle School is located southeast of the project site. There are no other sensitive uses in proximity to the proposed project site. Because schools are only in operation during daytime hours, nocturnal noise standards (10 p.m. to 7 a.m.) are not considered to be applicable to this project.

## NOISE IMPACTS

### STANDARDS OF SIGNIFICANCE

CEQA Guidelines identify significant impacts as those that cause standards to be exceeded where they are currently met. The City's nocturnal noise standard is 75 dB from 7:00 a.m to 10:00 p.m. There may be on-site activities before 7:00 a.m. that may generate noise, however there are no sensitive receptors who would be impacted. Operational project activities that would cause the 75 dBA ordinance limit to be exceeded would be considered to have a significant environmental impact.

Truck traffic may create increased noise away from the project site. An off-site noise impact from truck traffic could be considered significant if it causes a substantial noise level increase. "Substantial" is not defined in any guidelines. Under ambient conditions, most people cannot distinguish a change in the noise environment that differs by less than 3 dB between the pre- and post-project exposure. For purposes of this analysis, an increase of 3 dB which creates an area of noise/land use incompatibility or which worsens an existing excessive noise situation would thus be considered a significant degradation of the acoustic environment.

Temporary construction noise will also result during site preparation and mechanical assembly. Such sources are short-term and thus will not affect the long-term noise exposure in the project vicinity. Temporary construction is exempt from noise regulations as long as activities occur between 7:00 a.m to 10:00 p.m., except Sundays and Federal holidays (Section 9.34.080 of the Municipal Code.)

### ON-ROAD TRAFFIC NOISE IMPACT

Project traffic noise was calculated by combining the results of the project traffic study with the federal highway traffic noise prediction model (FHWA-RD-77-108). Background traffic noise was calculated for no-project conditions, and the truck noise increment was then superimposed upon the background. Traffic volumes were obtained from the traffic report prepared by Kunzman Associates for this project.

Three throughput operational scenarios were examined in the traffic report. The expected traffic volume expressed as passenger car equivalent (PCE) for each operational capacity scenario is shown below.

231 TPD in 2016	311 vehicles
298 TPD in 2026	418 vehicles
411 TPD in 2035	710 vehicles

The traffic study broke down the PCE into vehicle types. With these factors, the following vehicle types are expressed as percentages:

Scenario	% Automobiles	% Medium Duty Trucks	% Heavy Duty Trucks
<b>231 TPD</b>	73.6	9.0	17.4
<b>298 TPD</b>	76.1	9.6	14.4
<b>411 TPD</b>	80.3	7.9	11.8

Traffic noise impacts are considered potentially significant if they cause compatibility standards to be exceeded at locations where they are currently met and if the substantially increased any existing violations. As discussed, “substantial” is most commonly understood to be around +3 dB. Changes in noise levels attributable to project truck traffic were calculated in terms of the CNEL metric. These levels were superimposed upon the baseline traffic noise determined from noise modeling for traffic volumes provided by traffic consultant. The results are shown in Table 2.

**Table 2  
Traffic Noise Levels at 50 feet from Roadway Centerline**

**Existing Conditions With and Without Project<sup>1</sup>**

Roadway Segment		dB CNEL at 50 feet from centerline			
		Project Traffic	Background Traffic	Project +Background	Project Impact
29 Palms/	W of Avalon	53.2	71.0	71.1	0.1
	Avalon-La Contenta	53.2	70.7	70.7	0.0
	E of La Contenta	53.2	70.4	70.5	0.1
Sunnyslope/	Site-La Contenta	56.2	47.8	56.8	9.0
La Contenta/	29 Palms-Sunnyslope	56.2	59.3	61.0	1.7
	Sunnyslope-Yucca Trail	45.4	58.3	58.5	0.2
Yucca Trail/	Avalon-Indio	45.4	65.5	65.6	0.1
	Indio-La Contenta	45.4	65.2	65.2	0.0
	E of La Contenta	45.4	64.9	65.0	0.1

<sup>1</sup>The existing plus project conditions have been analyzed to comply with the Sunnyvale West Neighborhood Association v City of Sunnyvale court case. The scenario assumes the full development of the proposed project and full absorption of the proposed project trips on the circulation system at the present time. This scenario is provided for informational purposes only.

**231 TPD With and Without Project  
Year 2016**

Roadway Segment		dB CNEL at 50 feet from centerline			
		Project Traffic	Background Traffic	Project +Background	Project Impact
29 Palms/	W of Avalon	49.6	71.1	71.1	0.0
	Avalon-La Contenta	49.6	70.7	70.7	0.0
	E of La Contenta	49.6	70.4	70.5	0.0
Sunnyslope/	Site-La Contenta	54.4	47.8	55.2	7.4
La Contenta/	29 Palms-Sunnyslope	54.4	59.3	60.5	1.2
	Sunnyslope-Yucca Trail	46.6	58.3	58.5	0.3
Yucca Trail/	Avalon-Indio	46.6	65.5	65.6	0.1
	Indio-La Contenta	46.6	65.2	65.2	0.1
	E of La Contenta	46.6	64.9	65.0	0.1

**298 TPD With and Without Project  
Year 2026**

Roadway Segment		dB CNEL at 50 feet from centerline			
		Project Traffic	Background Traffic	Project +Background	Project Impact
29 Palms/	W of Avalon	52.1	71.3	71.3	0.1
	Avalon-La Contenta	52.1	70.9	71.0	0.1
	E of La Contenta	49.1	70.7	70.7	0.0
Sunnyslope/	Site-La Contenta	55.1	47.8	55.8	8.0
La Contenta/	29 Palms-Sunnyslope	55.1	59.6	60.9	1.3
	Sunnyslope-Yucca Trail	46.1	58.6	58.9	0.2
Yucca Trail/	Avalon-Indio	46.1	65.9	65.9	0.0
	Indio-La Contenta	46.1	65.4	65.4	0.1
	E of La Contenta	46.1	65.2	65.2	0.1

**411 TPD With and Without Project  
Year 2035**

Roadway Segment		dB CNEL at 50 feet from centerline			
		Project Traffic	Background Traffic	Project +Background	Project Impact
29 Palms/	W of Avalon	53.2	71.5	71.5	0.1
	Avalon-La Contenta	53.2	71.1	71.2	0.1
	E of La Contenta	53.2	70.9	70.9	0.1
Sunnyslope/	Site-La Contenta	56.2	47.8	56.8	9.0
La Contenta/	29 Palms-Sunnyslope	56.2	59.6	61.2	1.6
	Sunnyslope-Yucca Trail	45.4	58.6	58.8	0.2
Yucca Trail/	Avalon-Indio	45.4	66.1	66.1	0.0
	Indio-La Contenta	45.4	65.5	65.6	0.0
	E of La Contenta	45.4	65.3	65.4	0.0

As seen in Table 2, only one roadway segment will experience a traffic noise increase greater than +3 dB CNEL. This segment is on Sunnyslope Drive, east of the project site. Sunnyslope Drive currently carries 100 vehicles per day. The project adds up to an additional 600 vehicular trips. The only sensitive use on this roadway segment is the Black Rock Continuation/Alternative High School. However, even though the +3 dB CNEL threshold is exceeded, the “with project” noise level is less than 57 dB CNEL at 50 feet from the roadway centerline. The closest high school building to the roadway is well over 100 feet from the centerline. The traffic noise level experienced at the nearest structure would be slightly over 52 dB CNEL. The nearest recreational blacktop area is over 200 feet from the roadway centerline and traffic noise levels would decay to 47 dB CNEL at this location. The project traffic noise is expected to be well below the recommended 65 dB CNEL compatibility guideline for sensitive use and would not create a significant impact.

## OPERATIONAL ACTIVITY NOISE IMPACT

Collection trucks, contractor trucks and transfer trucks will access the site with from Sunnyslope Drive. They then proceed to the south for weigh in and unload in the tipping area located on the north side of the transfer station building. After off-loading, these vehicles also exit the facility through Sunnyslope Drive.

Sources of tipping noise include collection trucks unloading their loads, a loader used to move the materials, conveyor belts, sorting machinery, voices, sweepers, and occasional alarms. Estimates of noise levels from these activities projected 50 feet from the entrance and exit of the tipping floor are presented in Table 3.

The values in Table 3 were actually monitored at MRF/TS facilities with much higher daily throughput volumes of materials than for the proposed project. The levels in Table 3 were therefore used to create a very conservative stationary source impact assessment.



**Table 3**  
**Projected Noise Levels at 50 Feet from Tipping Floor Activity**

Source	Estimated Noise Level (dBA) 50 Feet from the Source				
	Lmax	L1.7	L8.3	L25	L50
Truck Movements	75	75	75	72	--
Truck Backup Alarm	85	--	--	--	--
Truck Hydraulic Pumps	73	73	70	--	--
Truck Unloading	75	75	72	--	--
Truck Air Brake	85	--	--	--	--
Loader	72	72	72	72	69
Conveyor	65	65	65	65	65
Alarms	82	82	79	--	--
Voices	62	62	62	62	62
Sorting	68	68	68	68	68
Sweepers	83	83	--	--	--
<b>Total</b>	<b>90</b>	<b>87</b>	<b>82</b>	<b>76</b>	<b>73</b>

Source: Mestre Greve Associates, *Noise Assessment for the Azusa Materials Recovery Facility and Transfer Station*, December 16, 2010.

The nearest school recreational area (blacktop) for Black Rock High School is 1,600 feet from the transfer station tipping pad and the La Contenta Middle School blacktop is more than 1,800 feet.

The distance decay between tipping floor reference noise levels and the nearest noise sensitive land use at Black Rock High is -30 dB ( $20 \times \log [50/1600] = -30$ ). The distance separation between La Contenta Middle School and the tipping pad is even greater. In addition, the tipping pad is located on the north side of the transfer building such that the structure itself will assist in noise reduction for Middle School receptors.

The resulting on-site activity noise levels at the closest sensitive uses, compared to both the Yucca Valley standards, are summarized in Table 4. For purposes of comparison, the City's residential standard has been applied to school uses.

**Table 4**  
**On-Site Activity Noise Impacts (dBA)**  
**(at the nearest noise-sensitive uses)**

Source	Lmax	L8.3	L25	L50
<b>Activity Total</b>	60	57	46	43
<b>Residential Standard</b> 7 am – 10 pm	75	65	60	55

The school is not used between the nocturnal hours of 10 p.m. to 7 a.m. Therefore only the daytime noise standards were evaluated. The additional noise increment from project operation is calculated to not cause daytime residential ordinance standards to be exceeded.