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5.11 NOISE

5.11.1 AFFECTED ENVIRONMENT

Noise Definitions

Noise is generally defined as unwanted sound. The standard unit of measurement of sound is the decibel (dB), which is based on a logarithmic scale. Because the human ear is not equally sensitive to sound at all frequencies, a frequency-dependent rating scale was developed to relate noise to human sensitivity. The A-weighted decibel scale (dBA) discriminates against very low and very high frequencies of the audible spectrum and is similar to the sensitivity of the human ear.

The range of the dBA scale extends from one dBA, defined as the threshold of hearing, to 140 dBA, defined as the threshold of pain. Everyday sounds normally range from very quiet, at about 30 dBA, to very loud at approximately 100 dBA. Each interval of 10 dBA indicates a ten-fold (logarithmic) sound energy increase that is perceived by the human ear as a doubling of the sound. For example, a noise of 15 dBA is heard as twice as loud as a sound of five dBA.

One commonly used scale in California for measuring noise levels and assessing land use compatibility is the Community Noise Equivalent Level (CNEL). The CNEL scale represents a time-weighted 24-hour average noise level. Weighting penalizes noise that occurs in the evening hours from 7:00 PM to 10:00 PM and the nighttime hours from 10:00 PM to 7:00 AM, by five and 10 dBA, respectively. These penalties reflect increased sensitivity to noise during those times of the day. Typical ambient noise levels for different types of land uses are shown in terms of the CNEL scale on Figure 5.11-1. As shown, rural and wilderness areas typically experience very low ambient noise levels, while land uses such as urban areas typically experience much higher ambient noise levels.

Noise levels drop off as the distance between the noise source and the receptor increases. For linear noise sources such as railroads and highways, noise levels drop off by approximately three dBA for each doubling of distance from the noise source. For example, a noise level of 65 CNEL at 50 feet from a road would drop to 62 dBA at 100 feet from the road. For stationary sources or mobile sources which are temporarily stationary, the drop would be six dBA for each doubling of distance from the noise source.

Existing Land Uses and Noise Sources

The Cadiz Project area is developed in an area of low and very low intensity land uses such as agriculture, mining, roads, railroads and public wilderness areas. Potentially noise-sensitive land uses in the Cadiz Project area are the Cadiz Dunes, Old Woman Mountains, Sheephole Valley and Trilobite Wilderness Areas. Other wilderness areas and Joshua Tree National Park are far enough from the Cadiz Project area that they will not be affected by project-generated noise. The California Desert Conservation Area Plan (BLM 1980) identifies only one Area of Critical Environmental Concern (ACEC) in the vicinity, Patton's Iron Mountain Divisional Camp. This historical site is comprised of remnants of World War II-era training facilities.

There are no existing residential, church, school, hospital or other noise-sensitive land uses in the vicinity of the proposed project. The nearest residential uses are approximately five miles away. The San Bernardino County General Plan Land Use Map designates most of this area as Resource Conservation (RC), with 9,600 acres at Cadiz Inc. agricultural operations designated Agriculture (AG).

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Given the remote location of the Cadiz Project area and the limitations of the RC land use designation, it is anticipated that few, if any, residential or other noise-sensitive uses would be constructed in this area in the future.

Existing noise sources in the Cadiz Project area include on- and off-road vehicles including cars, trucks, mining equipment, diesel generators and farm vehicles; trains; airplanes; and wind. In addition, military maneuvers and practice at the United States Marine Corps (USMC) Air Ground Combat Training Center northeast of Twentynine Palms include bombing, high-performance military aircraft exercises, and other combat training activities which create short-term, intermittent noise events which can be heard over a large area. The closest part of this Training Center is approximately 15 miles from the Cadiz Project area. The distance of the Training Center from the Cadiz Project area, combined with the noise-reducing effects of intervening topography, diminishes the noise associated with these military activities. Nonetheless, noise associated with bombing, high performance military aircraft and other very loud activities at the Training Center can be heard in the Cadiz Project area.

The County of San Bernardino General Plan Noise Element provides typical noise contour information for major highways. These contours were developed assuming an at-grade, six-lane highway in a 104-foot wide right of way, carrying nearly 60,000 vehicles per day, operating at 55 miles per hour. The vehicle mix assumes nearly 20 percent trucks. Based on these assumptions, the distances to various noise contours from the centerline of this typical road are shown in Table 5.11-1.

**TABLE 5.11-1
TYPICAL DISTANCES TO NOISE CONTOURS**

Noise Source	Distance (in feet) to Noise Contours				
	75 CNEL	70 CNEL	65 CNEL	60 CNEL	57 CNEL
Six-lane highway	120	278	560	1,000	1,325
Rail Freight	125	250	600	1,200	NA

NA = Not provided.

Sources: Figures II-6 and II-7 San Bernardino County General Plan Noise Element (Revised December 1993).

Because roads in the Cadiz Project area generally have fewer lanes (two lanes or narrower), they are assumed to result in lower noise levels than the typical highway identified in the General Plan. Therefore, the typical contours shown in Table 5.11-1 represents a worst case scenario of existing highway related noise levels in the Cadiz Project area.

The General Plan Noise Element also provides distances to noise contours for rail operations, assuming one 80-car freight train approximately 3,600 feet long. The contours associated with rail operations are also shown on Table 5.11-1.

Existing noise levels in the Cadiz Project area were measured using a Bruel & Kjaer Precision Integrating Sound Level Meter, type 2230. Measurements were collected at seven locations in the Cadiz Project area on August 5, 1999. Each location was monitored for a period of 15 minutes.

The meter was calibrated as shown in the manufacturer’s procedures prior to, during and after use in the field. Peak noise levels recorded in the Cadiz Project area resulted from truck traffic and wind.

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These locations are shown on Figure 5.11-2. Based on the measurements at these locations, average ambient noise conditions were found to generally be low and very low as shown in Table 5.11-2.

**TABLE 5.11-2
EXISTING NOISE LEVELS**

Monitoring Location (1)	Date/Time	Noise Level (L_{eq})	Comments
N1	August 5, 1999/10:05 AM	50.8 dBA	This area is affected by truck traffic to and from the salt beds.
N2	August 5, 1999/10:35 AM	31.9 dBA	No trains were recorded during the sound monitoring period.
N3	August 5, 1999/11:50 AM	33.4 dBA	No trains were recorded during the sound monitoring period.
N4	August 5, 1999/12:40 PM	38.8 dBA	No trains were recorded during the sound monitoring period.
N5	August 5, 1999/1:15 PM	41.4 dBA	No heavy vehicle activity in the vicinity of the salt beds was during the sound monitoring.
N6	August 5, 1999/2:00 PM	38.5 dBA	No trains were recorded during the sound monitoring period.
N7	August 5, 1999/2:25 PM	42.5 dBA	No trains were recorded during the sound monitoring period.

(1) See Figure 5.11-2 for monitoring locations N1 through N7.

Source: P&D Consultants, Inc. (August 1999).

5.11.2 CEQA THRESHOLDS OF SIGNIFICANCE

For purposes of CEQA, a project will normally have a significant adverse impact if it results in:

- Exposure of people to or the generation of noise levels in excess of standards established in the County General Plan or Noise Ordinance, or applicable noise levels of other agencies.
- Exposure of people to or the generation of excessive ground-borne vibration or groundborne noise levels.
- A substantial increase in ambient noise levels in the project vicinity, above levels existing without the project.
- Exposure of people residing or working in the Cadiz Project area to excessive noise levels from a private airstrip.

For a further discussion of CEQA thresholds of significance, see Section 5.20.

Federal, state and local governments have established noise standards and guidelines for the protection of the public which generally focus on reducing noise at the source, such as automobiles, aircraft and mechanical equipment. Land use regulations with respect to noise/land use compatibility are generally the responsibility of local governments such as the County of San Bernardino. The County's Noise Element identifies interior and exterior standards for noise associated with mobile sources for new development. These standards, shown in Table 5.11-3, identify specific noise level standards for residential, commercial, institutional/public and open space uses. These noise standards refer to operational noise only, not temporary construction noise. The Cadiz Project would be considered to result in a significant adverse noise impact if its operations resulted in noise levels exceeding these defined standards for these specific land uses. These standards apply to ongoing or long term noise sources.

**TABLE 5.11-3
INTERIOR/EXTERIOR NOISE LEVEL STANDARDS FOR MOBILE NOISE SOURCES**

Land Uses		CNEL	
Categories	Uses	Interior (1)	Exterior (2)
Residential	Single and multi-family, duplex, mobile homes	45	60 (3)
Commercial	Hotel, motel, transient lodging	45	60 (3)
	Commercial retail, bank, restaurant	50	n/a
	Office building, research and development, professional office	45	65
	Amphitheater, concert hall, auditorium, movie theater	45	n/a
Institutional/Public	Hospital, nursing home, school classroom, church, library	45	65
Open Space	Park	n/a	65
Notes:			
(1)	Indoor environment excluding bathrooms, kitchens, toilets, closets and corridors.		
(2)	Outdoor environment limited to:		
	Private yard of single-family dwellings	Park picnic areas	
	Multi-family private patios or balconies	School playgrounds	
	Mobile home parks	Hotel and motel recreation areas	
	Hospital/office building patios		
An exterior noise level of up to 65 CNEL will be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 CNEL with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level will necessitate the use of air conditioning or mechanical ventilation.			
Source: San Bernardino County General Plan Noise Element (Revised December 1993).			

The California Desert Conservation Area Plan identifies specific guidelines associated with four classes of multiple use of BLM owned/managed lands. None of these guidelines relate to the generation of noise on or near BLM lands or the mitigation of noise-related impacts.

5.11.3 METHODOLOGY

Existing noise levels in the Cadiz Project area were identified based on measurements of existing noise levels in the area and on typical noise contours in the County General Plan for highway and railroad noise. Potential noise associated with the construction and operation of the Cadiz Project was assessed by comparing existing noise levels to future conditions with Cadiz Project noise levels.

5.11.4 IMPACTS

Eastern and Eastern/Canal Alternatives

Construction Impacts

Construction for the Eastern and Eastern/Canal alternatives would require nine months for the project

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spreading basins and up to 12 months each for the water conveyance facilities, pump stations and the project wellfield. During these construction periods, short term noise would be generated by construction equipment and vehicles and worker vehicles as described in the following sections. Noise would occur up to 24 hours a day, 7 days a week during construction. Most noise would occur during the daily 20 hour period when construction shifts are scheduled to work.

Construction Equipment. Construction of the Eastern and Eastern/Canal alternatives would result in the generation of short term noise associated with equipment operations, and vehicular traffic for employee trips, materials delivery and hauling. Typical construction equipment expected to be used for the construction of the water conveyance facilities, the power distribution facilities, the project spreading basins, the project wellfield and the pump facilities. Typical noise levels associated with these types of construction equipment are shown in Table 5.11-4. Noise levels for construction equipment without mitigation range from a low of 75 dBA for a pickup truck and 91 dBA for an excavating truck. As noted earlier, there would be a reduction in these noise levels of approximately six dBA per doubling of distance from the piece of equipment. For example, as shown in Table 5.11-4, the noise level of a midsize crane at 50 feet from the equipment would be 83 dBA. At 100 feet from the loader, the noise level would drop by six dBA, to 77 dBA.

**TABLE 5.11-4
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS (dBA)**

Equipment	Noise Levels (in dBA) at 50, 100 and 200 Feet					
	With No Noise Control			With Feasible Noise Control [1]		
	50 Feet	100 Feet	200 Feet	50 Feet	100 Feet	200 Feet
Lifting						
Heavy Lift Crane	88	82	76	75	69	63
Mid-Size Crane	83	77	71	75	69	63
Small Crane	80	74	68	75	69	63
Excavating						
Backhoe	85	79	73	75	69	63
Truck	91	85	79	75	69	63
Grader	85	79	73	75	69	63
General Construction						
Air Compressor	81	75	69	75	69	63
Pump	76	70	64	75	69	63
Pick-Up Truck	75	69	63	75	69	63
Miscellaneous [2]	86	80	74	75	69	63
Notes:						
[1] Estimated levels obtainable with quieter procedures or machines, or by implementing noise control features that require no major redesign or extreme costs.						
[2] Miscellaneous pneumatic tools.						
Sources: United States Environmental Protection Agency, 1971. <u>Noise from Construction Equipment and Operations, Building Equipment and Home Appliances</u> , Office of Noise Abatement and Control, Washington, D.C.						

Table 5.11-4 also shows the effects of equipment or operating modifications on reducing noise levels associated with construction equipment. These include mufflers on exhausts and use of acoustical enclosures. Intervening topography, acting as a barrier between a piece of equipment and a sensitive receptor, would further reduce noise levels.

The potentially noise sensitive land uses in the general vicinity of the Cadiz Project area are the four wilderness areas. Of the four, the Cadiz Dunes Wilderness Area is closest to the construction easements for all alternatives. The wilderness area would be adjacent to the south side of the water conveyance facilities for a distance of approximately five miles. The Old Woman Mountains Wilderness Area would be located north of the water conveyance facilities. While the water conveyance facilities would not be directly adjacent to this wilderness area, it would run parallel and close enough for approximately three miles for consideration of potential noise impacts. The Sheephole Valley Wilderness Area would be southwest of the water conveyance facilities. At its closest point, the water conveyance facilities would be within approximately eight miles of this wilderness area. The Trilobite Wilderness Area is located north of Cadiz Project area, with the closest boundary being approximately 3.5 miles from the project spreading basins.

Therefore, depending on the equipment used and the actual distance from the equipment to the wilderness area, some parts of one or more of these wilderness areas may be subject to temporary noise during the construction period. This noise would predominantly be associated with the operation of bulldozers, backhoes and other excavation and earthmoving equipment. As shown in Table 5.11-4, noise levels of construction equipment with typical feasible noise controls at 100 feet from the noise source are approximately 69 dBA for a wide range of construction vehicles. At 200 feet from the noise source, noise levels are 63 dBA. It is unlikely that any visitors to the Cadiz Dunes or Old Woman Mountains wilderness areas would be any closer than 200 feet from the construction equipment under the Eastern and Eastern/Canal alternatives. The County of San Bernardino exterior noise standard for open space in general is 65 CNEL for operations. This standard does not, however, apply to temporary construction impacts. However, mitigation measure N-1, provided later in this section, would require Metropolitan's contractors to incorporate applicable noise controls on their equipment and in their construction activities. As a result, the use of typical feasible noise controls on construction equipment would reduce the short term construction noise impacts to below a level of significance. Nonetheless, for some visitors to these wilderness areas, the temporary noise generated during construction of the Eastern and Eastern/Canal alternatives could reduce the quality of their visitor experience, particularly visitors interested in quiet. This concern is also addressed in Section 5.17 (Wilderness/Recreation).

Blasting. Based on preliminary engineering and soils studies for the Eastern and Eastern/Canal alternatives, blasting may be necessary during construction at up to three locations along the water conveyance facility alignment, as shown on Figure 5.11-3. This blasting could occur over a total of eight days during the excavation of the water conveyance facility trench in these areas and may result in short-term, intermittent noise levels which may be heard in the Cadiz Dunes wilderness area and potentially in parts of the Old Woman Mountains wilderness area. Because of the distance of this part of the water conveyance facility construction from the Sheephole Valley and Trilobite wilderness areas, it is not expected that blasting noise would be noticeable at those locations. Blasting noise from the area near the Iron Mountain Pumping Plant is shielded from the Sheephole Valley Wilderness Area by the Iron Mountains.

The intermittent noise associated with blasting could be controlled in a number of ways, which are specific to the rock and blasting conditions present in the excavation area. As described later in mitigation measure N-2, Metropolitan would require construction contractors to control and monitor noise levels during blasting events. This would substantially reduce the adverse blasting noise impacts under the Eastern and Eastern/Canal Alternatives to below a level of significance. Nonetheless, for some visitors to the wilderness areas, the audible blasting events associated with the Eastern and Eastern/Canal alternatives could reduce the quality of their visitor experience to this area.

Vehicular Traffic. During construction, truck trips on area roads would temporarily be generated to bring construction materials to the work areas and, very rarely, to haul excess material to appropriate locations. Construction workers would generate short-term trips on area roads traveling to and from the construction sites. As discussed earlier in Section 5.7 (Transportation), the Eastern and Eastern/Canal alternatives would generate a minor increase in traffic volumes on area roads and would likely not result in an appreciable change in the levels of noise associated with these roads. However, as shown earlier in Table 5.11-3, existing noise levels near the Cadiz Dunes Wilderness Area were 38.8 dBA at receptor N4 and 38.5 dBA at N6. Therefore, existing traffic volumes and the corresponding noise levels in this area are substantially below the levels estimated in the General Plan for typical roads. The additional traffic that would be added to these roads during construction of the Eastern and Eastern/Canal alternatives would not substantially change noise levels near these roads to the extent that it would approach or exceed the County's 65 CNEL exterior noise level. No mitigation is necessary. Therefore, the construction-related surface transportation would not result in significant adverse noise impacts on Cadiz Dunes Wilderness Area or any other wilderness areas under the Eastern and Eastern/Canal alternatives.

Trains. Pipe for the water conveyance facilities may be delivered to the Cadiz Project area by train on flatcars joined to existing trains on the BNSF and ARZC railroads. These train trips would result in distances to noise contours similar to the distances shown earlier in Table 5.11-1. The distance to the 65 CNEL contour shown in that table was 600 feet. Assuming the pipe would be delivered on railcars which are part of another train, it is possible that small areas of Cadiz Dunes and/or Old Woman Mountain wilderness areas near Cadiz-Rice Road could fall within this 65 CNEL contour for the railroad. However, this would not be different than the existing train noise generated on this same track. Therefore, construction-related train traffic would not result in significant adverse noise impacts on the Cadiz Dunes, Old Woman Mountains or any other wilderness areas. No mitigation is necessary.

Exposure of Construction Workers to Noise. Construction workers working near heavy equipment may be subject to excessive levels of noise. However, construction personnel would be required to wear appropriate hearing protection, such as ear plugs or muffs, to reduce their exposure, consistent with federal and state worker safety requirements. Therefore, construction under the Eastern and Eastern/Canal alternatives would not be expected to result in significant adverse noise impacts on construction workers. No further mitigation is necessary.

Aircraft. As discussed earlier in Section 3.7 (Transportation), the Eastern and Eastern/Canal alternatives may result in a minor increase in the number of flights into and out of the private landing strips in the area, associated with Metropolitan or contractor personnel visiting the Cadiz Project. This is not expected to result in an adverse noise impact under the Eastern and Eastern/Canal alternatives because they would result in only a minor number of aircraft operations which would be similar to existing operations at these landing strips. No mitigation is necessary.

Construction Noise Impact Summary. In summary, construction of the Eastern or Eastern/Canal alternatives would not be anticipated to result in significant adverse short term noise impacts. Although the construction is not expected to result in significant adverse noise impacts on sensitive land uses, measure N-1, provided later in this section, is included in the Cadiz Project to ensure that construction equipment would be properly muffled and operated consistent with manufacturer's requirements.

As noted earlier, construction of the Eastern or Eastern/Canal alternatives could result in approximately eight days of intermittent noise associated with blasting in the central and far south segments of the water conveyance facilities. Mitigation measure N-2, provided later in this section, would substantially

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reduce this construction-related noise impact under the Eastern and Eastern/Canal alternatives, to below a level of significance.

Operations Impacts

Facility Operations. During operations, water would be pumped from the Colorado River Aqueduct to the project spreading basins or from the project wellfield to the Colorado River Aqueduct. The water conveyance facilities would be underground so there would be no noise associated with water being transported in this pipe. Along the water conveyance facilities, there are valves that may be used during pipe maintenance to release water or take in air. Noise from the operation of these valves would be minimal and would occur very infrequently (less than once per year on average). At the pump station, the pumping equipment would be in an enclosed concrete structure with no significant noise impacts generated outside the pump station building. In the project wellfield, each well would include an above ground electric pump motor, air and vacuum valve, and pressure gauge. This equipment would make only low levels of noise that would not be audible off the project wellfield site. No mitigation is necessary.

Metropolitan would operate and maintain the Cadiz Project facilities in the long term. This would result in noise associated with truck trips to the areas being maintained or to deliver supplies, and associated with the physical operation and maintenance of the equipment, as well as noise from employee vehicles. However, these activities would occur intermittently, would require only a small staff and would not result in high levels of noise. No mitigation is necessary.

Aircraft. As discussed earlier in Section 5.7 (Transportation), the Eastern and Eastern/Canal alternatives may result in a minor increase in the number of flights into and out of the private landing strips in the area, associated with Metropolitan operations, maintenance and supervisory staff visiting the Cadiz Project. This would not result in an adverse noise impact under the Eastern or Eastern/Canal alternatives because it would result in only a minor number of aircraft operations which would be similar to existing operations at these landing strips. No mitigation is necessary.

Operational Noise Impact Summary. In summary, the long term operations of the Eastern or Eastern/Canal alternatives would not result in significant adverse noise-related impacts. No noise standards would be exceeded. No mitigation is necessary.

Western Alternative

Construction Impacts

Construction for the Western Alternative would require temporary construction periods similar to the periods described earlier for the Eastern and Eastern/Canal Alternatives. During these construction periods, short-term noise would be generated by construction equipment and vehicles, and worker vehicles for the Western Alternative; similar to the noise generation described earlier for the Eastern and Eastern/Canal alternatives.

Construction Equipment. Construction of the Western Alternative would result in the generation of short-term noise associated with equipment operations, and vehicular traffic for employee trips, materials delivery and hauling very similar to the Eastern Alternative. Typical construction equipment expected to be used for construction for the Western Alternative would be the same as shown earlier in Table 5.11-4.

The water conveyance facilities for the Western Alternative would be adjacent to the Cadiz Dunes wilderness area for a distance of approximately five miles. The Old Woman Mountains wilderness area is located to the north of the water conveyance facilities. While the water conveyance facilities would not be directly adjacent to the Old Woman Mountains wilderness area, they would run parallel and close enough for approximately two miles for consideration of potential noise impacts. The Sheephole Valley Wilderness Area is located southwest of the water conveyance facility alignment. At its closest point, the Western Alternative would be within approximately five miles from this wilderness area. The Trilobite Wilderness Area would be approximately 3.5 miles north of the project spreading basins under the Western Alternative.

Therefore, depending on the equipment used and the actual distance from the equipment to the wilderness areas, some parts of one or more of these wilderness areas may be subject to temporary noise impacts during construction of the Western Alternative. As shown in Table 5.11-4, noise levels of construction equipment with typical feasible noise controls at 100 feet from the noise source are approximately 69 dBA for a wide range of construction vehicles. At 200 feet from the noise source, noise levels are 63 dBA. It is unlikely that any visitors to the Cadiz or Old Woman Mountains wilderness areas would be any closer than 200 feet from the construction equipment under the Western Alternative. Mitigation measure N-1, later in this section, would require Metropolitan's contractors to incorporate applicable noise controls on their equipment and in their construction activities. Therefore, the use of typical feasible noise controls on construction equipment would reduce the short-term construction noise impacts on these sensitive uses to below a level of significance under the Western Alternative. Nonetheless, for some visitors to the Cadiz and Old Woman Mountains wilderness areas, the temporary noise generated during construction of the Western Alternative could reduce the quality of their visitor experience, particularly visitors interested in quiet.

Blasting. Based on preliminary engineering and soils studies for the Western Alternative, blasting may be necessary during construction at up to four locations along the water conveyance facility alignment, as shown earlier on Figure 5.11-3. This blasting could occur over a total of six days during the excavation of the water conveyance facility trench in this area, and may result in short-term, intermittent noise levels which may be noticeable in the Cadiz Dunes Wilderness Area and potentially in parts of the Old Woman Mountains Wilderness Area. Because of the distance of this part of the water conveyance facilities construction from the Sheephole Valley and Trilobite wilderness areas, blasting related noise would not be noticeable at these locations.

As described later in mitigation measure N-2, Metropolitan would require construction contractors to control and monitor noise levels during blasting events. This would substantially reduce the adverse blasting noise impacts under the Western Alternative, to below a level of significance. Nonetheless, for some visitors to the Cadiz Dunes and Old Woman Mountains wilderness areas, the blasting under the Western Alternative could reduce the quality of their visitor experience to this area.

Vehicular Traffic. During construction, truck and employee vehicle trips on area roads under the Western Alternative would be the same as under the Eastern and Eastern/Canal alternatives. This would be a minor increase in traffic volumes on area roads and would likely not result in an appreciable change in the levels of noise associated with these roads. As shown earlier in Table 5.11-3, existing noise levels near the Cadiz Dunes Wilderness Area were 41.4 dBA at receptor N5 and 38.5 dBA at N6. Therefore, existing traffic volumes and the corresponding noise levels in this area would be substantially below the levels estimated in the General Plan for typical roads. The additional traffic added to these roads during construction of the Western Alternative would not substantially change noise levels near these roads and would not approach or exceed the County's 65 dBA exterior noise level. No mitigation is necessary.

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Trains. Pipe for the water conveyance facilities may be delivered to the Cadiz Project by train for the Western Alternative, resulting in train-related noise similar to the impacts discussed under the Eastern and Eastern/Canal alternatives. Therefore, it is possible that small areas of Cadiz Dunes and/or Old Woman Mountains wilderness areas, near Cadiz-Rice Road, could fall within the 65 CNEL contour for the railroad. However, this would not be substantially different than the existing train noise generated on this track in the same vicinity. Therefore, the construction-related train traffic for the Western Alternative would not result in significant adverse noise impacts on Cadiz Dunes, Old Woman Mountains or any other wilderness areas.

Exposure of Construction Workers to Noise. Construction workers working near heavy equipment may be subject to excessive levels of noise. However, all construction personnel would be required to wear appropriate hearing protection, such as ear plugs or muffs, to reduce their exposure. Therefore, construction under the Western Alternative would not result in significant adverse noise impacts on construction workers. No mitigation is necessary.

Aircraft. As discussed earlier in Section 3.7 (Transportation), construction of the Western Alternative may result in a minor increase in the number of flights into and out of the private landing strips in the area, associated with Metropolitan or contractor personnel visiting the Cadiz Project site. This would not result in an adverse noise impact under the Western Alternative because it would result in only a minor number of aircraft operations, which would be similar to existing operations at these landing strips. No mitigation is necessary.

Construction Noise Impact Summary. In summary, construction of the Western Alternative would not be anticipated to result in significant adverse short term noise impacts. Although the construction is not expected to result in significant adverse noise impacts on sensitive land uses, mitigation measure N-1, provided later in this Section, is included in the project to require that construction equipment would be properly muffled and operated consistent with manufacturer's requirements.

As noted earlier, construction of the Western Alternative would result in approximately six days of intermittent noise associated with blasting in the central segment of the water conveyance facilities. Mitigation measure N-2, provided later in this Section, would substantially reduce this construction-related noise impact under the Western Alternative, to below a level of significance. No mitigation is necessary.

Operations Impacts

Facility Operations. During operations under the Western Alternative, water would be pumped from the Colorado River Aqueduct to project spreading basins or from the project wellfield to the Colorado River Aqueduct. The water conveyance facilities would be underground so there would be no noise associated with water being transported. Along the water conveyance facilities, there would be valves that may be used during pipe maintenance to release water or take in air. Noise from the operation of these valves would be minimal and occur very infrequently (less than once a year on average). At the pump station, the pumping equipment would be in an enclosed concrete structure with no significant noise impacts generated outside the pump station building. In the project wellfield, each well would include an above ground electric pump motor, air and vacuum valve, and pressure gauge. This equipment would make only low levels of noise not expected to be audible off the project wellfield site.

Metropolitan would operate and maintain the Cadiz Project facilities in the long term. This would

result in noise associated with truck trips to reach areas being maintained or to deliver supplies, and associated with the physical operation and maintenance of the equipment, as well as noise from employee vehicles. However, these activities would occur intermittently, would require only a small staff and would not result in high levels of noise. No mitigation is necessary.

Aircraft. As discussed earlier in Section 3.7 (Transportation), the Western Alternative may result in a minor increase in the number of flights into and out of the private landing strips in the area, associated with Metropolitan operations, maintenance and supervisory staff visiting the Cadiz Project. This is not expected to result in an adverse noise impact under the Western Alternative because it would result in only a minor number of aircraft operations which would be similar to existing operations at these landing strips. No mitigation is necessary.

Operational Noise Impact Summary. In summary, the long term operations of the Western Alternative would not result in significant adverse noise related impacts. No noise standards would be exceeded. No mitigation is necessary.

Combination Alternative

Construction Impacts

Construction for the Combination Alternative would require construction periods similar to the construction periods for the other alternatives. During these construction periods, short term noise would be generated by construction equipment and vehicles, and worker vehicles, similar to the noise generation described earlier for the other alternatives.

Construction Equipment. Construction of the Combination Alternative would result in the generation of short term noise associated with equipment operations, and vehicular traffic for employee trips, materials delivery and hauling similar to the Eastern and Western alternatives. Typical construction equipment expected to be used for construction under the Combination Alternative would be the same as shown earlier in Table 5.11-4.

Cadiz Dunes Wilderness Area is the closest noise sensitive receptor to the Combination Alternative. The water conveyance facilities under the Combination Alternative would be directly adjacent to the Cadiz Dunes Wilderness Area, for a distance of approximately five miles. The Old Woman Mountains Wilderness Area would be located to the north of the water conveyance facilities. While the water conveyance facilities would not be directly adjacent to the Old Woman Mountains Wilderness Area, they would run parallel and close enough for approximately three miles for consideration of potential noise impacts. The Sheephole Valley Wilderness Area would be southwest of the water conveyance facilities. At its closest point, the Combination Alternative would be within approximately five miles of this wilderness area. The Trilobite Wilderness Area would be approximately 3.5 miles north of the project spreading basins under the Combination Alternative.

Therefore, depending on the equipment used and the actual distance from the equipment to the wilderness areas, some parts of one or more of them may be subject to temporary noise during construction under the Combination Alternative. As shown in the earlier Table 5-11.4, noise levels of construction equipment with typical feasible noise controls at 100 feet from the noise source are approximately 69 dBA for a wide range of construction vehicles. At 200 feet from the noise source, noise levels are 63 dBA. It is unlikely that any visitors to the Cadiz or Old Woman Mountains wilderness areas would be any closer than 200 feet from the construction equipment under the Combination Alternative. Mitigation measure N-1, later in this Section, requires Metropolitan's

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contractors to incorporate applicable noise controls on their equipment and in their construction activities. Therefore, the use of typical feasible noise controls on construction equipment would reduce the short-term construction noise impacts on these sensitive uses to below a level of significance for the Combination Alternative. Nonetheless, for some visitors to the Cadiz and Old Woman Mountains wilderness areas, the temporary noise generated during construction of the Combination Alternative could reduce the quality of their visitor experience, particularly visitors interested in quiet.

Blasting. Based on preliminary engineering and soils studies for the Combination Alternative, blasting may be necessary during construction at up to four locations along the water conveyance facility alignment, as shown earlier on Figure 5.11-3. This blasting could occur over a total of six days during the excavation of the water conveyance facility trench in this area and may result in short-term, intermittent noise levels which may be heard in the Cadiz Dunes Wilderness Area and potentially in parts of the Old Woman Mountains Wilderness Area. Because of the distance of this part of the water conveyance facilities construction from the Sheephole Valley and Trilobite wilderness areas, it is not expected that blasting related noise would be heard at these locations.

As described later in mitigation measure N-2, Metropolitan would require construction contractors to control and monitor noise levels during blasting. This would substantially reduce the adverse blasting noise impacts for the Combination Alternative, to below a level of significance. Nonetheless, for some visitors to the Cadiz Dunes and Old Woman Mountains Wilderness Areas, the blasting for the Combination Alternative could reduce the quality of their visitor experience to this area.

Vehicular Traffic. During construction, truck and employee vehicle trips on area roads would be the same as for the Eastern and Western alternatives. This would be a minor increase in traffic volumes on area roads and would likely not result in an appreciable change in the levels of noise associated with these roads. As shown earlier in Table 5.11-2, existing noise levels near the Cadiz Dunes Wilderness Area were 41.4 dBA at receptor N5 and 38.5 dBA at N6. Therefore, existing traffic volumes and the corresponding noise levels in this area are substantially below the levels estimated in the General Plan for typical roads. The additional traffic added to these roads during construction of the Combination Alternative would not substantially change noise levels near these roads and would not approach or exceed the County's 65 dBA exterior noise level. No mitigation is necessary.

Trains. Pipe for the water conveyance facility may be delivered to the Cadiz Project area by train for the Combination Alternative, resulting in train related noise similar to the impacts described for the Eastern Alternative. Therefore, it is possible that small areas of Cadiz Dunes and/or Old Woman Mountains wilderness areas, near Cadiz Road, could fall within the 65 CNEL contour for the train tracks. However, this would not be different than the existing train noise generated on this track in the vicinity of these wilderness areas. Therefore, the construction related train traffic for the Combination Alternative would not result in significant adverse noise impacts on Cadiz Dunes and Old Woman Mountains wilderness areas. No mitigation is necessary.

Exposure of Construction Workers to Noise. Construction workers working near heavy equipment may be subject to excessive levels of noise. All construction personnel would be required to wear appropriate hearing protection, to reduce their exposure. Therefore, construction for the Combination Alternative would not be expected to result in significant adverse noise impacts on construction workers. No mitigation is necessary.

Aircraft. As discussed earlier in Section 3.7 (Transportation), the Combination Alternative may result in a minor increase in the number of flights into and out of the private landing strips in the area, associated with Metropolitan or contractor personnel visiting the Cadiz Project. This would not be

expected to result in an adverse noise impact for the Combination Alternative because it would result in only a minor number of aircraft operations which would be similar to existing operations at these landing strips. No mitigation is necessary.

Construction Noise Impact Summary. In summary, construction of the Combination Alternative would not be anticipated to result in significant adverse short term noise impacts. Although the construction would not be expected to result in significant adverse noise impacts on sensitive land uses, mitigation measure N-1, provided later in this Section, is included in the Cadiz Project to require that construction equipment would be properly muffled and operated consistent with manufacturer's requirements.

As noted earlier, construction of the Combination Alternative would result in approximately six days of intermittent noise associated with blasting in the central part of the water conveyance facilities alignment. Mitigation measure N-2, provided later in this Section, would substantially reduce construction related noise impacts under the Combination Alternative, to below a level of significance. No further mitigation is necessary.

Operations Impacts

Facility Operations. During operations under the Combination Alternative, water would be pumped from the Colorado River Aqueduct to the project spreading basins or from the project wellfield to the Colorado River Aqueduct. The water conveyance facilities from the project wellfield to the Colorado River Aqueduct would be underground so there would be no noise associated with water being transported. Along the water conveyance facilities there would be valves that may be used during maintenance to release water or take in air. Noise from the operation of these valves would be minimal and would occur very infrequently. At the Cadiz Pumping Plant, the pumping equipment would be in an enclosed concrete structure with no significant noise impacts generated outside the Cadiz Pumping Plant building. In the project wellfield, each well would include an above ground electric pump motor, air and vacuum valve, and pressure gauge. This equipment would make only low levels of noise not expected to be audible off the project wellfield site.

Metropolitan would operate and maintain the Cadiz facilities in the long term. This would result in noise associated with truck trips to reach areas being maintained or to deliver supplies, and associated with the physical operation and maintenance of the equipment, as well as noise for employee vehicles. However, these activities would occur intermittently and would not result in high levels of noise. No mitigation is necessary.

Aircraft. As discussed earlier in Section 3.7 (Transportation), the Combination Alternative may result in a minor increase in the number of flights into and out of the private landing strips in the area, associated with Metropolitan operations, maintenance and supervisory staff visiting the Cadiz Project site. This is not expected to result in an adverse noise impact under the Combination Alternative because it would result in only a minor number of aircraft operations which would be similar to existing operations at these landing strips. No mitigation is necessary.

Operational Noise Impact Summary. In summary, the long term operation and maintenance of the Combination Alternative would not result in significant adverse noise-related impacts. No noise standards would be exceeded. No mitigation is necessary.

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No Project Alternative

The No Project Alternative would not result in any construction in the Cadiz Project area and would not result in any new, long-term, operations related noise generation in the Cadiz Project area. Therefore, the No Project Alternative would not result in any changes in ambient noise levels in the area. No mitigation is necessary.

5.11.5 MITIGATION MEASURES

As discussed earlier, noise control and muffling measures can substantially reduce noise associated with construction. The following measures are incorporated in the Cadiz Project to address short-term construction noise.

- N-1 During site preparation, grading, excavation and construction, Metropolitan will require all the construction contractors to incorporate feasible muffling and noise control devices into construction vehicles, equipment and construction methods and to maintain all construction vehicles and equipment in efficient operating condition.
- N-2 Metropolitan will require all construction contractors to control and monitor noise during all blasting activities. The construction specifications will identify the locations where blasting may occur and measures the contractor must implement to control blasting-related noise. Depending on the specific blasting requirements and rock conditions at each blasting location, these measures may include the use of smaller, deeper charges; variable spacing of charges and/or phasing of charges.

The Eastern, Eastern/Canal, Western and Combination alternatives is not anticipated to result in significant adverse noise impacts in the long-term. No mitigation is necessary for long-term operations and maintenance.

5.11.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Mitigation measure N-1, above, will reduce construction related noise to below a level of significance for all build alternatives. Mitigation measure N-2, above, will reduce construction related blasting noise to below a level of significance for all build alternatives.

The Eastern, Eastern/Canal, Western and Combination alternatives would not be anticipated to result in significant adverse noise impacts in the long-term.