3.9 Noise

This chapter describes noise and noise sources in the SCAG region, identifies potential noise impacts of the RTP, includes mitigation measures for the impacts, and evaluates the residual impacts.

Environmental Setting

Noise Descriptors

Sound waves, traveling outward from a source, exert a sound pressure level (commonly called "sound level"), measured in decibels (dB). "Noise" is often defined as unwanted sound, and environmental noise is usually measured in "A-weighted" decibels, which is a decibel corrected for the variation in frequency response of the typical human ear at commonly-encountered noise levels. All noise levels discussed herein reflect A-weighted decibels. In general, people can perceive a two- to three-dB difference in noise levels; a difference of 10 dB is perceived as a doubling of loudness.

Environmental noise levels typically fluctuate across time of day; different types of noise descriptors are used to account for this variability, and different types of descriptors have been developed to differentiate between cumulative noise over a given period and single noise events. Cumulative noise descriptors include the energy-equivalent noise level (Leq), Day-Night Average Noise Level (DNL), and Community Noise Equivalent Level (CNEL). The Leq is the actual time-averaged, equivalent steady-state sound level, which, in a stated period, contains the same acoustic energy as the time-varying sound level during the same period. DNL and CNEL values result from the averaging of Leq values (based on A-weighted decibels) over a 24-hour period, with weighting factors applied to different periods of the day and night to account for their perceived relative annoyance. For DNL, noise that occurs during the nighttime period (10:00 p.m. to 7:00 a.m.) is "penalized" by 10 dB. CNEL is similar to DNL, except that it also includes a "penalty" of approximately 5 dB for noise that occurs during the evening period (7:00 p.m. to 10:00 p.m.). Cumulative noise descriptors, DNL and CNEL, are well correlated with public annoyance due to transportation noise sources. **Table 3.9-1** shows the compatibility between various land uses and CNEL.

Individual noise events, such as train pass-bys or aircraft over-flights, are further described using single-event and cumulative noise descriptors. For single events, the maximum measured noise level (Lmax) is often cited, as is the Sound Exposure Level (SEL). The SEL is the energy-based sum of a noise event of given duration that has been “squeezed” into a reference duration of one second, and is typically a value 5 to 10 dB higher than the Lmax.

TABLE 3.9-1
NOISE LAND USE COMPATIBILITY MATRIX

Land Use	Annual Community Noise Equivalent Level (CNEL) in Decibels				
	55	60	65	70	75
Outdoor Amphitheatres					
Nature preserves, wildlife preserves, livestock farming; neighborhood and playgrounds					
Schools, preschools, libraries		45			
Residential- single family and multiple family, mobile homes, residential hotels, retirement homes, intermediate care facilities, hospitals, nursing homes		45			
Hotels and motels, other transient lodging; auditoriums, concert halls, indoor arenas, churches		45	45		
Office buildings- business, educational, professional and personal services; R&D offices and laboratories			50		
Riding stables, water recreation facilities, regional parks and athletic fields, cemeteries; outdoor spectator sports, golf courses					
Commercial- retail; shopping centers, restaurants, movie theatres			50	50	
Commercial- wholesale; industrial; manufacturing					
Agriculture (except residences and livestock), extractive industry, fishing, utilities, and public R-O-W					

	Compatible: The outdoor community noise equivalent level is sufficiently attenuated by conventional construction that the indoor noise level is acceptable, and both indoor and outdoor activities associated with the land use may be carried out.
45	**Conditionally Compatible:** The outdoor community noise equivalent level will be attenuated to the indoor level shown, and the outdoor noise level is acceptable for associated outdoor activities.
	Incompatible: The community noise equivalent level is severe. Although extensive mitigation techniques could make the indoor environment acceptable for performance of activities the outdoor environment would be intolerable for outdoor activities associated with the land use.

Vibration Measuring and Reporting

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration can be a serious concern,

causing buildings to shake and rumbling sounds to be heard. In contrast to noise, vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of vibration are trains, buses on rough roads, and construction activities, such as blasting, pile driving, and heavy earth-moving equipment. Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. The decibel notation, VdB, is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration.[1]

High levels of vibration may cause physical personal injury or damage to buildings. However, groundborne vibration levels rarely affect human health. Instead, most people consider groundborne vibration to be an annoyance that may affect concentration or disturb sleep. In addition, high levels of groundborne vibration may damage fragile buildings or interfere with equipment that is highly sensitive to groundborne vibration (e.g., electron microscopes). To counter the effects of groundborne vibration, the Federal Railway Administration (FRA) and the Federal Transmit Administration (FTA) have published guidance relative to vibration impacts. According to FRA, fragile buildings can be exposed to groundborne vibration levels of 0.5 PPV without experiencing structural damage.[2] The FTA has identified the human annoyance response to vibration levels as 80 VdB.[3]

In contrast to noise, groundborne vibration is not a phenomenon that most people experience every day. The background vibration velocity level in residential areas is usually 50 VdB or lower, well below the threshold of perception for humans, which is around 65 VdB.4 Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, the vibration from traffic is rarely perceptible.

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others due to noise exposure (in terms of both exposure time and “insulation” from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, natural areas, parks and outdoor recreation areas are generally more sensitive to noise than are commercial and industrial land uses. Consequently, the noise standards for sensitive land uses are more stringent than those for less sensitive uses, such as commercial and industrial.

1 Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, April 1995.

2 Federal Railway Administration, High-Speed Ground Transportation Noise and Vibration Impact Assessment, December 1998.

3 Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, April 1995.

To protect various human activities and sensitive land uses (e.g., residences, schools, and hospitals) lower noise levels are needed. A noise level of DNL 55 to 60 dB outdoors is the upper limit for intelligible speech communication inside a typical home. In addition, social surveys and case studies have shown that complaints and community annoyance in residential areas begin to occur at DNL 55 dB[4]. Sporadic complaints associated with the DNL 55 to 60 dB range give way to widespread complaints and individual threats of legal action within the DNL 60 to 70 dB range. At DNL 70 dB and above, residential community reaction typically involves threats of legal action and strong appeals to local officials to stop the noise.

Noise Sources

Many principal noise generators within the SCAG region are associated with transportation (i.e., airports, freeways, arterial roadways, seaports, and railroads). Additional noise generators include stationary sources, such as industrial manufacturing plants and construction sites. Local collector streets are not considered to be a significant source of noise since traffic volume and speed are generally much lower than for freeways and arterial roadways. Generally, transportation-related noise sources characterize the ambient noise environment of an area.

Airports

The SCAG region contains six established air carrier airports including Los Angeles International (LAX), Bob Hope (formerly Burbank), John Wayne, Long Beach, Ontario and Palm Springs. There are also four new and emerging air carrier airports in the Inland Empire and North Los Angeles County. These include San Bernardino International Airport (formerly Norton AFB), March Inland Port (joint use with March Air Reserve Base), Southern California Logistics Airport (formerly George AFB) and Palmdale Airport (joint use with Air Force Plant 42).

Freeways and Arterial Roadways

The region has over 20,717 centerline (route) miles and over 64,771 lane-miles of roadways, including one of the most extensive High-Occupancy Vehicle (HOV) lane systems in the country. Additionally, the region has a growing network of tolled lanes and High Occupancy Toll (HOT) lanes. Regionally significant arterials provide access to the freeway system and often serve as parallel alternate routes; in some cases, they are the only major system of transportation available to travelers.

The extent to which traffic noise levels along these roads affect sensitive land uses depends upon a number of factors. These include whether the roadway itself is elevated above grade or depressed below grade, whether there are intervening structures or terrain between the roadway and the sensitive uses, and the distance between the roadway and such uses. For example, measurements show that depressing a freeway by approximately 12 feet yields a reduction in traffic noise relative to an at-grade freeway of 7 to 10 dB at all distances from the freeway.[5]

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4 United States Environmental Protection Agency. July 1981. Noise effects handbook (pp.8-2). Washington, DC: Author.

5 Beranek, L. L. 1988. *Noise and vibration control* (pp. 182). New York: McGraw-Hill.

Traffic noise from an elevated freeway is typically 2 to 10 dB less than the noise from an equivalent at-grade facility within 300 feet of the freeway, but beyond 300 feet, the noise radiated by an elevated and at-grade freeway (assuming equal traffic volumes, fleet mix, and vehicle speed) is the same.[6]

Additionally, the region has an enormous number of arterial roadways. Typical arterial roadways have one or two lanes of traffic in each direction, with some containing as many as four lanes in each direction. Noise from these sources can be a significant environmental concern where buffers (e.g., buildings, landscaping, etc.) are inadequate or where the distance from centerline to sensitive uses is relatively small. Given typical daily traffic volumes of 10,000 to 40,000 vehicle trips, noise levels along arterial roadways typically range from DNL 65 to 70 dB at a distance of 50 feet from the roadway centerlines.

Railroad Operations

Railroad operations generate high, relatively brief, intermittent noise events. These noise events are an environmental concern for sensitive uses located along rail lines and in the vicinities of switching yards. Locomotive engines and the interaction of steel wheels and rails primarily generate rail noise. The latter source creates three types of noise: 1) rolling noise due to continuous rolling contact, 2) impact noise when a wheel encounters a rail joint, turnout or crossover, and 3) squeal generated by friction on tight curves. For very high speed rail vehicles, air turbulence can be a significant source of noise as well.[7] In addition, use of air horns and crossing bell gates contribute to noise levels in the vicinity of grade crossings. **Table 3.9-2**: provides reference noise levels in terms of Sound Exposure Levels (SEL) for different types of rail operations.

Freight Trains

Noise levels generated by freight train passby events reflect locomotive engine noise and rail car wheel rail interaction. The former depends upon track grade conditions (i.e., uphill versus downhill) and is largely independent of speed whereas the latter is highly speed dependent, increasing approximately 6 dB for each doubling of train velocity.[8] In addition to noise, freight trains also generate substantial amounts of ground-borne noise and vibration in the vicinity of the tracks. Ground-borne noise and vibration is a function of both the quality of the track and the operating speed of the vehicles.

6 *Ibid*.

7 Wyle Laboratories. July 1973. Assessment of noise environments around railroad operations (Research Report No.
WCR 73-5 El Segundo, CA: Author.

8 "Class I" railroads have annual gross revenues of $250 million or more.

TABLE 3.9-2
REFERENCE NOISE LEVELS FOR VARIOUS RAIL OPERATIONS

Source/Type		Reference Conditions	Reference Noise Level (SEL)*
Commuter Rail, At-Grade	Locomotives	Diesel-Electric, 3,000 horsepower, throttle 5	92
		Electric	90
	Cars	Ballast, welded rail	82
Rail Transit		At-grade, ballast, welded rail	82
Automated Guideway Transit	Steel wheel	Aerial, concrete, welded rail	80
	Rubber tire	Aerial, concrete guideway	78
Monorail		Aerial straddle beam	82
Maglev		Aerial, open guideway	72

Notes: *Measured at 50 feet from track centerline with trains operating at 50 miles per hour. For the sake of comparison, an automobile passby event generates approximately SEL 73 dB, and a city bus generates approximately SEL 84 dB. SEL = Sound Exposure Level

SOURCE: United States Department of Transportation, Federal Aviation Administration. (1995, April). *Transit Noise and Vibration Impact Assessment*. Washington, DC: Author.

The SCAG region has an extensive network of railroad lines belonging primarily to two major railroads: Union Pacific Railroad (UP) and Burlington Northern Santa Fe Railway (BNSF).[9] SCAG's Inland Empire Railroad Main Line Study suggest that the number of freight trains on most BNSF and UP lines will more than double between 2000 and 2025 in response to a tripling of container volume at the San Pedro Bay Ports. A rail line supporting 40 freight trains per day generates approximately DNL 75 dB at 200 feet from the tracks. BNSF rail lines extend south from switching yards in eastern Los Angeles to the Los Angeles and Long Beach ports complex and east to Arizona and points beyond via San Bernardino County. BNSF generates approximately DNL 75 dB at a distance of 200 feet from the tracks.

Commuter and Inter-city Passenger Trains

In general, the noise generated by commuter rail facilities (powered by either diesel or electric locomotives) is from the locomotives themselves. In the SCAG region, there are two commuter and inter-city passenger train operators: AMTRAK and the Southern California Regional Rail Authority (SCRRA). AMTRAK operates trains with destinations in Seattle, Chicago, Orlando, San Diego, and San Luis Obispo. A typical AMTRAK passby event generates SEL 107 dB at 50 feet[10]; two such events during the daytime or evening periods generate approximately DNL 61 dB at 50 feet and approximately DNL 52 dB at 200 feet. Nine such events generate approximately DNL 67 dB at 50 feet and 58 DNL dB at 200 feet.

9 Two of the major railroads that historically have been associated with California, the Southern Pacific Railroad and the Atchison, Topeka and Santa Fe Railway, have merged into other railroad companies. In 1995, the Atchison Topeka, and Santa Fe Railway merged with Burlington Northern to become Burlington Northern Santa Fe Railway. In the following year, the Southern Pacific Railroad merged with Union Pacific Railroad with the merged company retaining the Union Pacific name.

10 County of Ventura. May 1988. *Ventura county general plan, hazards appendix*. Ventura, CA: Author.

The Southern California Regional Rail Authority operates the Metrolink commuter rail system. This system currently includes seven rail lines, with destinations in Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties. Noise levels generated by Metrolink are similar to those associated with AMTRAK.

Port Operations

The Ports of Long Beach, Los Angeles and Hueneme are major regional economic development centers. The San Pedro Bay Ports, which include the Los Angeles and Long Beach Ports, currently handle approximately 40 percent of the volume imported into the country and approximately 24 percent of the nation's exports, the Port of Hueneme in Ventura County is a major shipping point for automobiles, fresh fruit and produce. Approximately $7 billion in cargo traverses through the Port of Hueneme annually, and trade related activity generated by the Port contributes significantly to the local economy.

At the ports, noise is generated from four sources: ships using the port facilities; equipment associated with cargo activity within the port; and truck and rail traffic that move cargo to and from the ports. All sources affect the ambient noise levels in the port areas. Residential areas in San Pedro and West Long Beach are affected most by truck and rail traffic related to the ports.

The Alameda Corridor provides a substantial long-term reduction in noise and vibration associated with rail operations in the vicinities of the Ports of Long Beach and Los Angeles. The Alameda Corridor consolidates the operations of UP and BNSF on 90 miles of existing branch line tracks into one 20-mile corridor along Alameda Street. This corridor provides a direct connection between the ports of Long Beach and Los Angeles and the UP and BSNF switching yards in eastern Los Angeles. The project includes four overpasses and three underpasses at intersections south of State Route 91 that allow vehicles to pass above the trains. North of State Route 91, trains pass through a 10-mile, 33-foot-deep trench. The construction of tracks in a below-grade trench, track construction on new base materials, and the use of continuous welded track reduce noise impacts on adjacent uses from trains associated with the ports. The project also includes sound walls in certain locations to mitigate vehicle noise along Alameda Street in residential neighborhoods and other sensitive areas.

Industrial, Manufacturing, and Construction

Noise from industrial complexes, manufacturing plants and construction sites are characterized as stationary, or point, sources of noise even though they may include mobile sources, such as forklifts and graders. Local governments typically regulate noise from industrial, manufacturing, and construction equipment and activities through enforcement of noise ordinance standards, implementation of general plan policies, and imposition of conditions of approval for building or grading permits.

Industrial complexes and manufacturing plants are generally located away from sensitive land uses, and, as such, noise generated from these sources generally has less effect on the local community. In contrast to industrial and manufacturing plants, construction sites are located throughout the region and are often located within, or adjacent to, residential districts. In general, construction activities generate high noise levels intermittently on and adjacent to the construction

sites, and the related noise impacts are short-term in nature. The dominant source of noise from most construction equipment is the engine, usually a diesel engine, with inadequate muffling. In a few cases, however, such as impact pile driving or pavement breaking, noise generated by the process dominates. Construction equipment can be considered to operate in two modes, stationary and mobile. Stationary equipment operates in one location for one or more days at a time, with either a fixed-power operation (pumps, generators, compressors) or a variable noise operation (pile drivers, pavement breakers). Mobile equipment moves around the construction site with power applied in cyclic fashion (bulldozers, loaders), or movement to and from the site (trucks).[11]

Construction-related noise levels generally fluctuate depending on the construction phase, equipment type and duration of use, distance between noise source and receptor, and presence or absence of barriers between noise source and receptor. **Table 3.9-3** shows typical noise levels associated with various types of construction-related machinery. These noise levels, which correspond to a distance of 50 feet, decrease by approximately 6 dB with each doubling of distance from the construction site (e.g., noise levels from excavation might be approximately 83 dB at 100 feet from the site, and about 77 dB at 200 feet from the site). Interior noise levels from construction are approximately 10 dB (open windows) to 20 dB (closed windows) less than exterior noise levels due to the attenuation provided by building facades.[12]

TABLE 3.9-3
DEMOLITION AND CONSTRUCTION EQUIPMENT SOURCE NOISE LEVELS

Equipment Type	Typical Equipment dB Level	Quieted Equipment dB Level*
Air Compressor	81	71
Backhoe	85	80
Concrete Pump	82	80
Concrete Vibrator	76	70
Concrete Breaker	82	75
Truck Crane	88	80
Dozer	87	83
Generator	78	71
Loader	84	80
Paver	88	80
Pneumatic Tools	85	75
Water Pump	76	71
Power Hand Saw	78	70
Shovel	82	80
Trucks	88	83
Pile Drivers	90	80

Notes: Noise levels for typical and quieted equipment at 50 feet from source. *Quieted equipment can be designed with enclosures, mufflers, or noise-reducing features.
SOURCE: United States Environmental Protection Agency. (1971). *Noise from construction equipment and operations, building equipment and home appliances*. Washington, DC: U.S. Government Printing Office.

11 *Ibid.*

12 Cornett, C.L. and Hina, C.E. 1979. Methods for predicting noise and vibration impacts. Washington, DC: United States Department of Transportation, Transportation Systems Center.

Steel Wheel Urban Rail Transit

This category includes both heavy and light rail transit. Heavy rail is generally defined as electrified rapid transit trains with dedicated guideway, and light rail as electrified transit trains that do not require dedicated guideway. In general, noise increases with speed and train length. Sensitivity to rail noise generally arises when there is less than 50 feet between the rail and sensitive receptors. A significant percentage of complaints about noise can be attributed to the proximity of switches, rough or corrugated track, or wheel flats. In the SCAG region, the Los Angeles County Metropolitan Transit Authority (Metro) provides urban rail transit service on four lines within Los Angeles County. The Blue Line extends from Long Beach to the 7th Street Metro Center in downtown Los Angeles. The Red Line connects Union Station with North Hollywood via the Metro Center, the Gold Line connects Union Station with Pasadena, and the Green Line extends from Redondo Beach to Norwalk. As shown in **Table 3.9-2** individual urban rail transit passby events generate substantially less noise than commuter rail events, but the aggregate noise impact for sensitive uses along the line can be similar or greater due to the much higher number of events.

Existing Vibration Sources

Similar to the environmental setting for noise, the vibration environment is typically dominated by traffic from nearby roadways and activity on construction sites. Heavy trucks can generate groundborne vibrations that vary depending on vehicle type, weight, and pavement conditions. Heavy trucks typically operate on major streets. Nonetheless, vibration levels adjacent to roadways are typically not perceptible.

Regulatory Setting

The federal government sets noise standards for transportation-related noise sources that are closely linked to interstate commerce, such as aircraft, locomotives, and trucks, and, for those noise sources, the state government is preempted from establishing more stringent standards.

The State sets noise standards for those transportation noise sources that are not preempted from regulation, such as automobiles, light trucks, and motorcycles. Noise sources associated with industrial, commercial, and construction activities are generally subject to local control through noise ordinances and general plan policies.

Federal Agencies and Regulations

Federal Highway Administration (FHWA)

Federal regulations for railroad noise are contained in 40 CFR Part 201 and 49 CFR Part 210. The regulations set noise limits for locomotives and are implemented through regulatory controls on locomotive manufacturers.

Federal regulations also establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 CFR Part 205, Subpart B. The federal truck passby noise standard is 80 dB at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers. The FHWA regulations for noise

abatement must be considered for federal or federally-funded projects involving the construction of a new highway or significant modification of an existing freeway when the project would result in a substantial noise increase or when the predicted noise levels approach or exceed the "Noise Abatement Criteria."

Under the regulations, a "substantial increase" is defined as an increase in Leq of 12 dB during the peak hour of traffic noise. For sensitive uses, such as residences, schools, churches, parks, and playgrounds, the Noise Abatement Criteria for interior and exterior spaces is Leq 57 and 66 dB, respectively, during the peak hour of traffic noise.

Federal Aviation Administration (FAA)

Aircraft operated in the U.S. are subject to certain federal requirements regarding noise emissions levels. These requirements are set forth in Title 14 CFR, Part 36. Part 36 establishes maximum acceptable noise levels for specific aircraft types, taking into account the model year, aircraft weight, and number of engines. Pursuant to the federal Airport Noise and Capacity Act of 1990, the FAA established a schedule for complete transition to Part 36 "Stage 3" standards by year 2000. This transition schedule applies to jet aircraft with a maximum takeoff weight in excess of 75,000 pounds, and thus applies to passenger and cargo airlines, but not to operators of business jets or other general aviation aircraft.

Although the National Environmental Policy Act (NEPA) does not establish specific noise standards, the noise impacts of projects are routinely considered as one of the potential environmental consequences of federal actions subject to NEPA.

Federal Vibration Policies. The Federal Railway Administration (FRA) and the Federal Transit Administration (FTA) have published guidance relative to vibration impacts. According to the FRA, fragile buildings can be exposed to groundborne vibration levels of 0.5 PPV without experiencing structural damage.[13] The FTA has identified the human annoyance response to vibration levels as 80 VdB.[14]

State Agencies and Regulations

California's Airport Noise Standards

The State of California has the authority to establish regulations requiring airports to address aircraft noise impacts on land uses in their vicinities. The State of California's Airport Noise Standards, found in Title 21 of the *California Code of Regulations*, identify a noise exposure level of CNEL 65 dB as the noise impact boundary around airports. Within the noise impact boundary, airport proprietors are required to ensure that all land uses are compatible with the aircraft noise environment or the airport proprietor must secure a variance from the California Department of Transportation.

13 Federal Railway Administration, *High-Speed Ground Transportation Noise and Vibration Impact Assessment*, December 1998.
14 Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, April 1995.

California Department of Transportation (Caltrans)

The State of California establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the State passby standard is consistent with the federal limit of 80 dB. The State passby standard for light trucks and passenger cars (less than 4.5 tons gross vehicle rating) is also 80 dB at 15 meters from the centerline. For new roadway projects, Caltrans employs the Noise Abatement Criteria, discussed above in connection with FHWA.

California Noise Insulation Standards

The California Noise Insulation Standards found in the *California Code of Regulations*, Title 24, set requirements for new multi-family residential units, hotels, and motels that may be subject to relatively high levels of transportation-related noise. For exterior noise, the noise insulation standard is DNL 45 dB in any habitable room and requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than DNL 60 dB.

State Vibration Policies.

There are no adopted state policies or standards for ground-borne vibration. However, Caltrans recommends that extreme care be taken when sustained pile driving occurs within 7.5 meters (25 feet) of any building, and 15 to 30 meters (50 to 100 feet) of a historic building or a building in poor condition.

Local Agencies and Regulations

To identify, appraise, and remedy noise problems in local communities, each county and city in the SCAG region has adopted a noise element as part of its General Plan. Each noise element is required to analyze and quantify current and projected noise levels associated with local noise sources, including, but not limited to, highways and freeways, primary arterials and major local streets, rail operations, air traffic associated with the airports, local industrial plants, and other ground stationary sources that contribute to the community noise environment. Beyond statutory requirements, local jurisdictions are free to adopt their own goals and policies in their noise elements, although most jurisdictions have chosen to adopt noise/land use compatibility guidelines that are similar to those recommended by the State. The overlapping DNL ranges indicate that local conditions (existing noise levels and community attitudes toward dominant noise sources) should be considered in evaluating land use compatibility at specific locations.

In addition to regulating noise through noise element policies, local jurisdictions regulate noise through enforcement of local ordinance standards. These standards generally relate to noisy activities (e.g., use of loudspeakers and construction) and stationary noise sources and facilities (e.g., air conditioning units and industrial activities). Three cities in the SCAG region, Los Angeles, Long Beach and Port Hueneme, operate port facilities. Noise from the Ports of Los Angeles, Long Beach and Hueneme are regulated by the noise ordinances and noise elements of the Los Angeles, Long Beach and Port Hueneme General Plans.

In terms of airport noise, some of the actions that airport proprietors have been allowed to take to address local community noise concerns include runway use and flight routing changes, aircraft

operational procedure changes, and engine run-up restrictions. These actions generally are subject to approval by the FAA, which has the authority and responsibility to control aircraft noise sources, implement and enforce flight operational procedures, and manage the air traffic control system. Airport proprietors may also consider limitations on airport use, but such restrictions can be overridden by the Federal Aviation Administration if it is determined that they unjustly discriminate against any user, impede the Federal interest in safety and management of the air navigation system, or unreasonably interfere with interstate commerce.

Methodology

This section summarized the methodology used to evaluate the expected noise impacts from implementing the 2008 RTP.

Comparison with the No Project

The analysis of noise impacts includes a comparison between the expected future conditions with the proposed Plan and the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts (which is based on a comparison to existing conditions); however, it provides a meaningful perspective on the effects of the 2008 RTP.

Determination of Significance

Noise associated with highway traffic is dependent on a number of variables including:

- traffic volume,
- motor vehicle speed,
- motor vehicle fleet mix (cars, trucks, etc.), and
- location of the roadway with respect to sensitive receptors.

Noise from highway traffic is generally measured in terms of one-hour equivalent steady-state sound levels that contain the same acoustic energy as a time-varying sound level (Leq1h). Following FHWA guidance, noise impacts occur when predicted noise levels increase substantially when compared to existing levels, or when noise levels approach or exceed the FHWA's noise abatement criteria (NAC).

To evaluate the alternatives, the existing condition was compared with the future 2035 alternatives. The comparisons were accomplished using GIS by "overlaying" the network traffic results for the existing condition, with results for the Plan and identifying the following:

- roadways proposed to be on a new alignment , and,
- roadways where it is anticipated that noise levels would increase 3 dBA or more above existing levels.

Roadways anticipated to have an increase of 3 dBA from existing conditions are roadways where:

- the total traffic volume increases 100 percent from existing conditions,

- the truck (medium and heavy) volume increases by 130 percent from existing conditions, or
- the truck (medium and heavy) volume increases by 100 percent with an increase in other vehicles of 50 percent.

It was also determined that the evaluation should consider the potential for absolute noise impacts. Following guidance published by Caltrans, a noise impact is determined to occur if predicted noise levels approach the NAC for land use (activity category) "B" by 1 dBA (66 dBA).

The FHWA's Traffic Noise Model (TNM) Version 2.5 was used in the highway noise analysis to identify total vehicle volumes, the number of trucks, and speeds necessary to generate a sound level of 66 dBA at a location 50 feet from the edge of pavement. The analysis was preformed for a number of differing volumes, vehicle mixes and speeds as each independently contributes to the level of sound generated on roadways. This assessment was conducted independently for freeways and arterial/collector roadways in order to accurately account for the differences in roadway pavement widths.

Using a Geographic Information System (GIS) platform, the roadway segments for Plan and No Project were sorted by total vehicles, total trucks, and speeds. The roadway segments within the 6-county region for each scenario were then assessed against the total volumes, mixes and speeds calculated by the TNM to identify those segments that met or exceeded 66 dBA.

Using the criteria described above, the total miles of potentially affected roadways (arterials and interstates) were identified for the Plan and no Project Alternative compared to today.

Significance Criteria

A significant impact is defined as "a substantial or potentially substantial, adverse change in the environment" (*CEQA Guidelines* § 21068). The proposed Plan would have a significant noise impact if implementation would potentially result in:

- Noise levels, groundborne noise levels and excessive groundborne vibration that increase substantially and temporarily adjacent to transportation facility construction.
- Noise levels, groundborne noise levels and excessive groundborne vibration that increase substantially and permanently adjacent to transportation facilities.
- Noise levels that increase substantially and permanently adjacent to sensitive receptors.
- A cumulatively considerable increase in regional ambient noise levels.

Impacts and Mitigation Measures

All mitigation measures should be included in project-level analysis as appropriate. The project proponent or local jurisdiction shall be responsible for ensuring adherence to the mitigation measures prior to construction. For regionally significant projects SCAG shall be provided with documentation of compliance with mitigation measures through its Intergovernmental Review Process in which all regionally significant projects, plans, and programs must be consistent with regional plans and policies.

Impact 3.9-1: Grading and construction activities associated with the proposed freeway, arterial, transit and HSRT projects identified in the 2008 RTP would intermittently and temporarily generate noise levels above ambient background levels. Noise levels in the immediate vicinity of the construction sites would increase substantially sometimes for extended duration.

Freeway and arterial projects proposed in the 2008 RTP include the widening of existing freeways and the construction of new interchanges. A few projects would involve constructing new freeway segments, including auxiliary capacity enhancement facilities and mixed flow connectors.

Construction activities associated with the proposed Plan would result in temporary noise increases at nearby sensitive receptors. **Table 3.9-4:** presents the different types of freeway, transit and goods movement projects which typically emit noise during construction. The table also shows the relative duration of construction noise created by project type. Impacts to sensitive receptors resulting from these proposed projects would depend on several factors, such as the type of project proposed for the given area, land use of the given area, and duration of proposed construction activities. Additionally, construction noise levels would fluctuate depending on construction phase, equipment type, and duration of use; distance between noise source and receptor; and presence or absence of barriers between noise source and receptor. .Sensitive receptors could be affected by projects involving the construction of new systems (new facilities, capacity enhancement facilities, rail corridors, interchanges, underground rail lines), located within the vicinity of the receptor. Generally, construction related noise impacts would be short term and localized in nature. Nonetheless, construction of projects in the 2008 RTP would result in a substantial increase in short term noise, thus this impact would be **significant**.

Mitigation Measures

MM-NO.1: Project implementing agencies shall comply with all local sound control and noise level rules, regulations, and ordinances.

MM-NO.2: Project implementing agencies shall limit the hours of construction to between 6:00 a.m. and 8:00 p.m. on Monday through Friday and between 7:00 a.m. and 8:00 p.m. on Saturdays. Construction should not occur on Sundays or Holidays within 3,000 feet of sensitive receptors without specific overriding need being documented.

MM-NO.3: Equipment and trucks used for project construction shall utilize the best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) in order to minimize construction noise impacts.

TABLE 3.9-4
TYPES AND DURATION OF NOISE PRODUCED BY PROPOSED PROJECTS

PROJECT TYPE	Noise Levels			Duration		
	High	Medium	Low	Extended	Medium	Short
Freeways and Arterials						
Arterials/Interchanges	x			x		
Expressway	x			x		
Freeway – Mixed-flow	x			x		
HOV Connector	x			x		
Reconfigure Ramp	x			x		
Replace Overcrossing	x			x		
Capacity Enhancement Facilities	x			x		
Widen Underpass (4-6 lanes)	x			x		
Auxiliary Lanes		x			x	
Climbing Lanes		x			x	
HOT Lanes		x			x	
Interchange Addition		x			x	
Bikeways		x				x
Capacity Enhanced Arterial		x				x
Interchange Improvement		x			x	
Park & Ride		x				x
Roadway Operations & Maintenance			x			x
Smart Street Improvements			x			x
Transit						
Commuter Rail	x			x		
High Speed Rail	x			x		
Inter-city Rail	x			x		
Transit Center		x			x	
Grade Crossing			x			x
Intelligent Transportation Systems			x			x
Light Rail	x			x		
Rail Improvement	x			x		
Rail Tunnel Improvement	x			x		
Goods Movement						
Port Rail Access Improvements	x			x		

Note: Project specific impacts depend on location and location of sensitive receptors. This table provides a general assessment of noise generated by different types of impacts irrespective of the relationship to sensitive receptors.

MM-NO.4: Impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered wherever possible, to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed air exhaust would be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves should be used where feasible, and this could achieve a reduction

of 5 dBA. Quieter procedures will be used, such as the use of drilling rather than impact equipment, whenever feasible.

MM-NO.5: Project implementing agencies shall ensure that stationary noise sources are located as far from sensitive receptors as possible. If they must be located near existing receptors, they shall be adequately muffled.

MM-NO.6: The project implementing agencies shall designate a complaint coordinator responsible for responding to noise complaints received during the construction phase. The name and phone number of the complaint coordinator shall be conspicuously posted at construction areas and on all advanced notifications. This person shall be responsible for taking steps required to resolve complaints, including periodic noise monitoring, if necessary.

MM-NO.7: Noise generated from any rock-crushing or screening operations performed within 3,000 feet of any occupied residence shall be mitigated by the project proponent by strategic placement of material stockpiles between the operation and the affected dwelling or by other means approved by the local jurisdiction.

MM-NO.8: Project implementing agencies shall direct contractors to implement appropriate additional noise mitigation measures including, but not limited to, changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources to comply with local noise control requirements.

MM-NO.9: Project implementing agencies shall implement use of portable barriers in the vicinity of sensitive receptors during construction including construction of subsurface barriers, debris basins, and storm water drainage facilities.

MM-NO.10: In residential areas, pile driving will be limited to daytime working hours. No pile-driving or blasting operations shall be performed within 3,000 feet of an occupied residence on Sundays, legal holidays, or between the hours of 8:00 p.m. and 8:00 a.m. on other days. Any variance from this condition shall be approved by the local jurisdiction only with documentation of overriding need.

MM-NO.11: Wherever possible, sonic or vibratory pile drivers will be used instead of impact pile-drivers (sonic pile drivers are only effective in some soils). If sonic or vibratory pile drivers are not feasible, acoustical enclosures will be provided as necessary to ensure that pile driving noise does not exceed speech interference criterion at the closest sensitive receptor.

MM-NO.12: Engine and pneumatic exhaust controls on pile drivers will be required as necessary to ensure that exhaust noise from pile driver engines is minimized to the extent feasible.

MM-NO.13: Where feasible, pile holes will be pre-drilled to reduce potential noise and vibration impacts.

Significance after Mitigation

The above mitigation measures would reduce noise impacts; however, it is anticipated that construction noise would remain a **significant** impact.

Impact 3.9-2: Noise-sensitive land uses could be exposed to noise in excess of normally acceptable noise levels and/or could experience substantial increases in noise as a result of the operation of expanded or new transportation facilities (i.e., increased traffic resulting from new highways, addition of highway lanes, roadways, ramps, and new transit facilities as well as increased use of existing transit facilities, etc.).

At the regional scale, the noise impacts of new highways, highway widening, new HOV lanes, new transit corridors, and increased frequency along existing transit corridors are generally expected to exceed the significance criteria when they occur near sensitive receptors. **Table 3.9-5** shows existing hospitals schools, nursing homes and senior centers that would be within 0.25 miles of RTP and No Project Alternative projects. **Table 3.9.6** lists proposed new and expanded facilities with potential noise impacts, including highway, freeway, rail transit, tollway, truck-climbing lanes, freeway interchanges, and HSRT projects. Arterials, transportation demand management projects, operations and maintenance projects, grade crossings, ramp and interchange improvements, county-wide bus route expansions, and transit facility improvements are not specifically considered here because noise impacts already occur in the vicinity of these facilities, and determining increases in noise requires greater precision of information.

It should be noted that the list of projects identified in the following table are indicative of projects most likely to generate potentially significant noise impacts due to facility operation, but the list is neither exhaustive nor definitive. Each of the projects included in the 2008 RTP would need to be evaluated independently as part of its own environmental assessment and review process.

Freeways

Table 3.9-7 shows the percentage of freeways and arterials in each county and in the region that would experience noise levels exceeding 66 dBA, which is the Caltrans noise abatement criterion for noise sensitive land uses for existing conditions, the Plan, and the No Project Alternative. As indicated in table 3.9-6 most freeways (97 percent in the region) will experience noise levels exceeding 66 dBA.

Changes in the percentage of miles of noise affected freeways and arterials are a direct result of increases and decreases in the traffic volumes, changes in fleet mix, and speeds assigned to each roadway in each county and additional interstate facilities proposed with the Plan.

The evaluation did not take into account whether there are sensitive receptors located adjacent to the freeways and arterials, but evaluates all roadways equally, regardless of whether sensitive land uses are adjacent.

Transit

The 2008 RTP includes projects for rail transit and Metrolink. It is anticipated that any noise sensitive land uses located immediately adjacent to these lines would be significantly impacted. The existing urban rail and Metrolink system would experience increased use. Sensitive uses located along existing lines would be further exposed to noise associated with increased rail and light rail activities.

High Speed Regional Transport (HSRT)

In addition, the Plan includes 269 centerline miles of HSRT for passenger and freight, although several lines or segments would be built along existing right-of-way, the addition of HSRT to existing transportation infrastructure could result in a significant increase in noise levels.

As shown in **Table 3.9-5**, it is anticipated that at a minimum the following sensitive receptors would be within 0.25 miles of RTP and No Project Alternative projects and could be impacted by projects in the No project condition and 2008 RTP. Because the projects included within the No Project Alternative would occur with or without the Plan, total number of sensitive receptors affected under 2035 with the Plan would be a combination of both columns in the chart below:

TABLE 3.9-5
SENSITIVE RECEPTORS WITHIN 0.25 MILES OF 2008 RTP PROJECTS AND NO PROJECT ALTERNATIVE PROJECTS

Sensitive Receptor	No Project	2008 RTP Plan
Colleges	19	4
Hospitals	8	8
Public Elementary Schools	17	14
Public Middle Schools	4	3
Public High Schools	11	5
Nursing Homes	26	14
Senior Centers	5	4
Private/religious Schools	58	17

Source: Southern California Association of Governments (2007)

Mitigation Measures

MM-NO.14: As part of the appropriate environmental review of each project, a project specific noise evaluation shall be conducted and appropriate mitigation identified and implemented.

TABLE 3.9-6
DRAFT 2008 RTP PROJECTS WITH POTENTIAL NOISE IMPACTS

CO	Route/Program	From	To	Description
IM	JASPER RD.	SR-111	SR-7	WIDEN FROM 2 TO 6 LANES (3 EACH DIR) LIMITED ACCESS EXPRESSWAY
IM	SR-115	I-8	EVAN HEWES HWY	CONSTRUCT 4-LANE LIMITED ACCESS EXPRESSWAY
IM	I-8	DOGWOOD RD		ON I-8 AT DOGWOOD RD, CONSTRUCT FULL INTERCHANGE - WIDEN DOGWOOD FROM 2 TO 4 LANES (2 EACH DIR) OVER I-8
IM	SR-186/I-8			IMPROVE INTERCHANGE - ON SR-186 ADD 1 LANE EACH DIR BETWEEN RAMPS, AND WIDEN RAMPS
IM	SR-111	SR-98	I-8	UPGRADE TO FREEWAY (3 LANES EACH DIR) INCL. INTERCHANGES AT MCCABE, JASPER, HEBER, AND OVERCROSSING AT CHICK RD
LA	I-5	ROUTE 19	I-710	RTE 5 HOV LNS FROM RTE 19 TO RTE 710 - ADD ONE LANE IN EACH DIRECTION
LA	SR-14	AVE. P-8	AVE. L	ADD 1 HOV LANE EACH DIRECTION ON THE SR-14 FROM AVE. P-8 TO AVE. L
LA	I-5/I-405	SOUTH	NORTH	I-5/I-405 CARPOOL LANE PARTIAL CONNECTOR (SOUTH TO NORTH)
LA	PIER B ST/TERMINAL ISLAND FWY			INTERCHANGE IMPROVEMENT - NEW NB ON-RAMP TO SR-103
LA	SR-57/SR-60			SR-57/SR-60 INTERCHANGE IMPROVEMENT
LA	PORTS OF LOS ANGELES/LONG BEACH			NEW CERRITOS CHANNEL RAIL BRIDGE
LA	PORTS OF LOS ANGELES/LONG BEACH			TRIPLE TRACK S/O THENARD
LA	METRO RAIL GOLD LINE EXTENSION	AZUSA-CITRUS	MONTCLAIR	METRO RAIL GOLD LINE EXTENSION-SEGMENT 2 AZUSA-CITRUS TO MONTCLAIR STATION LRT EXTENSION.
LA	METRO RAIL GREEN LINE EXTENSION	MARIPOSA & NASH	CENTURY & SEPULVEDA-LAX TERMINAL	PEOPLE MOVER OR LIGHT RAIL
OR	M1 ROADWAY PROJECTS	COUNTYWIDE		COMPLETION OF MEASURE M ROADWAY PROJECTS
OR	REGIONAL CAPACITY PROGRAM	COUNTYWIDE		COMPLETE MPAH, IMPROVE ARTERIAL CAPACITY
OR	I-5 SB	LA PAZ ROAD	OSO PARKWAY	EXTEND AUXILIARY LANE THROUGH INTERCHANGE
OR	I-5 SB	ALICIA PARKWAY	LA PAZ ROAD	EXTEND AUXILIARY LANE THROUGH INTERCHANGE
OR	SR-55 NB	DYER	EDINGER	ADD AUXILIARY LANE

TABLE 3.9-6 (Continued)
DRAFT 2008 RTP PROJECTS WITH POTENTIAL NOISE IMPACTS

CO	Route/Program	From	To	Description
OR	SR-91 WB	NB SR-55	WB SR-91 AT TUSTIN	ADD 1 AUX LANE WESTBOUND
OR	I-405 SB	SR-133	IRVINE CENTER DRVE	ADD 2ND AUXILIARY LANE
OR	I-405 NB	JEFFREY	CULVER	ADD AUXILIARY LANE
OR	I-405	EUCLID	MAGNOLIA	ADD AUXILIARY LANE EACH DIRECTION AND REPLACE BRIDGES
OR	I-405 NB	SR-133	JEFFREY	ADD AUXILIARY LANE
OR	I-5	COAST HIGHWAY	PICO	ADD 1 HOV LANE EACH DIRECTION
OR	I-5	SR-55	SR-57	ADD 1 HOV LANE EACH DIRECTION
OR	SR-57	CERRITOS		HOV DROP RAMP
OR	SR-73	I-405		HOV CONNECTOR
OR	SR-73	I-405	MACARTHUR	ADD 1 HOV LANE EACH DIRECTION
OR	I-405	AT VON KARMAN		HOV DROP RAMP
OR	I-405	BEAR		HOV DROP RAMP
OR	I-5	AVERY PARKWAY		AVERY PARKWAY RAMP RELOCATION, RECONFIGURATION, UPGRADES
OR	I-5	STONEHILL DR		ADD SOUTHBOUND I-5 OFF-RAMP AT STONEHILL
OR	I-5	EL TORO ROAD (LOS ALISOS)		ADD RAMPS AT LOS ALISOS OR AVE. DE LA CARLOTA
OR	I-5	MARGUERITE PARKWAY		ADD NEW INTERCHANGE AT MARGUERITE PARKWAY (SADDLEBACK CC CONNECTION)
OR	I-405 SB/SR-55 NB	SOUTH BRISTOL BRAID		DELETE LEFT TURN ACCESS FROM NB BRISTOL TO SB I-405. PROVIDE RIGHT TURN ON-RAMP FROM NB BRISTOL TO SB I-405 VIA A NEW BRAID THAT ALSO PROVIDES DIRECT ACCESS TO NB SR-55.
OR	SR-57 SB	SR-90		ADD DECELERATION LANE
OR	SR-73	GLENWOOD DRIVE		COMPLETE GLENWOOD INTERCHANGE TO/FROM SOUTH
OR	SR-91	LAKEVIEW INTERCHANGE		CONSTRUCT BARRIER-SEPARATED ON-RAMP (2 LANES) FROM SB LAKEVIEW TO WB SR-91
OR	I-5	SR-133	SR-55	ADD 1 MF LANE EACH DIRECTION
OR	I-5	SR-57	SR-91	ADD 1 LANE EACH DIRECTION
OR	I-5	SR-73	EL TORO RD	ADD 1 MF LANE EACH DIRECTION
OR	SR-55	I-405	I-5	ADD 1 LANE EACH DIRECTION, FIX CHOKEPOINTS

TABLE 3.9-6 (Continued)
DRAFT 2008 RTP PROJECTS WITH POTENTIAL NOISE IMPACTS

CO	Route/Program	From	To	Description
OR	SR-55	SR-22	I-5	ADD MF LANE IN EACH DIRECTION
OR	SR-91 EB	SR-57	SR-55	ADD 1 MF LANE
OR	SR-91	SR-241	I-15	IN ORANGE COUNTY, ADD A WB MF LANE FROM 241 OFF RAMP TO GYPSUM CANYON AND AUX LANES EACH DIRECTION BETWEEN 241 AND COUNTY LINE. SEE RIVERSIDE COUNTY FOR ADDITIONAL IMPROVEMENTS.
OR	I-405	I-5	SR-55	ADD 1 MF LANE EACH DIRECTION
OR	SR-91	FAIRMONT DRVE		CONSTRUCT NEW PARTIAL OVERCROSSING AT FAIRMONT BLVD TO PROVIDE NORTHERLY ACCESS FOR YORBA LINDA TO/FROM SR-91 EXPRESS LANES; DROP RAMPS ON EAST SIDE OF OVERCROSSING, TO EB AND FROM WB EXPRESS LANES
OR	METROLINK COMMUTER RAIL	COUNTYWIDE		HIGH-FREQUENCY SERVICE TO LA & RIVERSIDE AND CORRIDOR IMPROVEMENTS
OR	SR-57 NB	LAMBERT	TONNER CANYON ROAD	TRUCK CLIMBING LANE
OR	I-405 NB	LAKE FOREST DRIVE	IRVINE CENTER DRVE	ADD 2ND NB TRUCK LANE
RI	SR-79	DOMENIGONI PKWY	GILMAN SPRINGS RD.	REALIGNMENT/WIDENING 4 TO 6 LANES
RI	SR-79	HUNTER RD	DOMENIGONI PKWY	WIDEN FROM 4 TO 6 LANES
RI	I-10	CALIMESA @ COUNTY LINE RD	500 METERS E/O SANDLWOOD DR I/C	REPLACE BRIDGE, RAMPS, CONSTRUCT AUXILIARY LANES, AND REALIGN CALIMESA RD
RI	I-15	SR79 SOUTH	SR79 NORTH	ADD 1 AUXILIARY LANE IN BOTH DIRECTIONS
RI	I-15	SR-60	SAN BERNARDINO COUNTY LINE	ALSO SBD-15-0.0/2.39 ROUTE 60 TO I-10 ADD & EXTEND AUX LANES
RI	SR-60	0.4 MI E/O I-15/SR-60 IC	0.2 MI E/O MAIN ST	ADD AUXILIARY LANES BOTH DIRECTIONS
RI	I-15	I-215/I-15 JCT	SR74	BUILD 2 HOV LANES (1 LANE IN EACH DIRECTION)
RI	I-215	NUEVO RD	BOX SPRINGS RD	ADD 1 HOV LANE IN EACH DIRECTION
RI	NEW INTERCHANGE LANDAU AND I-10	AVENIDA	VARNER ROAD	CONSTRUCT NEW 6-LANE MIXED FLOW, PARTIAL CLOVERLEAF IC WITH AUXILIARY LANES AND 4 TWO LANE RAMPS PLUS 6 LANE GRADE SEPARATION BRIDGE OVER UPRR BETWEEN PALM DR IC AND DATE PALM DRIVE IC
RI	I-10	AT HIGHLAND SPRINGS AVE	BTWN 5TH ST AND SOUTH RAMPS	RECONSTRUCT/WIDEN IC FROM 4 TO 6 LANES AND RECONSTRUCT/WIDEN RAMPS
RI	I-10	AT SUNSET AVE	BTWN RAMPS	RECONSTRUCT/WIDEN IC FROM 2 TO 4 LANES AND RECONSTRUCT/WIDEN RAMPS

TABLE 3.9-6 (Continued)
DRAFT 2008 RTP PROJECTS WITH POTENTIAL NOISE IMPACTS

CO	Route/Program	From	To	Description
RI	I-10	AT AVE 50	I-10	CONSTRUCT NEW 4 LANE IC AND RAMPS
RI	I-10	AT SR-79/ BEAUMONT AVE	BTWN 6TH ST & 1ST ST	RECONSTRUCT/WIDEN IC FROM 4 TO 6 LANES AND RECONSTRUCT/WIDEN RAMPS
RI	I-10	AT 8TH ST	BTWN RAMSEY ST & LINCOLN ST	RECONSTRUCT/WIDEN IC UC 2 TO 4 LANES AND RECONSTRUCT/WIDEN RAMPS
RI	I-10	IN CABAZON (R18.9) (FROM APPROX SEMINOLE DR N/O I-10)	AT MAIN STREET IC (19.9) (TO APPROX BONITA AVE S/O I-10)	IMPROVE INTERCHANGE - WIDEN 3 TO 6 LANES & CONSTRUCT RR GRADE SEPARATION CROSSING
RI	I-10	AT COUNTY LINE RD	BTWN 7TH ST & I-10 EAST RAMPS	RECONSTRUCT/WIDEN IC FROM 2 TO 4 LANES AND RECONSTRUCT/WIDEN RAMPS
RI	I-10	AT DILLON RD	BTWN VISTA DEL NORTE AND VISTA DEL SUR	RECONSTRUCT/WIDEN IC FROM 2 TO 4 LANES AND RECONSTRUCT/WIDEN RAMPS
RI	I-10	AT FUTURE DA VALL DR AT I-10 SOUTH OF VARNER ROAD	DA VALL ROAD SOUTH OF UPRR	CONSTRUCT NEW 6-LANE MIXED FLOW, PARTIAL CLOVERLEAF IC WITH AUXILIARY LANES AND 4 TWO LANE RAMPS PLUS 6 LANE GRADE SEPARATION BRIDGE OVER UPRR BETWEEN RAMON ROAD IC AND DATE PALM DRIVE IC
RI	I-10/SR-60 JCT/SPLIT	SR60/I-10 JCT/SPLIT		CONSTRUCT NEW INTERCHANGE
RI	I-15	AT NICHOLS RD	BTWN RAMPS	RECONSTRUCT/WIDEN IC FROM 2 TO 6 LANES AND RECONSTRUCT/WIDEN RAMPS
RI	I-15	AT OLIVE ST	BTWN ORCHARD ST AND GRAPE ST	CONSTRUCT NEW 4 LANE IC AND RAMPS
RI	I-15	AT MALAGA RD	BTWN CASINO DR LAKEVIEW TERRACE AND GRAPE ST	CONSTRUCT NEW 4 LANE OC OVER I-15
RI	I-15	AT SECOND ST (CHANEY AVE)	BTWN COLLIER AVE AND CAMINO DEL NORTE	CONSTRUCT NEW 4 LANE ARTERIAL CONNECTING OVERCROSS OVER I-15
RI	I-15	AT RIVERSIDE DR	BTWN COLLIER AVE AND DEXTER AVE	CONSTRUCT NEW 4 LANE OC OVER I-15
RI	I-15	AT LEMON ST UC	BTWN ALMOND ST AND GRAPE ST	WIDEN UC FROM 2 TO 4 LANES
RI	I-15	AT BELLEGRAVE AVE	BTWN HAMNER AVE & WINEVILLE RD	ADD SIGNALS AND RAMPS. 0.1 MI.
RI	I-15	AT LAKE ST	BTWN WALKER CYN RD TEMESCAL CYN RD	RECONSTRUCT/WIDEN IC FROM 2 TO 6 LANES AND RECONSTRUCT/WIDEN RAMPS
RI	I-15	AT 2ND ST	BTWN HAMNER AVE & VALLEY VIEW AVE	RECONSTRUCT/WIDEN IC FROM 2 TO 4 LANES AND WIDEN RAMPS

TABLE 3.9-6 (Continued)
DRAFT 2008 RTP PROJECTS WITH POTENTIAL NOISE IMPACTS

CO	Route/Program	From	To	Description
RI	I-15	AT 6TH ST	BTWN HAMNER AVE & SIERRA AVE	RECONSTRUCT INTERCHANGE/RAMPS/CHANNELIZATION IMPROVEMENTS
RI	I-15	AT I-15/RANCHO CALIFORNIA	BTWN YNEZ RD AND JEFFERSON AVE	RECONFIGURE 4 TO 6 LANE IC AND RAMPS AT I-15. TYPE OF LANES FOR ARTERIAL WIDENING WILL BE THROUGH LANES
RI	I-15	AT FRANKLIN	BTWN MAIN ST AND RR	CONSTRUCT NEW 4 LANE IC AND RAMPS
RI	I-15	AT BUNDY CANYON RD	BTWN ORANGE ST & CHERRY ST	RECONSTRUCT/WIDEN IC FROM 2 TO 4 LANES AND RECONSTRUCT RAMPS
RI	I-15	AT TEMESCAL CANYON	NEAR INDIAN TRUCK TRAIL AND GLENN IVY JUST BEYOND AND BTWN RAMPS	RECONSTRUCT/WIDEN IC FROM 2 TO 4 LANES AND RECONSTRUCT RAMPS
RI	I-15	AT HORSETHIEF CANYON RD	JUST BEYOND AND BTWN RAMPS	RECONSTRUCT/WIDEN IC FROM 2 TO 4 LANES AND RECONSTRUCT RAMPS
RI	SR-60	AT REDLANDS BLVD	BTWN HEMLOCK AVE & FIR AVE	WIDEN ARTERIAL FROM 2 TO 4 THROUGH LANES. RECONSTRUCT TO TYPE L-9/EB OFF - 3 LANES, EB ON - 2 LANES, WB OFF - 2 LANES, WB ON - 2 LANES
RI	SR-60	AT PERRIS BLVD	BTWN SUNNYMEAD BLVD & IRONWOOD	RECONSTRUCT/WIDEN ARTERIAL FROM 4 TO 6 LANES AND RECONSTRUCT/WIDEN RAMPS
RI	SR-60	AT GILMAN SPRINGS ROAD	BTWN N/B & S/B ON/OFF RAMPS	WIDEN ARTERIAL FROM 2 THROUGH LANES TO 6 THROUGH LANES. RECONSTRUCT/WIDEN TO EB OFF - 2 LANES, EB ON - 1 LANE, WB OFF - 1 LANE, WB ON - 2 LANES/WIDEN RAMPS
RI	SANDERSON AVE (SR-79)	AT RAMONA EXPRESSWAY (SR-79)	BTWN N.RAMONA BLVD AND RAMONA EXP.	CONSTRUCT NEW 6 LANE I/C AND RAMPS
RI	SR-79 (HEMET BYPASS)	AT SR-74 (FLORIDA AVE)	WEST OF HEMET (BETWEEN WARREN AVE AND 1/2 MILE WEST OF SR79/SR74 INTERSECTION)	CONSTRUCT NEW 6 LANE I/C AND RAMPS
RI	SR86S	AT SR195 (AVE 66) NEAR MECCA	BTWN PIERCE ST AND LINCOLN ST	CONSTRUCT NEW 4 LANE IC AND RAMPS
RI	SR-86	AT AVE 54	BTWN SR-111 & FILLMORE	CONSTRUCT 4 LANE BRIDGE/INTERCHANGE AND RAMPS ACROSS SR-86
RI	SR-86S	NEAR COACHELLA, SR-86S	AT AVE. 62	CONSTRUCT A 4 LANE SPREAD DIAMOND IC W/ 4 RAMPS 2 LANE ENTRANCE RAMPS AND 1 LANE EXIT RAMPS
RI	SR86S	AT DILLON RD	BTWN WEST OF COACHELLA STORM WATER CHANNEL AND AVENUE 47	RECONSTRUCT/WIDEN IC FROM 2 TO 4 LANES AND RECONSTRUCT/WIDEN RAMPS
RI	SR86S	AT AVENUE 52	BTWN COACHELLA STORM WATER CHANNEL AND POLK ST	CONSTRUCT IC AND WIDEN FROM 2 TO 6 LANES AND CONSTRUCT RAMPS

TABLE 3.9-6 (Continued)
DRAFT 2008 RTP PROJECTS WITH POTENTIAL NOISE IMPACTS

CO	Route/Program	From	To	Description
RI	SR-91	AT ARLINGTON AVE	BTWN MT DIABLO TO S/O EASTBOUND ENTRY RAMPS	RECONSTRUCT/WIDEN IC FROM 4 TO 6 LANES AND RECONSTRUCT/WIDEN RAMPS
RI	SR-91	AT CENTRAL AVE	BTWN NEVA PL AND BNSF RR	RECONSTRUCT/WIDEN IC FROM 4 TO 6 LANES AND RECONSTRUCT/WIDEN RAMPS
RI	SR91/I-15	SR91/I-15 JUNCTION	SR91/I-15 JUNCTION	BUILD CONNECTOR IMPROVEMENTS AND COLLECTOR DISTRIBUTION SYSTEM AT I-15
RI	I-215	AT GARBANI RD	BTWN HAUN RD & ANTELOPE RD	CONSTRUCT NEW 4 LANE (2 LNS EAC DIR) AND RAMPS
RI	I-215	AT OLEANDER AVE	BTWN HARVILL AVE AND WESTERN WAY	RECONSTRUCT AND WIDEN OC FROM 2 TO 4 LANES AND RECONSTRUCT/WIDEN RAMPS
RI	I-215	AT ELLIS AVE	BTWN PERRIS VALLEY STORM DRAIN W/O I-215 TO DUNLAP DR E/O I-215	CONSTRUCT NEW 2 LANE IC AND RAMPS (1 LANE)
RI	I-215	AT RAMONA EXPWY	BTWN RAMPS	RECONSTRUCT/WIDEN FROM 4 TO 8 LANES, WIDEN SB AND NB EXIT RAMPS AT I-214/RAMONA EXPWY IC AND OC, CONSTRUCT DUAL LEFT-TURN LANES AT THE EXIT RAMPS TEMINI
RI	I-215	AT MCCALL BLVD	BTWN BRADLEY RD & ENCANTO DR	RECONSTRUCT/WIDEN IC FROM 4 TO 6 LANES AND RECONSTRUCT RAMPS
RI	I-215	AT ALESSANDRO BLVD	BTWN BNSF & OLD 215 FRONTAGE ROAD	WIDEN/RECONSTRUCT IC FROM 4 TO 6 LANES AND RECONSTRUCT/WIDEN RAMPS
RI	I-215	AT MID-COUNTY PARKWAY	BTWN RAMPS	CONSTRUCT NEW 6 LANE IC AND RAMPS
RI	CETAP - MORENO VALLEY TO SAN BERNARDINO COUNTY	MORENO VALLEY	SAN BERNARDINO COUNTY	CONSTRUCT NEW NORTH-SOUTH WESTERN COUNTY TRANSPORTATION CORRIDOR
RI	I-10	MONTEREY AVE	DILLON RD	ADD 1 MF LANE EACH DIRECTION
RI	I-15	BUNDY CANYON	I-15/I-215 IC	I-15 ADD 1 MF LANE EACH DIR, BUNDY CANYON TO I-15/I-215 INTERCHANGE (FROM 3 TO 4 MF EACH DIR)
RI	SR-71	SR-91	SAN BERNARDINO COUNTY LINE	WIDEN TO 3 MF LANES EACH DIRECTION
RI	SR-91	PIERCE STREET	ORANGE COUNTY LINE	ADD 1 MF LANES EACH DIRECTION
RI	I-15	SR74	SAN BERNARDINO COUNTY LINE	BUILD HOV/HOT LANES: 2 HOV3+/HOT EACH DIR FROM SR-74 TO SAN BERNARDINO COUNTY LINE
RI	SR-91	ORANGE COUNTY LINE	I-15	BUILD/EXTEND 4 HOT LANES (2 IN EACH DIRECTION) BUILD HOT EB SR91 TO SB I-15 AND NB I-15 TO WB SR91 CONNECTOR LANES

TABLE 3.9-6 (Continued)
DRAFT 2008 RTP PROJECTS WITH POTENTIAL NOISE IMPACTS

CO	Route/Program	From	To	Description
RI	ENHANCED COMMUTER LINK - EAST CORRIDOR	WESTERN RIVERSIDE COUNTY	SAN DIEGO, ORANGE, AND LOS ANGELES COUNTIES	PROPOSED COMMUTER LINK SERVICE AT THE EASTERN SIDE OF I-215 CORRIDOR TO SAN DIEGO AND NEIGHBORING COUNTIES OF ORANGE AND LOS ANGELES THROUGH METROLINK SERVICE CONNECTIONS.
RI	ENHANCED COMMUTER LINK - WEST CORRIDOR	WESTERN RIVERSIDE COUNTY	SAN DIEGO, ORANGE, AND LOS ANGELES COUNTIES	PROPOSED COMMUTER LINK SERVICE AT THE WESTERN SIDE OF I-15 CORRIDOR TO SAN DIEGO AND NEIGHBORING COUNTIES OF ORANGE AND LOS ANGELES THROUGH METROLINK CONNECTIONS. A PROPOSED EXPANSION AN IMPROVEMENT OF THE EXISTING COMMUTER SERVICE FROM MURRIETA/TEMECULA INCLUDING THE CITIES OF PERRIS, MORENO VALLEY, NORCO, AND CORONA
RI	PERRIS VALLEY LINE	CITY OF PERRIS	CITY OF TEMECULA	METROLINK PERRIS VALLEY LINE COMMUTER RAIL EXTENSION FROM PERRIS TO TEMECULA (~16.5 MILES), STATIONS AT NEWPORT RD (@ I-215), CLINTON KEITH RD (@ I-215), AND WINCHESTER RD (SR-79 @ I-215)
RI	METROLINK COMMUTER RAIL	IEOC & 91 LINES		METROLINK CONSTRUCT NEW STATION AT 3360 VAN BUREN BLVD IN RIVERSIDE (PARKING 550 SPACES)
RI	I-10	SAN BERNARDINO COUNTY LINE	I-10/SR60 JCT	ADD EASTBOUND TRUCK CLIMBING LANE
RI	SR-60	BADLANDS AREA EAST OF MORENO VALLEY (NEAR GILMAN SPRINGS RD)	BADLANDS AREA - WEST OF SR-60/I-10 JCT	ADD EASTBOUND TRUCK CLIMBING LANE
SB	SR-18	LOS ANGELES COUNTY LINE	US 395	WIDEN FROM 1 TO 2 LANES EACH DIR
SB	SR-18	0.8 MI WEST OF ORCHARD DR	2.1 MI WEST OF ORCHARD DR	CONSTRUCT PASSING LANES AND TURN LANES
SB	SR-38 (ORANGE/LUGONIA)	REDLANDS CITY LIMIT (W)	REDLANDS CITY LIMIT (E)	WIDEN FROM 1 TO 2 LANES EACH DIR
SB	MENTONE BLVD (SR-38)	WABASH AVE	E/GARNET ST	WIDEN MENTONE BLVD (SR-38) FROM WABASH AVE TO E/GARNET ST FROM 2 TO 4 LANES
SB	SR-62 (TWENTY-NINE PALMS HWY)	FAIRWAY DR	SR-247	WIDEN FROM 2 TO 3 LANES EACH DIR

TABLE 3.9-6 (Continued)
DRAFT 2008 RTP PROJECTS WITH POTENTIAL NOISE IMPACTS

CO	Route/Program	From	To	Description
SB	SR-62	KICKAPOO TRAIL	CHURCH ST.	WIDEN FROM 4-LANES TO 6-LANES AND REALIGN
SB	SR-83 (EUCLID)	MERRIL AV	KIMBALL AV	WIDEN FROM 2 TO 4 LANES EACH DIR
SB	SR-138	SR-18	PHELAN RD	PHASE II: WIDEN 2 TO 4 LANES FROM SR-18 TO PHELAN RD (PHASE I PHELAN RD TO I-15 IN
SB	SR-142 (CHINO HILLS PKWY)	CARBON CANYON RD	PIPELINE DR	WIDEN FROM 2 TO 3 LANES EACH DIR
SB	SR-247 (OLD WOMAN SPRINGS RD)	NORTH OF SR-62	GRIFFITH RD	WIDEN FROM 1 TO 2 LANES EACH DIR
SB	I-10	HAVEN	FORD ST	ADD 1 AUX LANE EACH DIRECTION
SB	I-10	FORD ST.	RIVERSIDE COUNTY LINE	ADD 1 AUX LANE EACH DIRECTION
SB	SR-60	RAMONA AVE IC (R1.5)	SB I-15 CONNECTOR (R10.0)	AUX LANES, WIDEN CONNECTOR, WIDEN RAMPS
SB	US-395	NB FROM 0.84MI S/O DESERT FLOWER RD TO 2.84MI N/O PURPLE SAGE ST, AND FROM 4MI N/O SHADOW MOUNTAIN AVE TO 6.07MI N/O SHADOW MOUNTAIN AVE	SB FROM 2.72MI N/O PURPLE SAGE ST TO 0.95MI S/O DESERT FLOWER RD, AND FROM 5.95MI N/O SHADOW MOUNTAIN AVE TO 3.88MI N/O SHADOW MOUNTAIN AVE	ADD PASSING LANES IN BOTH DIRECTIONS AND ADJUST VERTICAL AND HORIZONTAL ALIGNMENTS
SB	I-10	HAVEN	FORD ST	ADD 1 HOV LANE EACH DIRECTION, WIDEN UC'S, RECONSTRUCT RAMPS
SB	I-10	FORD ST.	RIVERSIDE COUNTY LINE	ADD 1 HOV LANE EACH DIRECTION
SB	I-15	RIVERSIDE COUNTY LINE	I-215	ADD 1 HOV LANE EACH DIRECTION
SB	I-15	I-215	US-395	ADD 1 HOV LANE EACH DIRECTION
SB	I-15	US-395	SR-18/MOJAVE RIVER	ADD 1 HOV LANE EACH DIRECTION
SB	I-215	SR-210	I-15	ADD 1 HOV LANE EACH DIRECTION
SB	I-10	0.1 KM E/O I-15 (PM 9.9)	0.4 KM E/O I-215 (PM R24.5)	INSTALL RMS, CCTV ESU; WIDEN ENTRANCE RAMPS FROM 1 TO 2 LANES AT: EB & WB AT CHERRY AVE, CITRUS AVE, CEDAR AVE, RIVERSIDE AVE AND MT VERNON AVE; WB AT RANCHO AVE; EB AT 9TH ST
SB	I-15	HIGH DESERT CORRIDOR		IN VICTORVILLE/APPLE VALLEY ON I-15 AT EAST/WEST HIGH DESERT CORRIDOR - CONSTRUCT INTERCHANGE
SB	I-15	MOJAVE ST.		NEW INTERCHANGE

TABLE 3.9-6 (Continued)
DRAFT 2008 RTP PROJECTS WITH POTENTIAL NOISE IMPACTS

CO	Route/Program	From	To	Description
SB	SR-60	SR-60 AT CENTRAL AVE (3.8)		ADD AUX LANES AND WIDEN RAMPS, CONST ENTRANCE LOOP RAMP (EA:0C870) PM R2.1-3.0)
SB	SR-60	ARCHIBALD		IN ONTARIO ON SR-60 AT ARCHIBALD AVENUE - WIDEN OFF RAMPS FROM 2 TO 3 LANES
SB	SR-60	EUCLID		IN ONTARIO ON SR-60 AT EUCLID AVENUE - WIDEN OFF RAMPS FROM 2 TO 3 LANES
SB	SR-60	SR-60 AT MOUNTAIN AVE (5.8)		WIDEN RAMPS, CONST AUX LANES
SB	I-215	SR-30	I-15	ADD 1 MF LANE EACH DIRECTION
SB	I-15	I-215 (DEVORE INTERCHANGE) (PM 15.0 - R16.0)		ON I-15 WIDEN FROM 3 TO 4 MF EACH DIR (GLEN HELEN TO KENWOOD); ADD 2 TRUCK BYPASS LANES EA DIR FROM 0.5 MI S/O INTERCHANGE TO 0.5 MI N/O INTERCHANGE; ADD NB AUX LANE FROM I-215 ON-RAMP TO KENWOOD OFF-RAMP
SB	SR-210	I-215	I-10	ADD 1 MF LANE AND 1 HOV LANE EACH DIRECTION AND WIDEN UC'S
SB	METROLINK COMMUTER RAIL	COUNTYWIDE		SERVICE EXPANSION; SB LINE 72 DAILY TRAINS, RIVERSIDE LINE 46 DAILY TRAINS, IEOC LINE 28 DAILY TRAINS
SB	SAN BERNARDINO-REDLANDS EXTENSION	4TH ST/MT. VERNON	GROVE/CENTRAL	EXTEND RAIL SERVICE TO REDLANDS (10 MILES); RAIL TECHNOLOGY TBD; 15-MIN. FREQ. DAILY
SB	I-15	DEVORE	SUMMIT	TRUCK CLIMBING LANE
VEN	HWY 33	AT STANLEY AVENUE		NEW TWO-LANE FREEWAY BRIDGE FOR SB TRAFFIC
VEN	SR-118	JCN 23 & 34 IN MOORPARK		CONSTRUCT NEW WEIGH STATION
VEN	METROLINK COMMUTER RAIL	IN VENTURA COUNTY		METROLINK COMMUTER RAIL SERVICE EXPANSION
VEN	MULTIMODAL TRANSPORTATION CENTER	IN DOWNTOWN VENTURA		SERVICE CENTER, PARKING, LAYOVER, AND RETAIL SPACE FOR RAIL, BUS, AND BICYCLE COMMUTERS.
REG	MAGLEV	PORTS OF LOS ANGELES/LONG BEACH	HOBART YARD	HIGH SPEED REGIONAL TRANSPORT (HSRT): SPUR FROM PORTS OF LOS ANGELES/LONG BEACH TO HOBART YARD FOR FREIGHT MOVEMENT
REG	HIGH SPEED RAIL	ANAHEIM	UNION STATION	HIGH SPEED REGIONAL TRANSPORT (HSRT): (CALIFORNIA HIGH-SPEED RAIL AUTHORITY) - ANAHEIM TO UNION STATION
REG	MAGLEV	LAX/WEST LA	ONTARIO AIRPORT	HIGH SPEED REGIONAL TRANSPORT (HSRT): IOS (LAX-WEST LA-UNION STATION-WEST COVINA-ONTARIO AIRPORT)

TABLE 3.9-6 (Continued)
DRAFT 2008 RTP PROJECTS WITH POTENTIAL NOISE IMPACTS

CO	Route/Program	From	To	Description
REG	MAGLEV	ONTARIO AIRPORT	SAN BERNARDINO AIRPORT	HIGH SPEED REGIONAL TRANSPORT (HSRT): IOS EXTENSION FROM ONTARIO AIRPORT TO SAN BERNARDINO AIRPORT
REG	MAGLEV	ANAHEIM	ONTARIO AIRPORT	HIGH SPEED REGIONAL TRANSPORT (HSRT): (CALIFORNIA-NEVADA SUPERSPEED TRAIN COMMISSION) - ANAHEIM TO ONTARIO AIRPORT
REG	HIGH DESERT CORRIDOR	I-5	US-395	HIGH DESERT CORRIDOR, CONSTRUCT NEW 4-6 LANE FACILITY: E-W I-14 TO US-395 (CONNECTING AT SB CO #20020144), E-W I-5 TO SR-14, N-S SR-14 TO SR-138.
REG	I-710 (GAP CLOSURE)	I-710 & VALLEY BOULEVARD	CALIFORNIA BL & PASADENA AVE	ADD 3 MIXED FLOW + 1 HOV LANE IN EACH DIRECTION IN TUNNEL TO COMPLETE THE I-710 FREEWAY
REG	CETAP - RIVERSIDE COUNTY TO ORANGE COUNTY	WESTERN RIVERSIDE COUNTY	ORANGE COUNTY	CETAP - RIVERSIDE COUNTY TO ORANGE COUNTY - CONSTRUCT NEW INTERCOUNTY TRANSPORTATION CORRIDOR(S): CORRIDOR A - 2 MF EACH DIR ON NEW FACILITY PARALLEL TO SR-91, FROM SR-241 TO I-15, WITH IC AT SR-241, SR-71, I-15; CORRIDOR B - 2 TOLL EACH DIR ON NEW FACILITY FROM I-15/MID-COUNTY PKWY TO SR-241/SR-133
REG	I-710	PORTS OF LOS ANGELES/LONG BEACH	SR-60	710 CORRIDOR USER-FEE BACKED CAPACITY ENHANCEMENT. WIDEN TO 5 MF EACH DIR FROM PORTS TO SR-60 INCL. INTERCHANGE IMPROVEMENTS. FROM OCEAN BLVD TO SR-60, CONSTRUCT 2 USER-FEE BACKED TRUCK LANES EACH DIR.

SOURCE: SCAG 2007

TABLE 3.9-7
PERCENTAGE OF ROADWAYS WHERE NOISE LEVELS EXCEED 66 DBA* (REGARDLESS OF LAND USE)

Scenario	Facility	Percent						
		Imperial County	Los Angeles County	Orange County	Riverside County	San Bernardino County	Ventura County	Total (region-wide)
2008	Freeways	100%	92%	98%	100%	99%	98%	**97%**
	Arterials/ Collectors	10%	15%	24%	15%	10%	20%	**15%**
No Project 2035	Freeways	100%	92%	98%	99%	98%	97%	**96%**
	Arterials/ Collectors	22%	21%	31%	35%	24%	25%	**25%**
2008 RTP	Freeways	100%	92%	99%	100%	100%	99%	**97%**
	Arterials/ Collectors	19%	20%	29%	29%	18%	25%	**22%**

A noise level above 66dBA is the Caltrans noise abatement criteria for sensitive receptors; this table does not include consideration of adjacent land uses but evaluates all roadways equally regardless of adjacent uses.

SOURCE: SCAG 2007

MM-NO.15: Project implementation agencies shall employ, where their jurisdictional authority permits, land use planning measures, such as zoning, restrictions on development, site design, and use of buffers to ensure that future development is compatible with adjacent transportation facilities.

MM-NO.16: Project implementation agencies shall, to the extent feasible and practicable, maximize the distance between noise-sensitive land uses and new roadway lanes, roadways, rail lines, transit centers, park-and-ride lots, and other new noise-generating facilities.

MM-NO.17: Project implementation agencies shall construct sound reducing barriers between noise sources and noise-sensitive land uses. Sound barriers can be in the form of earth-berms or soundwalls. Constructing roadways so as appropriate and feasible that they are depressed below-grade of the existing sensitive land uses also creates an effective barrier between the roadway and sensitive receptors.

MM-NO.18: Project implementation agencies shall, to the extent feasible and practicable, improve the acoustical insulation of dwelling units where setbacks and sound barriers do not sufficiently reduce noise.

MM-NO.19: The project implementation agencies shall implement, to the extent feasible and practicable, speed limits and limits on hours of operation of rail and transit systems, where such limits may reduce noise impacts.

MM-NO.20: To reduce noise impacts, maximize distance of the HSRT route alignment from sensitive receptors. If the HSRT guideway is constructed along the center of a freeway, operation noise impacts would be reduced by the increase in distance to the noise sensitive sites and the masking effects of the freeway traffic noise.

MM-NO.21: Reduce HSRT speed in the vicinity of sensitive receptors.

MM-NO.22: As a last resort, eliminate the noise-sensitive receptor by acquiring rail and freeway rights-of-way. This would ensure the effective operation of all transportation modes.

MM-NO.23: Passenger stations, central maintenance facilities, decentralized maintenance facilities, and electric substations should be located away from sensitive receptors.

Significance after Mitigation

Although mitigation measures are implemented for the impact, it may not reduce noise levels to below regulatory levels in all circumstances. This impact would remain **significant**.

Cumulative Impact 3.9-3: Cumulative ambient noise levels could increase in urban areas of the region to exceed normally acceptable noise levels or have substantial increases in noise as a result of the operation of expanded or new transportation facilities

(i.e., increased traffic resulting from new highways, addition of highway lanes, roadways, ramps, and new use of new transit facilities as well as increased use of existing transit facilities, etc.).

The projects included in the 2008 RTP could have a significant impact on noise in the region. As described under Impact 3.9-1, many of the projects involve construction which would result in significant short term impacts. While the construction noise is temporary and short term at the project level, the cumulative construction noise region wide could be significant. Over the course of the planning horizon there is likely to be constant construction within the region.

The region is expected to add an additional 5.14 million people by 2035, necessitating the construction of new homes and additional infrastructure to accommodate increased population. This increase in population would likely lead to a general increase in ambient noise throughout the region.

Cumulative transportation noise could also increase. This ambient noise increase could be related to aircraft overflights, port noise, ship horns, railroads, as well as freeway, arterial and transit noise.

Mitigation Measures

Mitigation measures intended to reduce the noise impacts on sensitive receptors are part of the 2008 RTP. These include: site design, buffers, soundwalls, etc. Further reduction in noise impacts would be obtained through the implementation of the measures described in **MM-NO.14 through MM-NO.23.**

Significance after Mitigation

Mitigation measures **MM-NO.15** through **MM-NO.23** may not reduce noise levels to below regulatory levels in all cases. Therefore, the impact would be **significant.**

Comparison with the No Project

Through the construction of transportation projects, and increases in traffic volume and speed, the 2008 RTP projects could create substantially more noise than the No Project Alternative. By not implementing the 2008 RTP (No Project Alternative) the levels of cumulative ambient noise could be less than with the proposed 2008 RTP implementation as a result of fewer sources and reduced speeds.

Direct Impacts

Under the No Project Alternative, no new transportation investments would be made, beyond those that are currently programmed. As a result, fewer transportation projects would be built resulting in less construction noise and fewer sensitive receptors would be exposed to construction noise. In addition, without the Plan, speeds would be reduced resulting in reduced noise levels.

The Plan impacts would be greater than No Project impacts for Impact 3.9-1 and 3.9-2.

Indirect Impacts

The 2008 RTP includes transportation and land use strategies that focus growth along existing corridors and in urbanized areas, rather than allowing development of vacant, open space/recreation and agricultural lands. This compact development pattern included in the 2008 RTP would concentrate population in urban areas that generally have higher ambient noise levels. The 2008 RTP also includes increased transit (bus, rail) in urban areas that would contribute to the overall increase in noise levels.

The Plan impacts would be greater than the No Project impacts for Impact 3.9-3.

References – Noise

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