ACOUSTICAL IMPACT ANALYSIS

RIVERSIDE-CORONA FEEDER PROJECT

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SECTION 1 – Executive Summary

This acoustical impact analysis has been performed to determine anticipated noise impacts associated with the proposed Riverside-Corona Feeder Pipeline Realignment project ("project"). The project will be used to deliver water from Riverside and San Bernardino County groundwater basins to communities throughout western Riverside County during drought and emergency periods and when water is otherwise available. The project is an alternative alignment proposed for a portion of the project that was approved in 2005 (**Figure 1**). The majority of the project involves the construction of pipelines that will be located underground and primarily within existing road rights-of-way. Additional components include pump stations (contained within masonry block enclosures) and a reservoir (i.e., tank).

The project site is located within the boundaries of the cities of Colton, Redlands, Rialto, Riverside, and San Bernardino, and unincorporated areas of the counties of Riverside and San Bernardino.

Once the project is operational, there are no activities associated with its ongoing use that are anticipated to cause potential adverse noise impacts, apart from periodic maintenance and possible repair work. Impacts from the on-site construction activities are the only anticipated sources of potentially significant noise from the project.

Findings

This acoustical analysis indicates that there will be no operational or long-term noise associated with the project; therefore, construction noise is the only anticipated potentially significant noise source.

The project site will traverse five city jurisdictions and two unincorporated county jurisdictions. Construction noise is exempt from regulation in all of these jurisdictions. Exemptions for the two county jurisdictions include limitations under which construction activities can take place, such as the proximity of the construction activity to sensitive receivers, hours of the day that construction activity cannot take place, and/or days on which construction activity cannot take place (e.g., Sundays and/or federal holidays).

Conclusions

Although activities from project construction are likely to increase the overall noise level in the vicinity of the project site, construction-related noise is temporary in nature. While noise from the project's construction period is exempt from regulation under provisions made by the affected jurisdictions, this report includes analysis of potential worst-case noise levels expected to be generated during the construction phase.

Most of the construction work will be performed within existing road rights-of-way. Three primary methods will be employed during the construction process: boring, excavation, and microtunneling.

Noise contours are provided in this report (**Table 6** and **Figures 3**, **4**, and **5**) to help identify potentially impacted land uses. The noise contours indicate worst-case distances to which the 60, 65, 70, and 75 dBA Leq noise impacts could extend from the center of the construction activity, not including the attenuating effects of topography or intervening structures and/or foliage.

Specific existing noise-sensitive uses along the project's alignment, that are located within the anticipated noise contours, include: schools, residences, churches, hospitals, day care centers, and medical clinics. **Figures 3**, **4**, and **5** identify many of these noise sensitive uses.

SECTION 2 – Project Description

Western Municipal Water District (WMWD) was formed in order to bring supplemental water to western Riverside County, and currently serves wholesale customers and approximately 24,000 direct retail connections. WMWD's service area encompasses the cities of Riverside, Norco, Corona, and portions of Murrieta, Temecula, and the communities of Jurupa, Rubidoux, and Elsinore Valley. The WMWD's service area also includes the Lee Lake Water District, the Box Springs Mutual Water Company, and the Eagle Valley Mutual Water Company. WMWD's service area consists of 527 square miles and a population of more than 853,000.

The project is a proposed pipeline and associated facilities (i.e., pump stations and reservoir) that will be used to deliver water from Riverside and San Bernardino County groundwater basins to communities throughout western Riverside County during drought and emergency periods and when water is otherwise available. The completed project will be located underground with the exception of unique crossings (e.g., railroad overpass) and the associated facilities.

As shown in **Figure 1, Proposed Project**, the project site is located within the boundaries of the cities of Colton, Redlands, Rialto, Riverside and San Bernardino, and unincorporated areas of the counties of Riverside and San Bernardino. The project is separated into two portions referred to as the northern reach and the central reach. The northern reach will span from near the intersection of Waterman Avenue and Orange Show Road, in the city of San Bernardino, traversing through portions of the cities of Colton and Rialto and unincorporated San Bernardino County, into unincorporated Riverside County along Agua Mansa Road. The alignment then traverses west through unincorporated Riverside County, then south in Clay Street and crosses under the Santa Ana River near Van Buren Boulevard. South of the Santa Ana River, the alignment enters the city of Riverside, where it continues in a south/southeasterly direction and connects to an alignment (approved as part of another project) near the intersection of Jackson Street and Cleveland Avenue. The project also includes facilities located within unincorporated San Bernardino and Riverside counties and the cities of Redlands and Riverside that would connect the project to other facilities.

The project also proposes an alternate alignment on the southern leg of the central reach. The alternative alignment would change the proposed realignment between the intersection of Jackson Street and Colorado Avenue, in the city of Riverside, and the intersection of Cleveland Avenue and Irving Street, in the city of Riverside. The alternative alignment of the southern leg would be within the right-of-way of a portion of Colorado Avenue and Monroe Street, instead of within the Jackson Street right-of-way.

The proposed realignment will be constructed primarily in the rights-of-way of existing roads, under I-10, I-215, State Route 60 and State Route 91, and under the Santa Ana River and other lesser creeks and drainages. The proposed project will affect properties in several jurisdictions with a variety of land use and zoning designations.

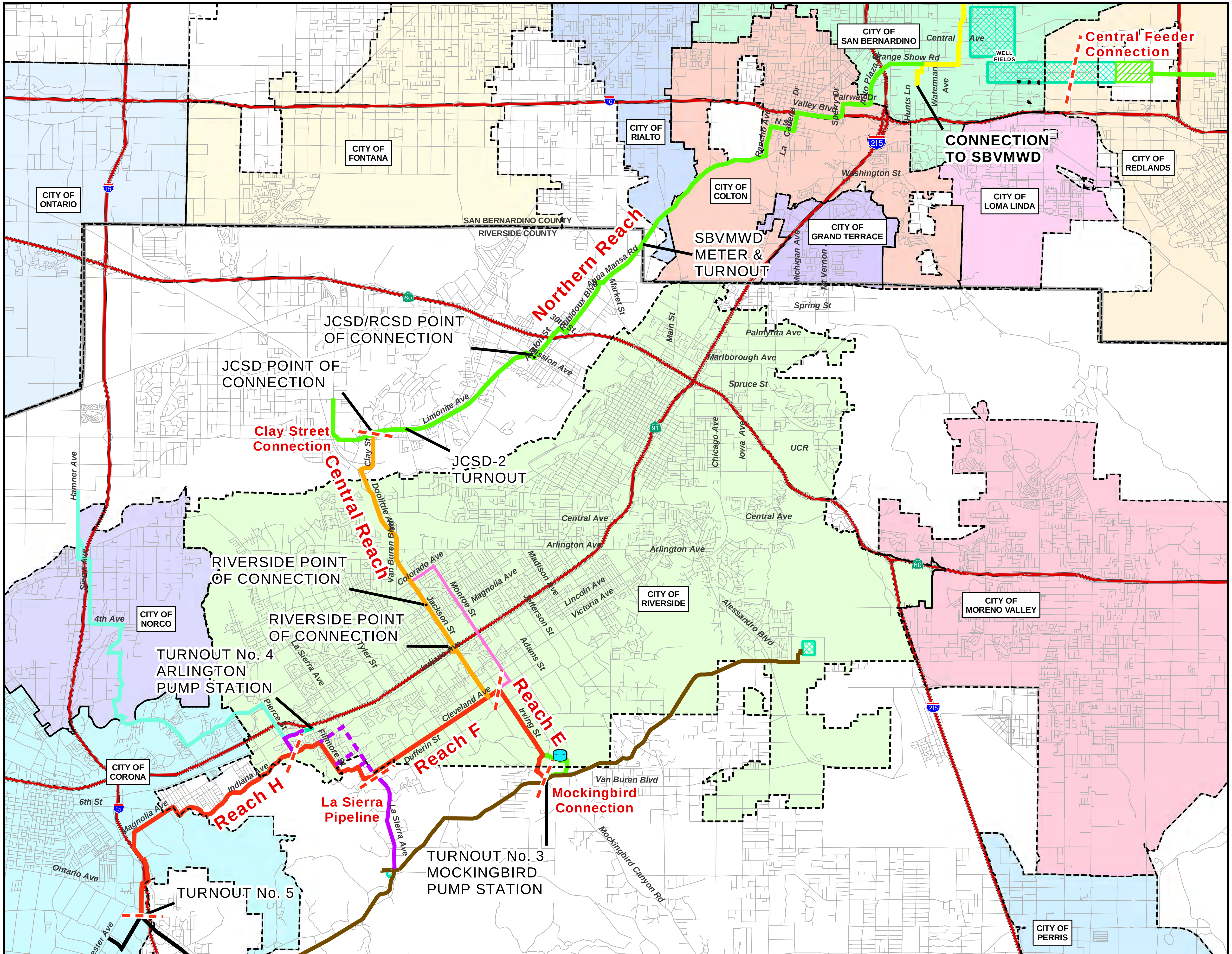

Figure 1

Proposed Project Alignment

LEGEND

- R-C Feeder - Northern Reach
- R-C Feeder - Central Reach
- RC Feeder Monroe Alternative
- R-C Feeder Alignment (to Remain) (Reaches E - H)
- SBVMWD Pipeline (Existing)
- Arlington Desalter Pipeline (Primarily Existing)
- La Sierra Pipeline (Not Constructed/Not a Part)
- R-C Feeder - La Sierra Pipeline Alternative Alignments
- Mills Pipeline (Existing)
- EVMWD Pipeline (Existing)
- Freeway
- Roads
- City Boundaries
- County Line

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0 5,000 10,000 15,000 Feet

Map revised Sept. 29, 2009. G:\2007\07-0377\Gis\noise_prop_alignment.mxd

SECTION 3 – Setting

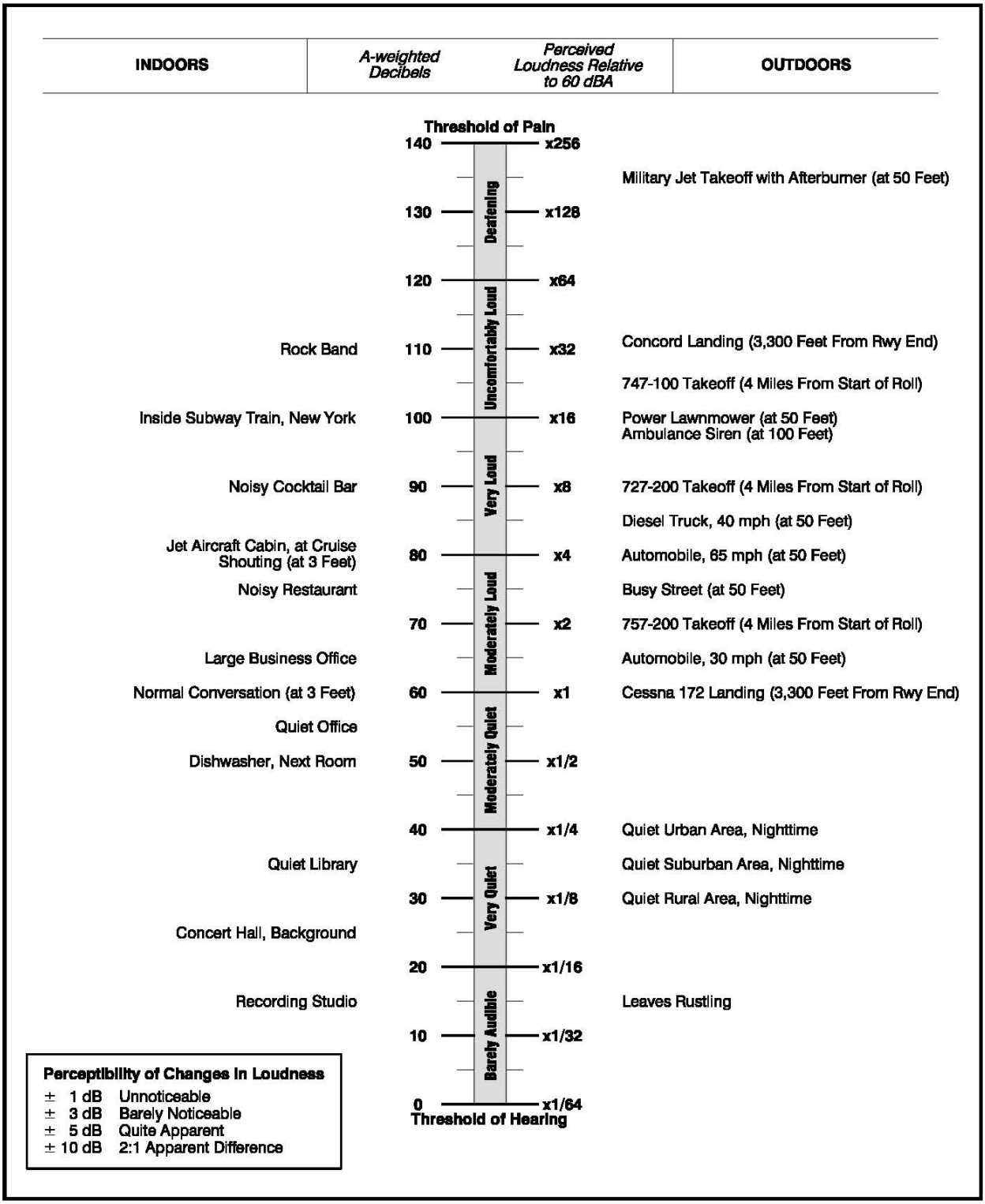
Acoustical Basics

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally defined as unwanted or objectionable sound. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment. Sound is characterized by various parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound wave. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

The unit of measurement used to describe a noise level is the decibel (dB). The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, the "A-weighted" noise scale, which weights the frequencies to which humans are sensitive, is used for measurements. Noise levels using A-weighted measurements are written dBA, dB (A), or sometimes just dB. Decibels are measured on a logarithmic scale which quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as the doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease. A 10 dB increase represents a 10-fold increase in sound intensity, a 20 dB change is a 100-fold difference, 30 dB is a 1,000-fold increase, etc. Any further reference to decibels written as “dB” or “dBA” within this study should be understood to be A-weighted. **Figure 2, Typical Decibel Level of Common Sounds** shows the relationship of various noise levels to commonly experienced noise events.

Average noise levels over a period of minutes or hours are usually expressed as dBA L_{eq}, or the equivalent noise level for that period of time. For example, $L_{eq(3)}$ would represent a three hour average. When no period is specified, a one-hour average is assumed. Noise standards for land use compatibility are stated in terms of the Community Noise Equivalent Level (CNEL) and the Day-Night Average Noise Level (L_{dn}). is a 24-hour weighted average measure of community noise. The computation of CNEL adds 5 dBA to the average hourly noise levels between 7 p.m. and 10 p.m. (evening hours), and 10 dBA to the average hourly noise levels between 10 p.m. and 7:00 a.m. (nighttime hours). This weighting accounts for the increased human sensitivity to noise in the evening and nighttime hours. L_{dn} is a very similar 24-hour weighted average, which weights only the nighttime hours and not the evening hours. CNEL is normally about 1 dBA higher than L_{dn} for typical traffic and other community noise levels.

Figure 2
Typical Decibel Level of Common Sounds



Source: California Airport Land Use Planning Handbook (January 2002), Page 6-5

Project Site – Existing Conditions

The project site is located within the boundaries of the cities of Colton, Redlands, Rialto, Riverside, and San Bernardino, and unincorporated areas of the counties of Riverside and San Bernardino. The project also proposes an alternate alignment, for its southern leg located in the city of Riverside.

The project alignment, and the alternate alignment, would traverse several types of existing and planned land uses. **Table 1, Existing Land Uses of Potentially Affected Properties** provides a summary of existing land uses which have the potential to be impacted by noise from the project.

Table 1
Existing Land Uses of Potentially Affected Properties

Project Component[1]	Jurisdiction	Existing Land Use(s)
Northern Reach	City of San Bernardino	Commercial
Northern Reach	City of Colton	Commercial, Residential, Retail
Northern Reach	City of Rialto	Industrial
Northern Reach	San Bernardino County	Industrial
Northern/Central Reach	Riverside County	Residential, Commercial
Central Reach	City of Riverside	Commercial, Residential, Retail, Institutional and Park
Central Feeder Connection	San Bernardino County, City of Redlands	Agricultural, Residential, Industrial
Clay Street Connection	Riverside County	Residential, Commercial, Industrial
Mockingbird Connection	Riverside County, City of Riverside	Agricultural, Residential
La Sierra Pipeline	Riverside County	Residential

[1] As identified on Figure 1, presented earlier in this report.

As indicated in **Table 1** above, the project will traverse existing land uses that include residential, commercial, retail, institutional, park, and industrial uses.

Table 2, Land Use Designations of Potentially Affected Properties provides a summary of jurisdictional land use designations, as indicated in each agency's respective general plan, which have the potential, once built out, to be impacted by noise from the project.

Table 2
Land Use Designations of Potentially Affected Properties[1]

Project Component[2]	Jurisdiction	Designated Land Use(s)
Northern Reach	City of San Bernardino	Industrial Light, Publicly owned Flood Control, Commercial Regional-4 Auto Plaza
Northern Reach	City of Colton	Industrial Park, Open Space, General Commercial, High Density Residential, Heavy Industrial, Medium Density Residential, Low Density Residential, Specific Plan
Northern Reach	City of Rialto	General Commercial, Light Industrial, Community Commercial
Northern Reach	San Bernardino County	AM/SP (Agua Mansa Specific Plan)
Northern/Central Reach	Riverside County	Heavy Industrial, Public Facilities, Light Industrial, Commercial Retail, Medium Density Residential, Very High Density Residential, High Density Residential, Medium High Density Residential, Open Space-Recreation, Commercial Office, Business Park, Open Space - Water
Central Reach	City of Riverside	Open Space/Natural Resources, Public Facilities/Institutional, Commercial, Business/Office Park, High Density Residential, Mixed Use-Village, Medium High Density Residential, Medium Density Residential, Public Park, Office, Medium High Density Residential, Agricultural/Rural Residential, Very High Density Residential
Central Feeder Connection	San Bernardino County	EV/SD (East Valley Area Plan/Special Development), EV/CG (East Valley Area Plan/General Commercial)
Central Feeder Connection	City of Redlands	Commercial, Low Density Residential, Agriculture
Clay Street Connection	Riverside County	Business Park, Medium Density Residential, Commercial Retail, Low Density Residential, Public Facilities
Mockingbird Connection	Riverside County	Very Low Density Residential, Open Space – Conservation
Mockingbird Connection	City of Riverside	Agricultural, Rural Residential
La Sierra Pipeline	Riverside County	Low Density Residential, Rural Mountainous, Open Space – Conservation, Open Space – Recreation, Agriculture, Medium Density Residential, Rural Residential

[1] As shown in each agency's respective general plan.
[2] As identified on Figure 1, presented earlier in this report.

As indicated in **Table 2** above, the majority of the northern reach is located in areas designated as commercial and industrial land uses. The central reach will encounter a more diverse set of designated land uses which include residential and other noise sensitive uses.

Applicable Noise Standards

As discussed previously in this report, the completed project will be located primarily underground; above-ground project facilities, such as reservoirs and fully enclosed pump stations, will not be sources of adverse noise. Once completed, the project will be unmanned (apart from periodic maintenance and possible repair work) and there will be no operational noise associated with its use. Therefore, the noise standards that apply to this project are only those pertaining to temporary construction-related activities.

The project site is located within the boundaries of the cities of Colton, Redlands, Rialto, Riverside, and San Bernardino, and unincorporated areas of the counties of Riverside and San Bernardino. **Table 3, Applicable Noise Regulations**, details the applicable construction-related noise regulations for each of the affected jurisdictions.

Table 3
Applicable Noise Regulations

Project Component[1]	Jurisdiction	Applicable Noise Regulation
Northern Reach	City of San Bernardino	Municipal Code Chapter 8.54 – Noise Control Section 8.54.060 – Exemptions H. Construction, operation, maintenance, and repairs of equipment, apparatus, or facilities of park and recreation departments, public work projects, or essential public services and facilities, including, but not limited to, trash collection and those of public utilities subject to the regulatory jurisdiction of the California Public Utilities Commission.
Northern Reach	City of Colton	Not applicable.[2]
Northern Reach	City of Rialto	Municipal Code Chapter 9.50 – Noise Control Section 9.50.060 – Exemptions K. Construction, operation, maintenance, and repairs of equipment, apparatus, or facilities of park and recreation departments, public work projects, or essential public services and facilities, including trash collection and those of public utilities subject to the regulatory jurisdiction of the California Public Utilities Commission.
Northern Reach/Central Feeder Connection	San Bernardino County	San Bernardino County Development Code Chapter 83.01 – General Performance Standards Section 83.01.080 – Noise (g) Exempt noise. The following sources of noise shall be exempt from the regulations of this Section: (3) Temporary construction, maintenance, repair, or demolition activities between the hours of 7:00 a.m. and 7:00 p.m., except on Sundays and federal holidays.

Project Component[1]	Jurisdiction	Applicable Noise Regulation
Northern/ Central Reach/Clay Street Connection/Mockingbird Connection/La Sierra Pipeline	Riverside County	Ordinance No. 847 Section 2 – Exemptions B. Capital improvement projects of a governmental agency. H. Private construction projects located one-quarter of a mile or more from an inhabited dwelling. I. Private construction projects located within one-quarter of a mile from an inhabited dwelling, provided that: 1. Construction does not occur between the hours of 6:00 p.m. and 6:00 a.m. during the months of June through September, and 2. Construction does not occur between the hours of 6:00 p.m. and 7:00 a.m. during the months of October through May. Exceptions to these standards shall be allowed only with the written consent of the building official.

Project Component[1]	Jurisdiction	Applicable Noise Regulation
Central Reach/Mockingbird Connection	City of Riverside	Municipal Code Chapter 7.35 – General Noise Regulations Section 7.35.020 – Exemptions The following activities shall be exempt from the provisions of this title: E. Right-of-Way Construction. The provisions of this Title shall not apply to any work performed in the City rights-of-way when, in the opinion of the Public Works Director or his designee, such work will create traffic congestion and/or hazardous or unsafe conditions. F. Public Health, Welfare, and Safety Activities. The provisions of this Title shall not apply to construction maintenance and repair operations conducted by public agencies and/or utility companies or their contractors which are deemed necessary to serve the best interests of the public and to protect the public health, welfare, and safety; including but not limited to, trash collection, street sweeping, debris and limb removal, removal of downed wires, restoring electrical service, repairing traffic signals, unplugging sewers, vacuuming catch basins, repairing of damaged poles, removal of abandoned vehicles, repairing of water hydrants and mains, gas lines, oil lines, sewers, storm drains, roads, sidewalks, etc. (Ord. 6917 § 1, 1996; Ord. 6328 § 2, 1996; Ord. 6273 § 1 (part), 1996).

Project Component[1]	Jurisdiction	Applicable Noise Regulation
Central Feeder Connection	City of Redlands	Municipal Code Title 8 – Health and Safety Chapter 8.06 – Community Noise Control Section 8.06.120 - Exemptions G. Construction Activity: This chapter shall not apply to noise sources associated with new construction, remodeling, rehabilitation or grading of any property provided such activities take place between the hours of seven o'clock (7:00) A.M. and six o'clock (6:00) P.M. on weekdays, including Saturdays, with no activities taking place at any time on Sundays or federal holidays. All motorized equipment shall be equipped with functioning mufflers.

[1] As identified on Figure 1, presented earlier in this report.
[2] The city of Colton has not established performance standards with regards to construction-related noise. There is currently no ordinance, municipal code or general plan standard established to regulate such noise. Based on a telephone conversation with the city's planning manager (Andrés Soto) on September 8, 2008, construction-related noise is considered exempt.

As indicated in **Table 3** above, the cities of San Bernardino, Rialto, and Riverside specifically consider construction of public works projects exempt from noise regulations; there are no restrictions or requirements placed on said exemptions within these jurisdictions. The city of Colton has not established noise standards that apply to construction-related noise. Therefore, based on a telephone conversation with the city's Planning Manager (Andrés Soto, September 8, 2008), construction-related noise should be considered exempt since this type of noise is currently not regulated by the city.

The city of Redlands and the counties of Riverside and San Bernardino do not regulate the level of noise generated by the construction of a project. However, these jurisdictions do regulate the conditions under which construction activities can take place, such as the proximity of construction activity to sensitive receivers, hours of the day that construction activity cannot take place, and/or days on which construction activity cannot take place (e.g., Sundays and/or federal holidays).

Apart from the regulations found in the City of Redlands Municipal Code, listed in **Table 3**, the City of Redlands has no other regulation (e.g., ordinance, General Plan guideline) that applies to construction-related noise. Therefore, to meet applicable noise regulations within the jurisdiction of the city of Redlands, project construction shall not take place during the hours of 6:00 p.m. and 7:00 a.m., nor during any time on Sundays or federal holidays.

Apart from the regulations found in the San Bernardino County Municipal Code, listed in **Table 3**, San Bernardino County has no other regulation (e.g., ordinance, General Plan guideline) that applies to construction-related noise. Therefore, to meet applicable noise regulations within the

jurisdiction of unincorporated San Bernardino County, project construction shall not take place during the hours of 7:00 p.m. and 7:00 a.m., nor during any time on Sundays or federal holidays.

As shown in **Table 3**, Riverside County Ordinance No. 847 specifies that construction-related noise is exempt in unincorporated Riverside County, provided that it is located one-quarter of a mile or more from an inhabited dwelling. However, if construction is planned to occur within one-quarter mile of an inhabited dwelling, construction activities shall not take place between the hours of 6:00 p.m. and 6:00 a.m. during the months of June through September or between the hours of 6:00 p.m. and 7:00 a.m. during the months of October through May. Additionally, Ordinance No. 847 allows for exceptions to these restraints with written consent from the Director of Building and Safety.

SECTION 4 – On-Site Construction-Related Noise Levels

The affected jurisdictions recognize that construction noise is difficult to control and have therefore established exemptions, or exemptions with conditions, to allow for this potential intrusion. Although construction is considered exempt, or qualifies for exemption, from noise regulation in all of the affected jurisdictions, potential worst-case noise levels associated with project construction are analyzed and discussed in this section.

The overall size of the project and the lack of construction-timing details made a location-specific noise analysis infeasible at the time that this analysis was performed. Therefore, noise levels were calculated using worst-case assumptions, and are presented as noise contours that can be applied to the various locations that the project will pass through. This section presents anticipated worst-case construction-related noise levels.

Project pipeline construction will involve three main types of methods: boring, excavation, and microtunneling. Each of these methods will involve various types and quantities of equipment. The boring method will be used in areas where the pipeline will cross under major intersections, freeways, or the Santa Ana River; the excavation method will be used in areas where the "open cut trench" technique is feasible (i.e., within street rights-of way); and the microtunneling method will be used as an alternative to the boring or excavation methods where site conditions (e.g., traffic, groundwater, rock, etc.) make microtunneling more cost effective. Construction of the reservoir and pump stations will employ more typical methods and equipment (e.g., backhoe, excavator, etc.). None of the affected jurisdictions' general plans include reference data for noise levels at a given distance from typical construction methods, such as that anticipated for the reservoir and pump stations. However, assuming construction activities were to occur for 8 hours a day, the CNEL is calculated at 84 dBA at 50 feet from the source, placing the 65 dBA CNEL contour at a distance of about 446 feet.

Table 4, Anticipated Pipeline Construction Equipment Types and Quantities by Method itemizes the types and quantities of equipment anticipated to be used for each of the activities, based upon currently available data.

Table 4
Anticipated Pipeline Construction Equipment Types and Quantities by Method[1]

Construction Equipment Type	Approximate Quantity Needed for Construction Method		
	Boring	**Excavation**	**Microtunneling**
Backhoe/Loader	1	3	1
Compressor	- -	2	- -
Crane	1	1	1
Excavator	- -	2	- -
Generator	2	- -	2

[1] This information is based upon preliminary data available during the analysis.

Based upon reference noise levels (see Appendix A for source information) **Table 5, Estimated Construction Equipment Noise Levels at 50 Feet**, presents the estimated individual noise levels produced by the equipment anticipated to be used for pipeline construction, at a uniform distance of 50 feet.

Table 5
Estimated Construction Equipment Noise Levels at 50 Feet [1]

Construction Equipment Type	Noise Level at 50 Feet (dBA Leq)
Backhoe/Loader	80
Compressor	80
Crane	85
Excavator	85
Generator	82

[1] See Appendix A for reference noise level data and source.

Based upon the estimated construction equipment quantities provided in **Table 4** and the reference noise levels provided in **Table 5**, noise contours have been determined for the three pipeline construction methods that are anticipated to be employed. To present a worst-case scenario, those noise contours represent the combined noise level for all of the equipment estimated to be used for each method of pipeline construction, and assumes that every piece of that equipment will be running simultaneously and continuously.

Various conditions will be encountered that can be factors in noise propagation. One factor is the height from which the source of the noise is emanating. This factor will be constantly changing throughout the construction process as some of the work will take place below-ground, while other parts of the work will take place above-ground. For the purposes of this analysis, all source noise was modeled above-ground to, again, best represent a worst-case scenario.

Another factor affecting noise impacts is the absorptive properties of the surrounding landscape (natural and manmade) that intervenes between a noise source and receiver. The sound-attenuating properties of topography, foliage, ground cover, weather, and existing buildings/barriers were not accounted for in this analysis. Therefore, distances presented in the noise contours are modeled on a hypothetical flat-plane with no obstructions, thereby, considerably overstating probable noise impacts.

The noise contours, detailed in **Table 6, Noise Contours for Project Construction by Method**, estimate worst-case distances from the noise source to the 75, 70, 65, and 60 dBA Leq contours. Sensitive receptors located within the 75 dBA Leq contour will experience periodic noise levels that may exceed 75 dBA.

Table 6
Noise Contours for Project Construction by Method [1]

Construction Method Type	Distance to Noise Level (in feet)			
	75 dBA Leq	70 dBA Leq	65 dBA Leq	60 dBA Leq
Boring	240	430	760	1,350
Excavation	340	600	1,075	1,900
Microtunneling	240	430	760	1,350
Standard Construction[2]	141	250	446	790

[1] See Appendix B for printouts of calculations that determined noise levels.
[2] Applies to reservoir and pump station construction.

Figures 3 through 12 graphically depict the contour data provided in **Table 6**. The graphic noise contours were only mapped for the portion of the project referred to as the "Central Reach" which is expected to begin construction within the next two years and projected to be completed by 2013, and for the Central Feeder Connection, Clay Street Connection, La Sierra Pipeline, and Mockingbird Connection. Construction of the "Northern Reach" of the proposed project may not begin for approximately ten years and current mapping of the noise contours for the Northern Reach may not accurately reflect the locations of any sensitive receptors that would exist at the time that construction begins; therefore, the Northern Reach noise contours have not been mapped. New data identifying sensitive receptors should be collected prior to construction of the Northern Reach in order to produce noise contours that reflect conditions at that time.

Also indicated on some of the figures are existing noise sensitive receptors nearest to the project's alignment. These sensitive receivers are identified on the figures by a number which correlates with the existing noise sensitive receptors listed in **Table 7, Identified Noise Sensitive Receptors Adjacent to Project Alignment**. The data provided in **Table 7** was compiled on October 16, 2008 via site reconnaissance and is not intended as a complete list of potentially affected land uses, but rather as a means to call attention to those land uses that are clearly noise sensitive and that have the highest potential for significant impacts.

Table 7
Identified Noise Sensitive Receptors Adjacent to Project Alignment [1, 2]

	Potentially Affected Receptor[3]	Address
1	Riverside Christian School	3532 Monroe Street, Riverside CA 92504
2	Parkside Village Apartments	3675 Monroe Street, Riverside CA 92504
3	Presidential Townhomes	3680 Monroe Street, Riverside CA 92504
4	Creekside Senior Apartments	4291 Monroe Street, Riverside CA 92504
5	Hope Community Church	9085 Colorado Avenue, Riverside CA 92503
6	Jackson Elementary	4585 Jackson Street, Riverside CA 92503
7	Cypress Garden Convalescent Home	9025 Colorado Avenue, Riverside CA 92503

Potentially Affected Receptor[3]		Address
8	Arlington High School	2951 Jackson Street, Riverside CA 92503
9	Sherman Indian High School	9010 Magnolia Avenue, Riverside CA 92503
10	Andrew Jackson Apartments	3636 Jackson Street, Riverside CA 92503
11	Church of Jesus Christ of Latter Day Saints	3680 Jackson Street, Riverside CA 92503
12	St. Thomas Church	3774 Jackson Street, Riverside CA 92503
13	St. Thomas K-8 School	9136 Magnolia Avenue, Riverside CA 92503
14	Parkview Community Hospital	3865 Jackson Street, Riverside CA 92503
15	Parkview Community Hospital Medical Ctr.	3865 Jackson Street, Riverside CA 92503
16	St. Michaels Church	4070 Jackson Street, Riverside CA 92503
17	Christian Life Center Church & School	9085 California Avenue, Riverside CA 92503
18	Church of Jesus Christ of Latter Day Saints	4375 Jackson Street, Riverside CA 92503
19	Townhomes (w/ Balconies)	4440-4492 Jackson Street, Riverside CA 92503
20	Faith Lutheran Church	4785 Jackson Street, Riverside CA 92503
21	Whispering Fountains of Riverside Apartments	4790 Jackson Street, Riverside CA 92504
22	Encore Senior Village - Alzheimer's Center	6280 Clay Street, Riverside CA 92509
23	La Petite Academy Day Care	6212 Clay Street, Riverside CA 92509
24	Riverside Medical Clinic	9250 Clay Street, Riverside CA 92509

[1] Compiled on October 16, 2008 via site reconnaissance.
[2] This is a partial list and is not intended to represent all of the potentially affected land uses.
[3] The numbers in this column correlate with the numbers shown on **Figures 3** through **5** of this report.

Figure 3
Noise Contours for Project Construction - Central Reach (Northern Portion)

LEGEND

- Excavation Noise Contours
- Jack & Bore or Microtunnelling Noise Contours

Proposed Riverside-Corona Feeder

- Northern Reach
- Central Reach
- RC Feeder Monroe Alternative
- R-C Feeder Alignment (to Remain)
- Sensitive Receptors (see Table 7)

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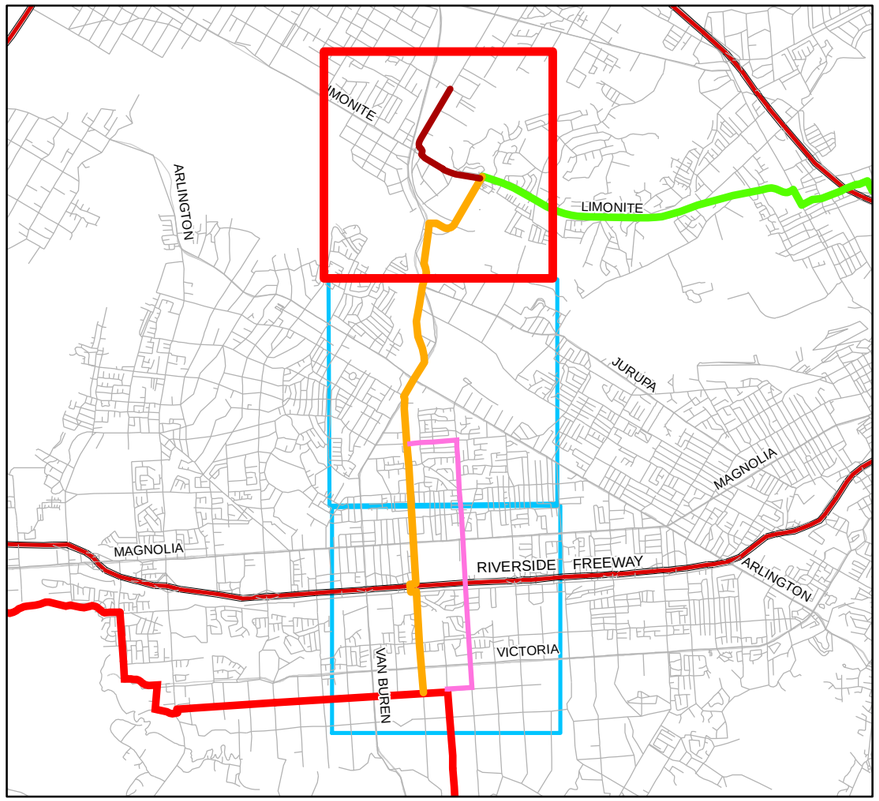
0 1,000 2,000 3,000 4,000 Feet



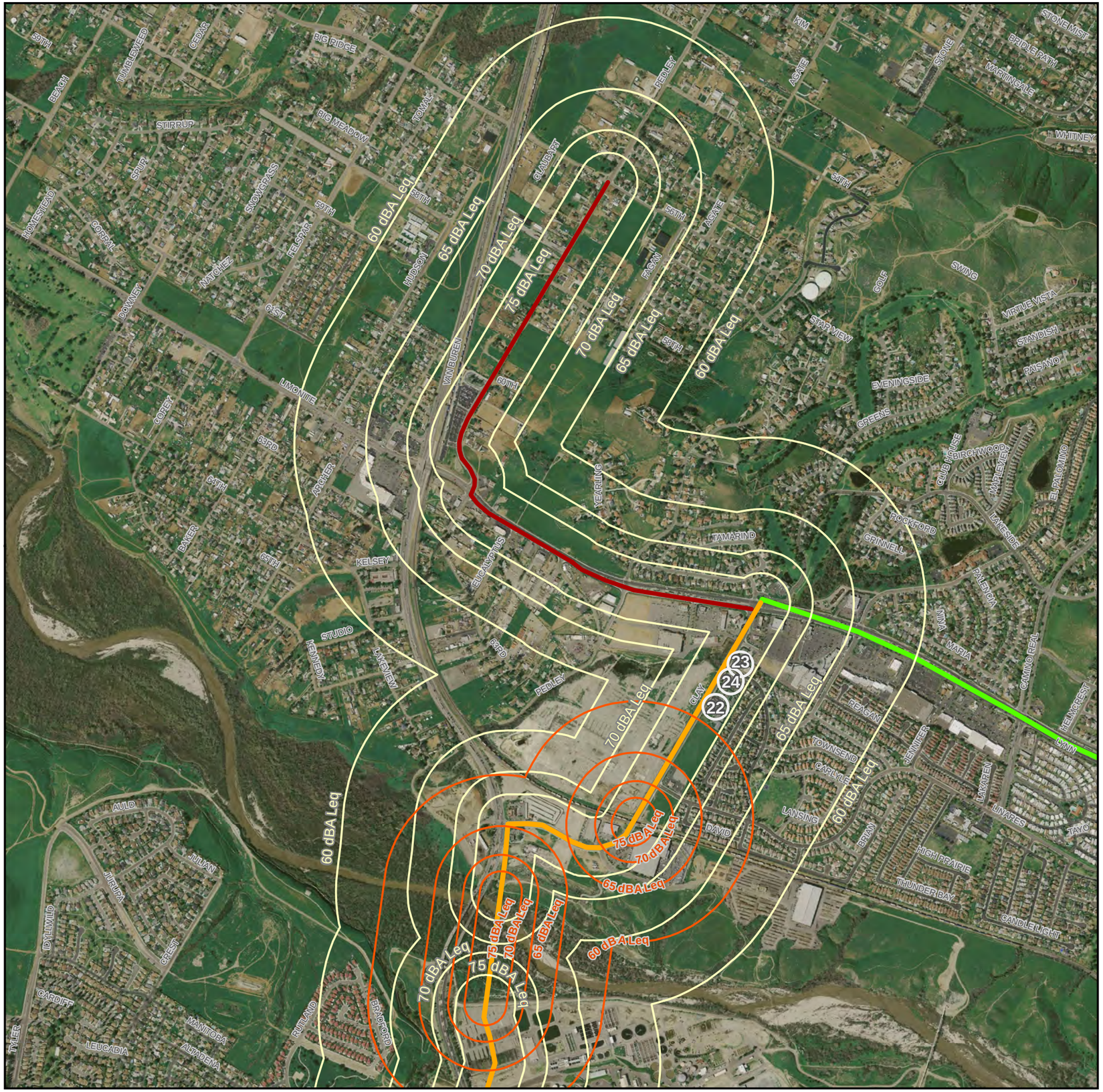


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Figure 4
Noise Contours for Project Construction - Central Reach (Central Portion)

LEGEND

- Excavation Noise Contours
- Jack & Bore or Microtunnelling Noise Contours

Proposed Riverside-Corona Feeder

- Northern Reach
- Central Reach
- RC Feeder Monroe Alternative
- R-C Feeder Alignment (to Remain)
- Sensitive Receptors (see Table 7)

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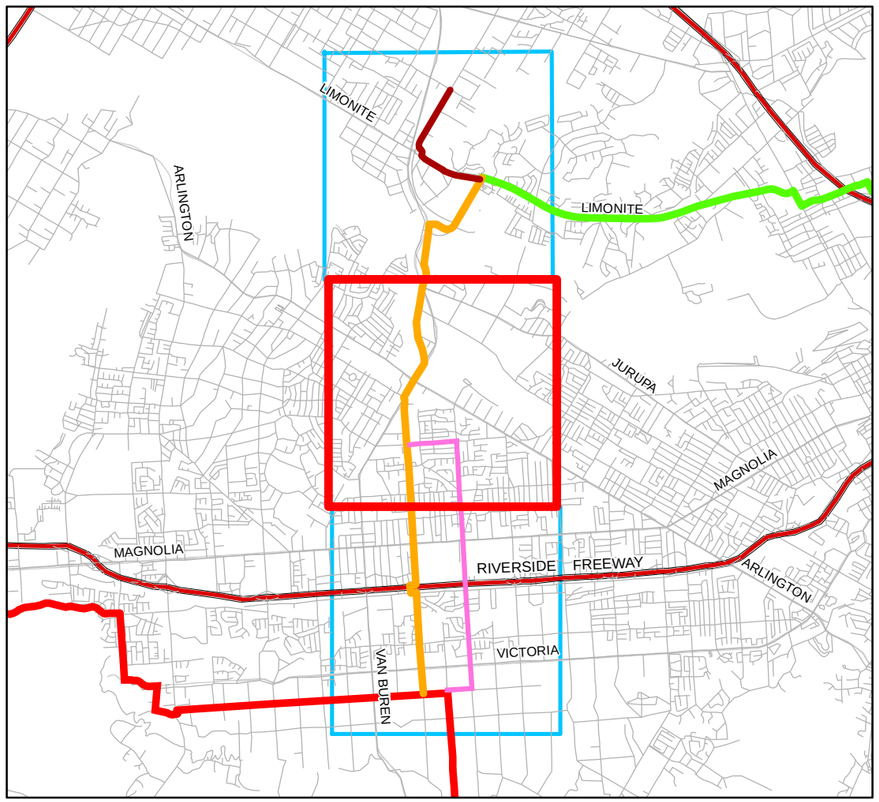
0 1,000 2,000 3,000 4,000 Feet



Map created November 29, 2009. G:\2007\07-0377\Gis\NoiseContourMapSeries0909.mxd

Figure 5
Noise Contours for Project Construction - Central Reach (Southern Portion)

LEGEND

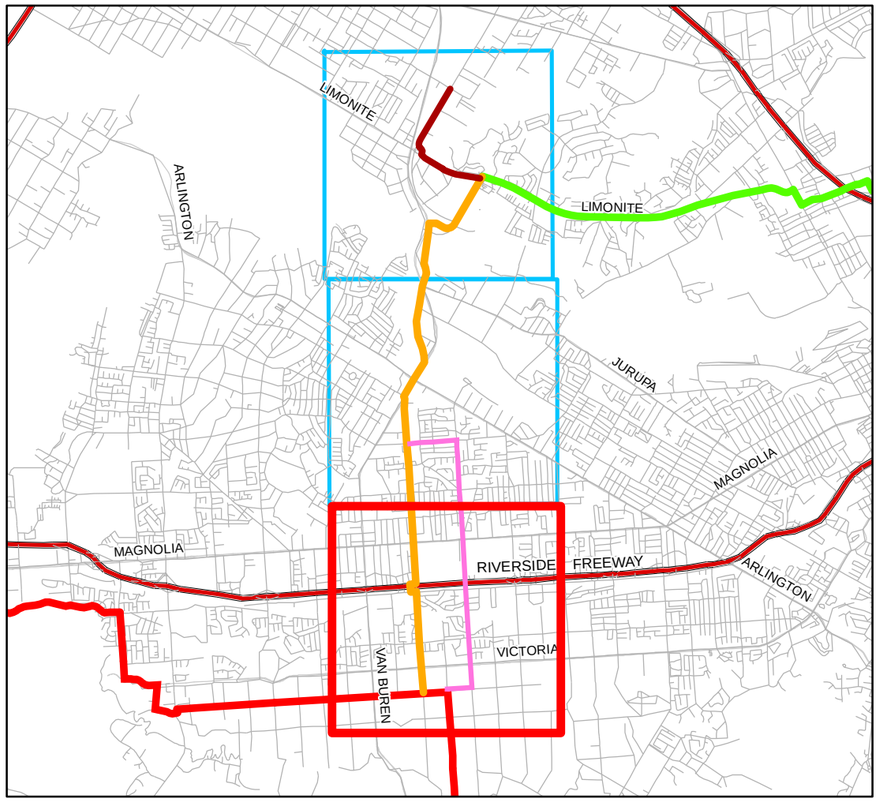
- Excavation Noise Contours
- Jack & Bore or Microtunnelling Noise Contours

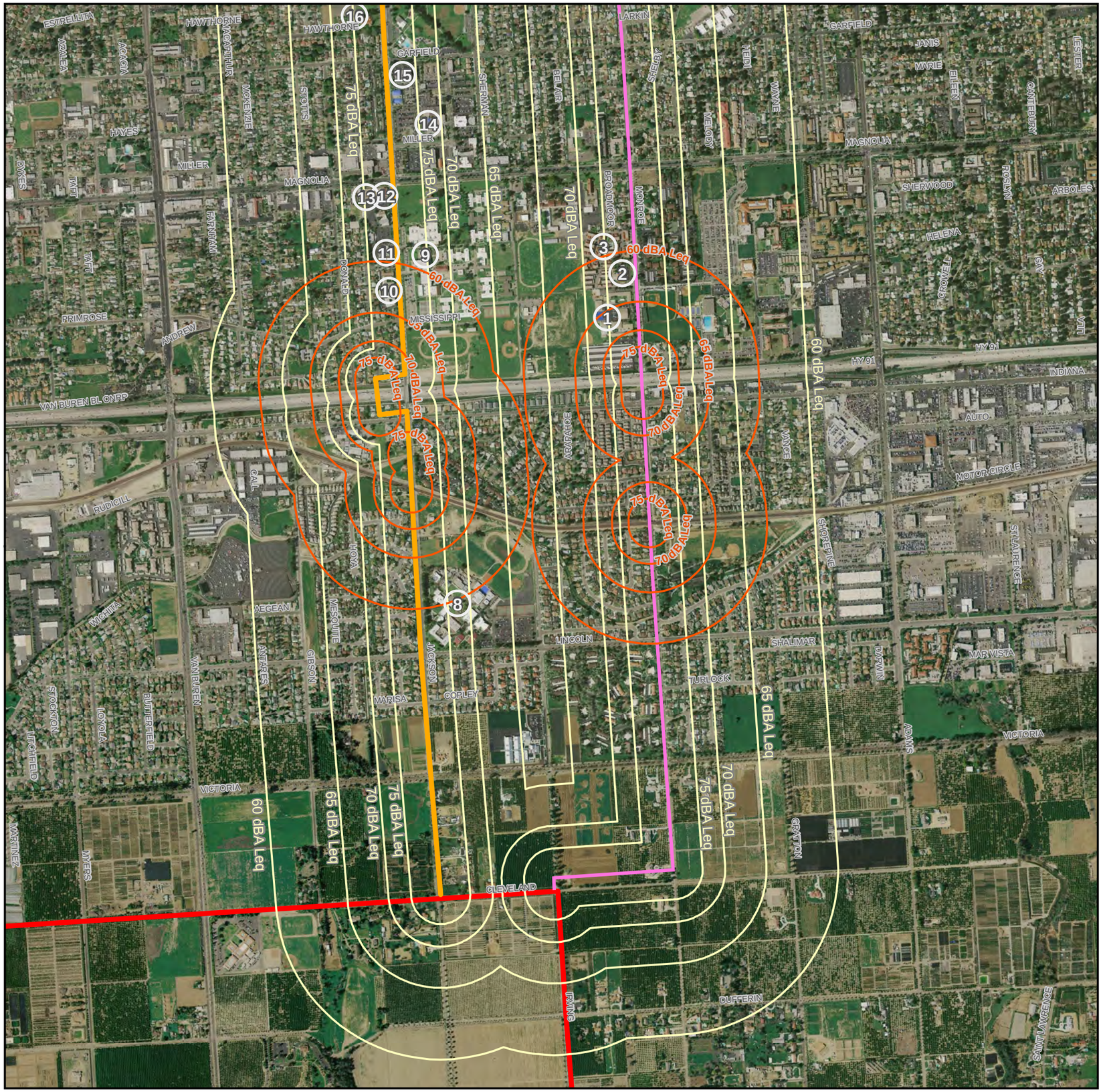
Proposed Riverside-Corona Feeder

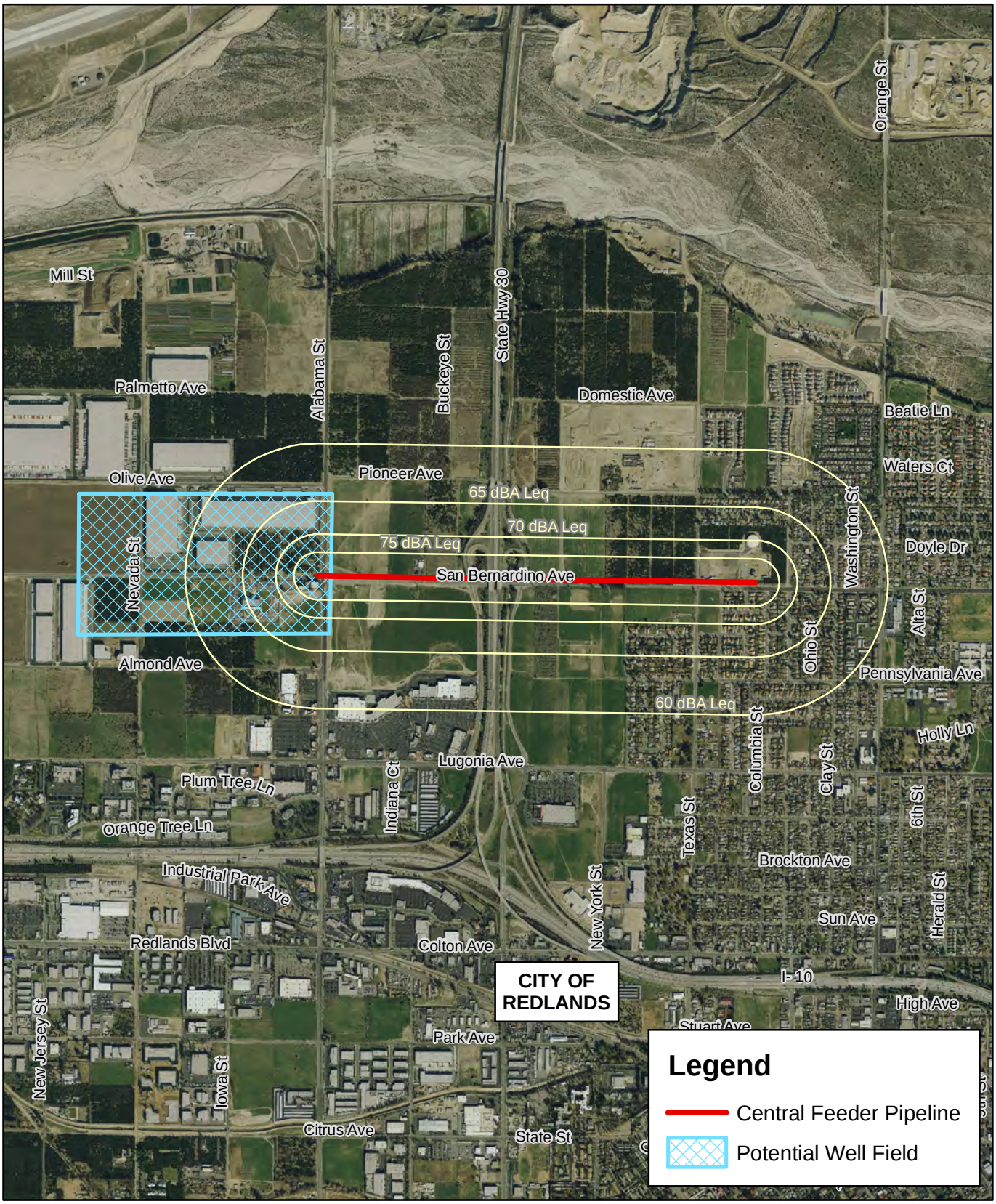
- Northern Reach
- Central Reach
- RC Feeder Monroe Alternative
- R-C Feeder Alignment (to Remain)
- Sensitive Receptors (see Table 7)

ALBERT A. WEBB ASSOCIATES

0 1,000 2,000 3,000 4,000 Feet







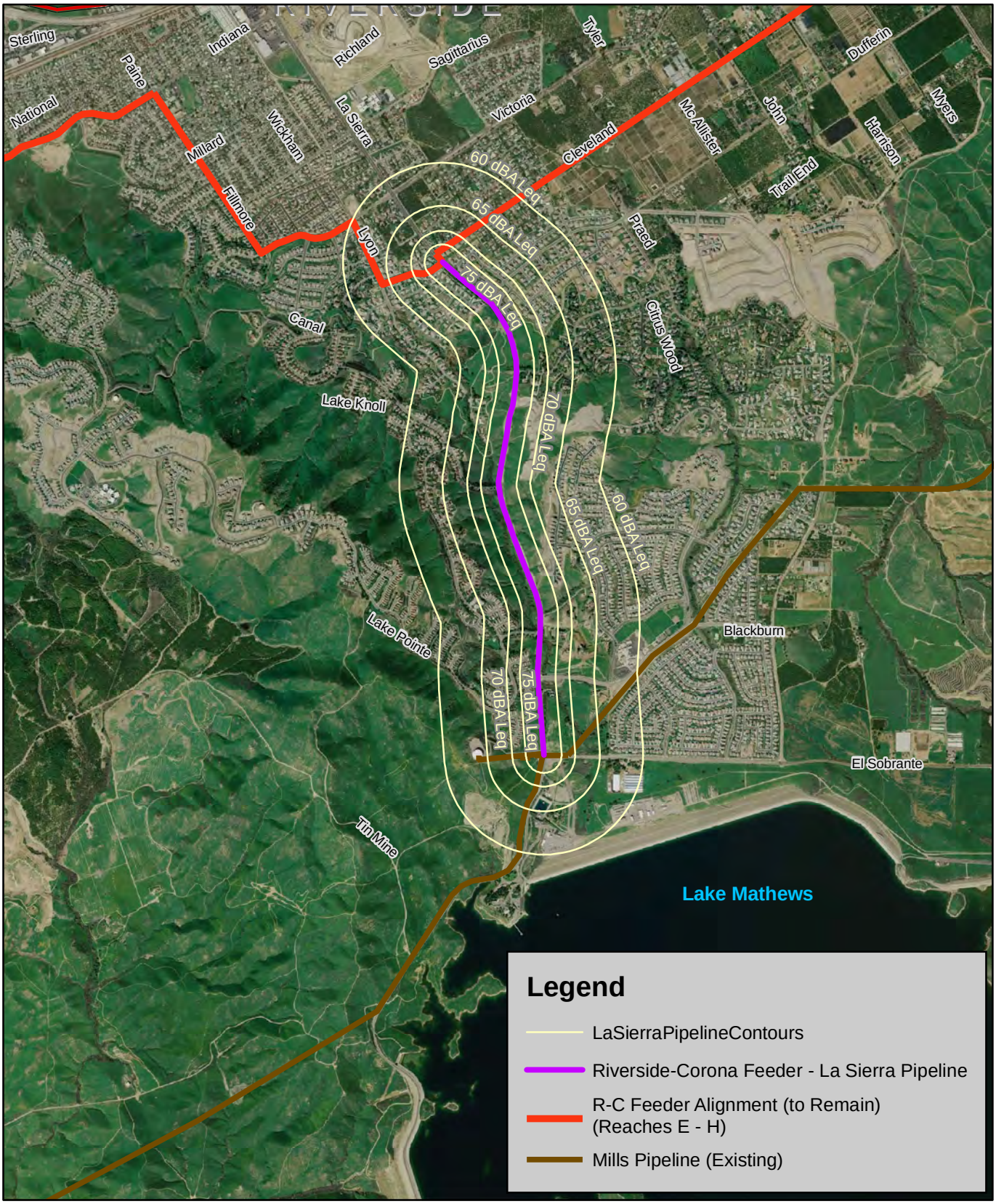
0 1,000 2,000 Feet

N
W E
S

ALBERT A. WEBB ASSOCIATES

Figure 6

Noise Contours for Project Construction - Central Feeder Connection



0 1,200 2,400 Feet

N
W E
S

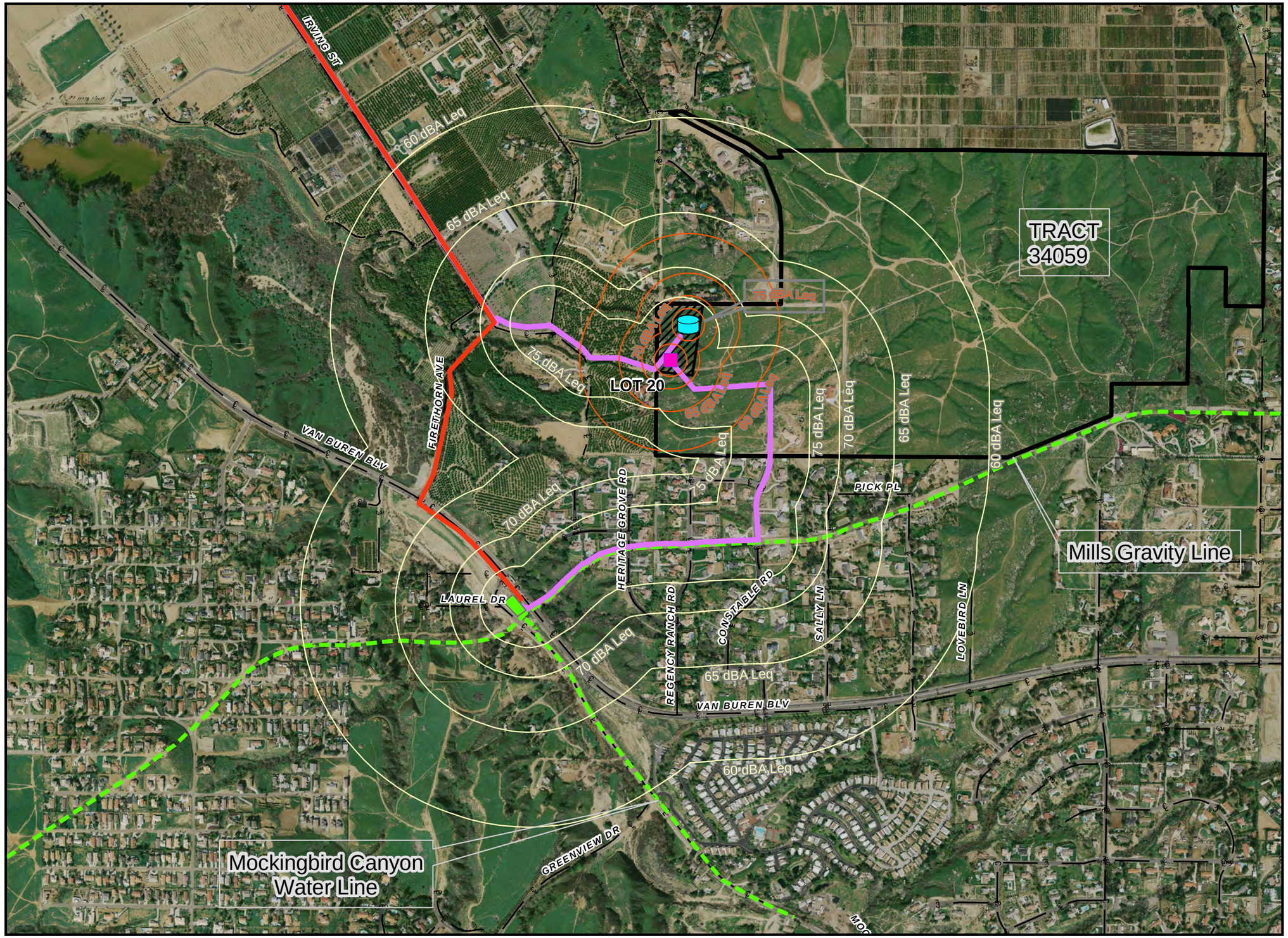
ALBERT A. WEBB ASSOCIATES

Figure 7

Noise Contours for Contruction - La Sierra Pipeline

Figure 8

Noise Contours for Construction - Mockingbord Connection



LEGEND

- Possible Tank
- Mockingbird Connection
- R-C Feeder Alignment (to Remain) (Reaches E - H)
- Proposed Booster Station
- Existing Water Pipeline
- Existing Mockingbird Booster Station
- Lot20

0 400 800 1,200

Feet

ALBERT A. WEBB ASSOCIATES

Source: County of Riverside, 2008.

Map created September 30, 2009. G:\2007\07-0377\Gis\MockingbirdNoiseContours.mxd

0 295 590 Feet

N
W E
S

ALBERT A. WEBB ASSOCIATES

Figure 9

Noise Contours for Construction - Clay Street Connection - Booster Site 1

Figure 10

Noise Contours for Construction - Clay Street Connection - Booster Site 2

ALBERT A. WEBB ASSOCIATES

Figure 11

Noise Contours for Construction - Clay Street Connection - Booster Site 3

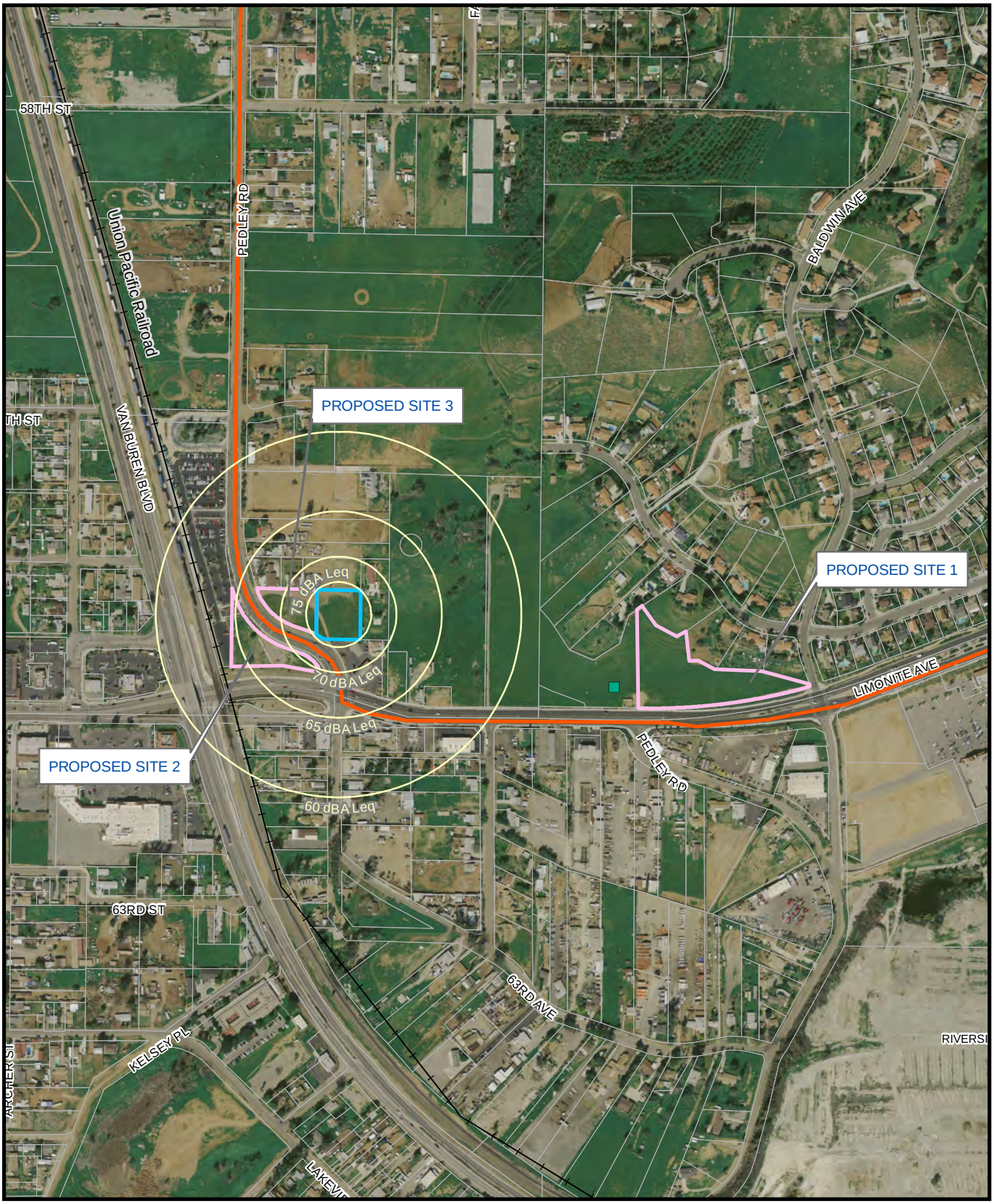


Figure 12

Noise Contours for Construction - Clay Street Connection - Booster Site 4

SECTION 5 – Conclusions

An acoustical analysis has been performed for the Riverside-Corona Feeder project. There is no operational or long-term noise associated with the project; therefore, construction noise is the only anticipated potentially significant noise source.

The project site will traverse five city jurisdictions and two unincorporated county jurisdictions. Construction noise is exempt from regulation in all of these jurisdictions. One city (Redlands) and two county (San Bernardino and Riverside) jurisdictions include limitations placed on their exemptions which specify the conditions under which construction activities can take place, such as the proximity of construction activity to sensitive receivers, hours of the day that construction activity cannot take place, and/or days on which construction activity cannot take place (e.g., Sundays and/or federal holidays).

Although activities from the project construction are likely to increase the overall noise level in the vicinity of the project site, construction-related noise is temporary in nature. While noise from the project's construction period is exempt from regulation under provisions made by the affected jurisdictions, this report includes analysis of potential worst-case noise levels expected to be generated during the construction phase.

Most of the construction work will be performed within existing road rights-of-way. Standard construction methods will be employed for the reservoir and pump station construction. Three primary methods will be employed for the pipeline construction process: boring, excavation, and microtunneling.

Noise contours are provided in this report (**Table 6** and **Figures 3**, **4,** and **5**) to help identify potentially impacted land uses from all of the aforementioned construction methods. The noise contours indicate worst-case distances to which the 60, 65, 70, and 75 dBA Leq noise impacts could extend from the center of the construction activity, not including the attenuating affects of topography or intervening structures and/or foliage.

Specific existing noise sensitive uses along the project's alignment that are located within the anticipated noise contours include schools, residences, churches, hospitals, day care centers, and medical clinics. **Figures 3**, **4,** and **5** identify many of these noise sensitive uses.

SECTION 6 – References

References Cited

The following documents were referred to as general information sources during the preparation of this document. They are available for public review at the locations abbreviated after each listing and spelled out at the end of this section. Some of these documents are also available at public libraries and at other public agency offices.

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, International Congress and Exposition on Noise Control Engineering, May 2006. (Available at http://www.akrf.com/knowledge/white_papers/Construction%20Noise%202008%20INCE.pdf)
City of Rialto, *Municipal Code*, LexisNexis, 2008. (Available at http://municipalcodes.lexisnexis.com/codes/rialto/)
City of Rialto, *General Plan.* (Available at the City of Rialto Planning Department.)
City of Riverside, *Municipal Code.* (Available at http://www.riversideca.gov/municode/)
City of Riverside, *General Plan* (Available at http://aquarius.riversideca.gov/plnimage7/Browse.aspx?dbid=2&startid=25416)
Riverside County, *Municipal Code*, LexisNexis, 2003. (Available at http://municipalcodes.lexisnexis.com/codes/riversideco/)
Riverside County, *General Plan.* (Available at http://www.rctlma.org/genplan/content/gp.aspx)
City of San Bernardino, *Municipal Code.* (Available at http://www.ci.san-bernardino.ca.us/residents/municipal_code.asp)
City of San Bernardino, *General Plan.* (Available at http://www.ci.san-bernardino.ca.us/depts/devserv/planning/default.asp)
San Bernardino County, *Development Code.* (Available at http://www.sbcounty.gov/landuseservices/DevCode/Default.asp)
San Bernardino County, *General Plan.* (Available at http://www.sbcounty.gov/landuseservices/General%20Plan%20Update/Default.asp)
City of Colton, *Municipal Code*, LexisNexis, 2003. (Available at http://bpc.iserver.net/codes/colton/index.htm)
City of Colton, *General Plan*, Community Systems Associates, Inc., 1987. (Available at http://www.ci.colton.ca.us/CD_Plan.html)

Document Preparation Staff

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Appendix A

Reference Noise Level Source Information

inter-noise 2008 From Silence to Harmony
37th International Congress and Exposition on Noise Control Engineering
26-29 October 2008·Shanghai·China

Noise Assessments for Construction Noise Impacts

Weixiong Wu[a]
AKRF, Inc., 440 Park Avenue, 7th floor, New York, NY, 10016, USA.

ABSTRACT

Construction noise is one of the most disruptive noise sources in New York City. Large-scale projects especially can take more than a decade to complete, and often be located in areas with various sensitive noise receptors. When these projects are being built, on-site construction equipment operation along with construction vehicle movement on surrounding roadways can cause dramatic increases in ambient noise levels at near noise-sensitive receptors. In addition, construction activities would occurs not only during weekday daytime periods, but also sometimes in the weekday nighttime periods or weekends. To assess a potential construction noise impact, the *City Environmental Quality Review (CEQR) Technical Manual*[1] is used when preparing an environmental impact statement (EIS). For most cases, adverse noise impacts often occur at near noise receptors during the construction without implementing mitigation measures. To eliminate or minimize these impacts is among the most challenging noise issues for noise analyses. This paper will illustrate certain methods for construction noise mitigation measures for large-scale development projects, to meet the CEQR noise criteria. The purpose of this study is to present practical and feasible mitigation techniques to reduce construction noise levels. Finally, noise analysis results for a typical large-scale project (the Atlantic Yards Arena project) will be presented using these mitigation measures.

1 INTRODUCTION

Construction noise analyses were completed by using construction noise mitigation plans for typical large-scale construction projects in New York City, including First Avenue Properties in Midtown Manhattan, Fordham University Lincoln Center, Columbia University's proposed new campus in Manhattanville in West Harlem, the new Yankee Stadium in the Bronx, and the Atlantic Yards Arena in Brooklyn. All of these sites are located in areas with high population densities and many noise-sensitive receptors. When these projects are built, construction activities will occur during normal weekday daytime periods, and construction for some of the projects will occasionally take place during the nighttime and on weekends as well.

Noise analyses were performed to identify the potential for significant adverse impacts that could result from construction noise. In general, noise analyses are conducted by:

- Determining sensitive receptor locations where construction-generated noise will be significantly increased;
- Measuring existing noise levels at sensitive receptor locations;
- Using appropriate mathematical models to predict construction noise levels;
- Determining noise impacts based on related noise ordinance standards; and
- Providing mitigation measures if any noise impacts will occur.

[a] wwu@akrf.com

shielding benefits. Once building foundations are completed, delivery trucks will operate behind noise barriers.

- Noise barriers will be used to provide shielding. For example, the construction sites will have a minimum 8-foot-high barrier, with a 15-foot-high barrier adjacent to residential and other sensitive locations. In addition, truck deliveries will take place behind these barriers once building foundations are completed.
- Noise curtains and equipment enclosures will be used to shield sensitive receptor locations.

Table 1 shows an example of equipment noise levels using the emission and the path control techniques for a noise analysis of the Fordham University Lincoln Center project. The emission noise levels came from the noise level standards specified in the Citywide Construction Noise Mitigation of the Department of Environmental Protection of New York City or the Transit Noise and Vibration Impact Assessment of Federal Transit Administration[4]. The mandated noise levels were achieved by using quieter equipment, better engine mufflers, and refinements in fan design and improved hydraulic systems. Noise levels with path control included using noise barriers, enclosures, acoustical panels, and curtains, whichever feasible and practical.

Table 1: Maximum Noise levels at 50 feet with emission and path control, dBA re 20µPa.

Equipment List	Emission Noise Level	Mandated Noise Level	Noise Level with Path Controls
Asphalt Paver	85	85	75
Asphalt Roller	85	74	
Backhoe/Loader	80	77	
Compressors	80	67	
Concrete Pump	82	79	
Concrete Trucks	85	79	
Cranes	85	77	
Cranes (Tower Cranes)	85	85	75
Delivery Trucks	84	79	
Drill Rigs	84	84	74
Dump Trucks	84	79	
Excavator	85	77	
Excavator with Ram Hoe	90	90	80
Fuel Truck	84	79	
Generators	82	68	
Hoist	85	80	70
Impact Wrenches	85	85	75
Jack Hammer	85	82	72
Mortar Mixer	80	63	
Power Trowel	85	85	75
Powder Actuated Device	85	85	75
Pump (Spray On Fire Proof)	82	76	
Pump (Water)	77	76	
Rebar Bender	80	80	
Rivet Buster	85	85	75
Rock Drill	85	85	75
Saw (Chain Saw)	85	75	
Saw (Concrete Saw)	90	85	75
Saw (Masonry Bench)	85	76	
Saw (Circular & Cut off)	76	76	
Saw (Table Saw)	76	76	
Sledge Hammers	85	85	75
Street Cleaner	80	80	
Tractor Trailer	84	79	
Vibratory Plate Compactor	80	80	
Welding Machines	73	73	

Table 3: Predicted construction noise levels in 2008, dBA re 20µPa.

Noise Receptor	Elevation Level	Worst Period $L_{eq(1)}$	Source Controls		Path Controls		Trucks Behind Barriers		Total Decrease
			$L_{eq(1)}$	Decrease	$L_{eq(1)}$	Decrease	$L_{eq(1)}$	Decrease	
A	1st Floor	85	82	-3	76	-6	67	-9	-18
B	1st Floor	89	85	-4	78	-7	70	-8	-19
C	1st Floor	88	83	-6	79	-3	70	-9	-18
D	3rd Floor	87	82	-5	78	-4	73	-5	-14
E	3rd Floor	79	74	-5	69	-5	67	-3	-12
F	3rd Floor	78	73	-5	71	-2	64	-7	-14
G	15th Floor	81	76	-5	76	0	76	0	-5
H	15th floor	73	69	-5	68	-1	66	-2	-7
I	30th Floor	85	80	-5	78	-2	77	-1	-8

4 CONCLUSION

With construction noise mitigation plans, construction activities for large-scale projects examined above can reduce noise levels significantly at sensitive noise receptors adjacent to construction sites. Based on the noise analyses results, noise control techniques were developed to identify and develop practical mitigation measures that were incorporated into the projects to substantially reduce potential construction noise impacts. Key findings are summarized below:

- Before taking mitigation measures, a logical and realistic review of construction schedule is necessary.
- Eliminate unnecessary equipment on site.
- As early in the construction period as possible, replace diesel-powered equipment with electrical-powered equipment.
- Where feasible, use quiet equipment (for dominant noise equipment).
- Noisy equipment needs be located away from sensitive receptor locations and shielded from sensitive receptor locations.
- Delivery trucks should be located adjacent to noisy streets or behind noise barriers.
- 3 to 6 dBA reduction can be obtained with source control techniques.
- 2 to 7 dBA reduction can be obtained with path control techniques for receptors at lower elevation levels.
- 3 to 9 dBA reduction can be obtained by placing delivery trucks behind noise barriers for receptors at lower elevation levels.
- A maximum reduction of 19 dBA can be obtained with noise source and path control techniques.
- If possible schedule louder activities; to times people are less sensitive to noise intrusions.
- Limited benefits of noise reduction can be expected by using path control techniques for receptors at higher-level floors.

5 REFERENCES

[1] *New York City Environmental Quality Review (CEQR) Technical Manual*, Chapter 3R Noise, New York, 2001.

[2] New York City Noise Code, Subchapter 5, New York City Department of Environmental Protection, 2005.

[3] Citywide Construction Noise Mitigation, Chapter 28, Department of Environmental Protection of New York City, 2007

[4] Transit Noise and Vibration Impact Assessment, May 2006, Federal Transit Administration.

[5] CadnaA is the computerized software developed by DataKustik.

Appendix B

Noise Impact Calculation Printouts

Albert A. Webb Associates

NOISE IMPACT ADDITION WORKSHEET

Entered by: **Mike**

W.O.: **2007-0377**

Project: **Riverside-Corona Feeder**

City/County Agency: **multiple**

Noise Impact Threshold: **- -**

Location: **Construction Site**

Obs. Location: **1,350 feet from center point of construction**

Conditions: **Boring Method**

Noise Source	Quantity	Noise Level (dBA)	Equivalent Pressure Units
Asphalt Paver	0	- -	- -
Asphalt Roller	0	- -	- -
Backhoes/Loaders	1	51.4	137,174.2
Compressor	0	- -	- -
Crane	1	56.4	433,782.9
Excavator	0	- -	- -
Generator	2	56.4	434,812.9
Welding Machines	0	- -	- -
		Total Pressure Units:	1,005,770.1

Combined Boring Method noise level from all sources: 60.0 dBA

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Backhoes/Loaders**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	1350.0 feet	**Dist. to Barrier:**	1350.0 feet	**Barrier Height:** 0.0 feet
Leq:	51.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Crane**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	1350.0 feet	**Dist. to Barrier:**	1350.0 feet	**Barrier Height:** 0.0 feet
Leq:	56.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Generator**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	82.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	1350.0 feet	**Dist. to Barrier:**	1350.0 feet	**Barrier Height:** 0.0 feet
Leq:	53.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

NOISE IMPACT ADDITION WORKSHEET

Entered by: **Mike**

W.O.: **2007-0377**

Project: **Riverside-Corona Feeder**

City/County Agency: **multiple**

Noise Impact Threshold: **- -**

Location: **Construction Site**

Obs. Location: **760 feet from center point of construction**

Conditions: **Boring Method**

Noise Source	Quantity	Noise Level (dBA)	Equivalent Pressure Units
Asphalt Paver	0	- -	- -
Asphalt Roller	0	- -	- -
Backhoes/Loaders	1	56.4	432,825.5
Compressor	0	- -	- -
Crane	1	61.4	1,368,714.4
Excavator	0	- -	- -
Generator	2	61.4	1,371,964.3
Welding Machines	0	- -	- -
		Total Pressure Units:	3,173,504.2

Combined Boring Method noise level from all sources: 65.0 dBA

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple

Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Backhoes/Loaders**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet

Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	760.0 feet	**Dist. to Barrier:**	760.0 feet	**Barrier Height:** 0.0 feet
Leq:	56.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project:	Riverside-Corona Feeder	**Entered By:**	Mike
City/County Agency:	multiple	**W.O.:**	2007-0377

Subject Noise Source: **Crane**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	760.0 feet	**Dist. to Barrier:**	760.0 feet	**Barrier Height:** 0.0 feet
Leq:	61.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Generator**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:	
Distance:	50.0 feet
Leq:	82.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**			
Distance:	760.0 feet	**Dist. to Barrier:**	760.0 feet	**Barrier Height:**	0.0 feet
Leq:	58.4 dBA	**Leq:**	- -		
Lmax:	- -	**Lmax:**	- -		
L2:	- -	**L2:**	- -		
L8:	- -	**L8:**	- -		
L25:	- -	**L25:**	- -		
L50:	- -	**L50:**	- -		

Albert A. Webb Associates

NOISE IMPACT ADDITION WORKSHEET

Entered by: **Mike**

W.O.: **2007-0377**

Project: **Riverside-Corona Feeder**

City/County Agency: **multiple**

Noise Impact Threshold: **- -**

Location: **Construction Site**

Obs. Location: **430 feet from center point of construction**

Conditions: **Boring Method**

Noise Source	Quantity	Noise Level (dBA)	Equivalent Pressure Units
Asphalt Paver	0	- -	- -
Asphalt Roller	0	- -	- -
Backhoes/Loaders	1	61.3	1,352,082.2
Compressor	0	- -	- -
Crane	1	66.3	4,275,659.4
Excavator	0	- -	- -
Generator	2	66.3	4,285,811.8
Welding Machines	0	- -	- -
		Total Pressure Units:	9,913,553.3

Combined Boring Method noise level from all sources: 70.0 dBA

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Backhoes/Loaders**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	430.0 feet	**Dist. to Barrier:**	430.0 feet	**Barrier Height:** 0.0 feet
Leq:	61.3 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Crane**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	430.0 feet	**Dist. to Barrier:**	430.0 feet	**Barrier Height:** 0.0 feet
Leq:	66.3 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Generator**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	82.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	430.0 feet	**Dist. to Barrier:**	430.0 feet	**Barrier Height:** 0.0 feet
Leq:	63.3 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

NOISE IMPACT ADDITION WORKSHEET

Entered by: **Mike**

W.O.: **2007-0377**

Project: **Riverside-Corona Feeder**

City/County Agency: **multiple**

Noise Impact Threshold: **- -**

Location: **Construction Site**

Obs. Location: **240 feet from center point of construction**

Conditions: **Boring Method**

Noise Source	Quantity	Noise Level (dBA)	Equivalent Pressure Units
Asphalt Paver	0	- -	- -
Asphalt Roller	0	- -	- -
Backhoes/Loaders	1	66.4	4,340,277.8
Compressor	0	- -	- -
Crane	1	71.4	13,725,163.5
Excavator	0	- -	- -
Generator	2	71.4	13,757,753.4
Welding Machines	0	- -	- -
		Total Pressure Units:	31,823,194.6

Combined Boring Method noise level from all sources: 75.0 dBA

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Backhoes/Loaders**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	240.0 feet	**Dist. to Barrier:**	240.0 feet	**Barrier Height:** 0.0 feet
Leq:	66.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Crane**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	240.0 feet	**Dist. to Barrier:**	240.0 feet	**Barrier Height:** 0.0 feet
Leq:	71.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Generator**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	82.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	240.0 feet	**Dist. to Barrier:**	240.0 feet	**Barrier Height:** 0.0 feet
Leq:	68.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

NOISE IMPACT ADDITION WORKSHEET

Entered by: **Mike**

W.O.: **2007-0377**

Project: **Riverside-Corona Feeder**

City/County Agency: **multiple**

Noise Impact Threshold: **- -**

Location: **Construction Site**

Obs. Location: **1,900 feet from center point of construction**

Conditions: **Excavation**

Noise Source	Quantity	Noise Level (dBA)	Equivalent Pressure Units
Asphalt Paver	0	- -	- -
Asphalt Roller	0	- -	- -
Backhoes/Loaders	3	53.2	207,756.2
Compressor	2	51.4	138,504.2
Crane	1	53.4	218,994.3
Excavator	2	56.4	437,988.6
Generator	0	- -	- -
Welding Machines	0	- -	- -
		Total Pressure Units:	1,003,243.3

Combined Excavation noise level from all sources: 60.0 dBA

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Backhoes/Loaders**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	1900.0 feet	**Dist. to Barrier:**	1900.0 feet	**Barrier Height:** 0.0 feet
Leq:	48.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Compressor**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	1900.0 feet	**Dist. to Barrier:**	1900.0 feet	**Barrier Height:** 0.0 feet
Leq:	48.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Crane**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	1900.0 feet	**Dist. to Barrier:**	1900.0 feet	**Barrier Height:** 0.0 feet
Leq:	53.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Excavator**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	1900.0 feet	**Dist. to Barrier:**	1900.0 feet	**Barrier Height:** 0.0 feet
Leq:	53.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

NOISE IMPACT ADDITION WORKSHEET

Entered by: **Mike**

W.O.: **2007-0377**

Project: **Riverside-Corona Feeder**

City/County Agency: **multiple**

Noise Impact Threshold: **- -**

Location: **Construction Site**

Obs. Location: **1,075 feet from center point of construction**

Conditions: **Excavation**

Noise Source	Quantity	Noise Level (dBA)	Equivalent Pressure Units
Asphalt Paver	0	- -	- -
Asphalt Roller	0	- -	- -
Backhoes/Loaders	3	58.1	648,999.5
Compressor	2	56.4	432,666.3
Crane	1	58.4	684,105.5
Excavator	2	61.4	1,368,211.0
Generator	0	- -	- -
Welding Machines	0	- -	- -
		Total Pressure Units:	3,133,982.3

Combined Excavation noise level from all sources: 65.0 dBA

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Backhoes/Loaders**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	1075.0 feet	**Dist. to Barrier:**	1075.0 feet	**Barrier Height:** 0.0 feet
Leq:	53.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Compressor**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	1075.0 feet	**Dist. to Barrier:**	1075.0 feet	**Barrier Height:** 0.0 feet
Leq:	53.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple

Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Crane**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet

Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	1075.0 feet	**Dist. to Barrier:**	1075.0 feet	**Barrier Height:** 0.0 feet
Leq:	58.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Excavator**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	1075.0 feet	**Dist. to Barrier:**	1075.0 feet	**Barrier Height:** 0.0 feet
Leq:	58.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

NOISE IMPACT ADDITION WORKSHEET

Entered by: **Mike**

W.O.: **2007-0377**

Project: **Riverside-Corona Feeder**

City/County Agency: **multiple**

Noise Impact Threshold: **- -**

Location: **Construction Site**

Obs. Location: **600 feet from center point of construction**

Conditions: **Excavation**

Noise Source	Quantity	Noise Level (dBA)	Equivalent Pressure Units
Asphalt Paver	0	- -	- -
Asphalt Roller	0	- -	- -
Backhoes/Loaders	3	63.2	2,083,333.3
Compressor	2	61.4	1,388,888.9
Crane	1	63.4	2,196,026.2
Excavator	2	66.4	4,392,052.3
Generator	0	- -	- -
Welding Machines	0	- -	- -
		Total Pressure Units:	10,060,300.7

Combined Excavation noise level from all sources: 70.0 dBA

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Backhoes/Loaders**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	600.0 feet	**Dist. to Barrier:**	600.0 feet	**Barrier Height:** 0.0 feet
Leq:	58.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Compressor**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	600.0 feet	**Dist. to Barrier:**	600.0 feet	**Barrier Height:** 0.0 feet
Leq:	58.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Crane**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	600.0 feet	**Dist. to Barrier:**	600.0 feet	**Barrier Height:** 0.0 feet
Leq:	63.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Excavator**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	600.0 feet	**Dist. to Barrier:**	600.0 feet	**Barrier Height:** 0.0 feet
Leq:	63.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

NOISE IMPACT ADDITION WORKSHEET

Entered by: **Mike**

W.O.: **2007-0377**

Project: **Riverside-Corona Feeder**

City/County Agency: **multiple**

Noise Impact Threshold: **- -**

Location: **Construction Site**

Obs. Location: **340 feet from center point of construction**

Conditions: **Excavation**

Noise Source	Quantity	Noise Level (dBA)	Equivalent Pressure Units
Asphalt Paver	0	- -	- -
Asphalt Roller	0	- -	- -
Backhoes/Loaders	3	68.1	6,487,889.3
Compressor	2	66.4	4,325,259.5
Crane	1	68.3	6,838,835.8
Excavator	2	71.4	13,677,671.5
Generator	0	- -	- -
Welding Machines	0	- -	- -
		Total Pressure Units:	31,329,656.1

Combined Excavation noise level from all sources: 75.0 dBA

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Backhoes/Loaders**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	340.0 feet	**Dist. to Barrier:**	340.0 feet	**Barrier Height:** 0.0 feet
Leq:	63.3 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Compressor**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	340.0 feet	**Dist. to Barrier:**	340.0 feet	**Barrier Height:** 0.0 feet
Leq:	63.3 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Crane**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	340.0 feet	**Dist. to Barrier:**	340.0 feet	**Barrier Height:** 0.0 feet
Leq:	68.3 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Excavator**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	340.0 feet	**Dist. to Barrier:**	340.0 feet	**Barrier Height:** 0.0 feet
Leq:	68.3 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

NOISE IMPACT ADDITION WORKSHEET

Entered by: **Mike**

W.O.: **2007-0377**

Project: **Riverside-Corona Feeder**

City/County Agency: **multiple**

Noise Impact Threshold: **- -**

Location: **Construction Site**

Obs. Location: **1,350 feet from center point of construction**

Conditions: **Microtunneling**

Noise Source	Quantity	Noise Level (dBA)	Equivalent Pressure Units
Asphalt Paver	0	- -	- -
Asphalt Roller	0	- -	- -
Backhoes/Loaders	1	51.4	137,174.2
Compressor	0	- -	- -
Crane	1	56.4	433,782.9
Excavator	0	- -	- -
Generator	2	56.4	434,812.9
Welding Machines	0	- -	- -
		Total Pressure Units:	1,005,770.1

Combined Microtunneling noise level from all sources: 60.0 dBA

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Backhoes/Loaders**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	1350.0 feet	**Dist. to Barrier:**	1350.0 feet	**Barrier Height:** 0.0 feet
Leq:	51.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple

Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Crane**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet

Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	1350.0 feet	**Dist. to Barrier:**	1350.0 feet	**Barrier Height:** 0.0 feet
Leq:	56.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple

Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Generator**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	82.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet

Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	1350.0 feet	**Dist. to Barrier:**	1350.0 feet	**Barrier Height:** 0.0 feet
Leq:	53.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

NOISE IMPACT ADDITION WORKSHEET

Entered by: **Mike**

W.O.: **2007-0377**

Project: **Riverside-Corona Feeder**

City/County Agency: **multiple**

Noise Impact Threshold: **- -**

Location: **Construction Site**

Obs. Location: **760 feet from center point of construction**

Conditions: **Microtunneling**

Noise Source	Quantity	Noise Level (dBA)	Equivalent Pressure Units
Asphalt Paver	0	- -	- -
Asphalt Roller	0	- -	- -
Backhoes/Loaders	1	56.4	432,825.5
Compressor	0	- -	- -
Crane	1	61.4	1,368,714.4
Excavator	0	- -	- -
Generator	2	61.4	1,371,964.3
Welding Machines	0	- -	- -
		Total Pressure Units:	3,173,504.2

Combined Microtunneling noise level from all sources: 65.0 dBA

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Backhoes/Loaders**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	760.0 feet	**Dist. to Barrier:**	760.0 feet	**Barrier Height:** 0.0 feet
Leq:	56.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Crane**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	760.0 feet	**Dist. to Barrier:**	760.0 feet	**Barrier Height:** 0.0 feet
Leq:	61.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Generator**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	82.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	760.0 feet	**Dist. to Barrier:**	760.0 feet	**Barrier Height:** 0.0 feet
Leq:	58.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

NOISE IMPACT ADDITION WORKSHEET

Entered by: **Mike**

W.O.: **2007-0377**

Project: **Riverside-Corona Feeder**

City/County Agency: **multiple**

Noise Impact Threshold: **- -**

Location: **Construction Site**

Obs. Location: **430 feet from center point of construction**

Conditions: **Microtunneling**

Noise Source	Quantity	Noise Level (dBA)	Equivalent Pressure Units
Asphalt Paver	0	- -	- -
Asphalt Roller	0	- -	- -
Backhoes/Loaders	1	61.3	1,352,082.2
Compressor	0	- -	- -
Crane	1	66.3	4,275,659.4
Excavator	0	- -	- -
Generator	2	66.3	4,285,811.8
Welding Machines	0	- -	- -
		Total Pressure Units:	9,913,553.3

Combined Microtunneling noise level from all sources: 70.0 dBA

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Backhoes/Loaders**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	430.0 feet	**Dist. to Barrier:**	430.0 feet	**Barrier Height:** 0.0 feet
Leq:	61.3 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Crane**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	430.0 feet	**Dist. to Barrier:**	430.0 feet	**Barrier Height:** 0.0 feet
Leq:	66.3 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple

Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Generator**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	82.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet

Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	430.0 feet	**Dist. to Barrier:**	430.0 feet	**Barrier Height:** 0.0 feet
Leq:	63.3 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

NOISE IMPACT ADDITION WORKSHEET

Entered by: **Mike**

W.O.: **2007-0377**

Project: **Riverside-Corona Feeder**

City/County Agency: **multiple**

Noise Impact Threshold: **- -**

Location: **Construction Site**

Obs. Location: **240 feet from center point of construction**

Conditions: **Microtunneling**

Noise Source	Quantity	Noise Level (dBA)	Equivalent Pressure Units
Asphalt Paver	0	- -	- -
Asphalt Roller	0	- -	- -
Backhoes/Loaders	1	66.4	4,340,277.8
Compressor	0	- -	- -
Crane	1	71.4	13,725,163.5
Excavator	0	- -	- -
Generator	2	71.4	13,757,753.4
Welding Machines	0	- -	- -
		Total Pressure Units:	31,823,194.6

Combined Microtunneling noise level from all sources: 75.0 dBA

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Backhoes/Loaders**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	80.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	240.0 feet	**Dist. to Barrier:**	240.0 feet	**Barrier Height:** 0.0 feet
Leq:	66.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Crane**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	85.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	240.0 feet	**Dist. to Barrier:**	240.0 feet	**Barrier Height:** 0.0 feet
Leq:	71.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	

Albert A. Webb Associates

Reference Noise Level Projection Worksheet

Project: Riverside-Corona Feeder
City/County Agency: multiple
Entered By: Mike
W.O.: 2007-0377

Subject Noise Source: **Generator**

Reference Noise Data Source: Weixiong Wu, Noise Assessment for Construction Noise Impacts, International Congress and Exposition on Noise Control Engineering, October 2008.

REFERENCE DATA

Unmitigated Noise Level:

Distance:	50.0 feet
Leq:	82.0 dBA
Lmax:	- -
L2:	- -
L8:	- -
L25:	- -
L50:	- -

PROJECTED DATA

Observer Elevation: 0.0 feet
Observer Height: 5.0 feet
Noise Source Elevation: 0.0 feet
Noise Source Height: 8.0 feet

Unmitigated Noise Level:		**Mitigated Noise Level:**		
Distance:	240.0 feet	**Dist. to Barrier:**	240.0 feet	**Barrier Height:** 0.0 feet
Leq:	68.4 dBA	**Leq:**	- -	
Lmax:	- -	**Lmax:**	- -	
L2:	- -	**L2:**	- -	
L8:	- -	**L8:**	- -	
L25:	- -	**L25:**	- -	
L50:	- -	**L50:**	- -	