

Noise Technical Report for the South County Recycled Water District Pipeline, City of Gilroy, California

Prepared for

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1.0 Summary of Findings

The South County Recycled Water Master Plan Project is located in the City of Gilroy, California, in South Santa Clara County. The project proposes the installation of approximately 10 miles of pipelines.

The noise issue of concern for this project is limited to noise generated during pipeline installation activities. These construction activities will be a temporary source of noise. Given the type and amount of construction equipment that will be on site and the required construction activities, noise levels are expected to range from 78 A-weighted decibels to 89 decibels. Noise sensitive areas will be exposed to elevated noise levels during construction of the pipeline. Although the City does not specify noise level thresholds for construction, if these noise levels were to occur during the nighttime hours an adverse impact could result.

Although noise sensitive areas will be exposed to elevated noise levels during construction of the pipeline, these activities will be temporary. Compliance with Section 16.38 of the City of Gilroy's Municipal Code will ensure that construction noise impacts are avoided. Construction activities shall be limited to the hours of 7:00 A.M. to 7:00 P.M. Monday through Friday, and 9:00 A.M. to 7:00 P.M. on Saturday. Construction activities shall not occur on Sundays or City holidays, which include New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas.

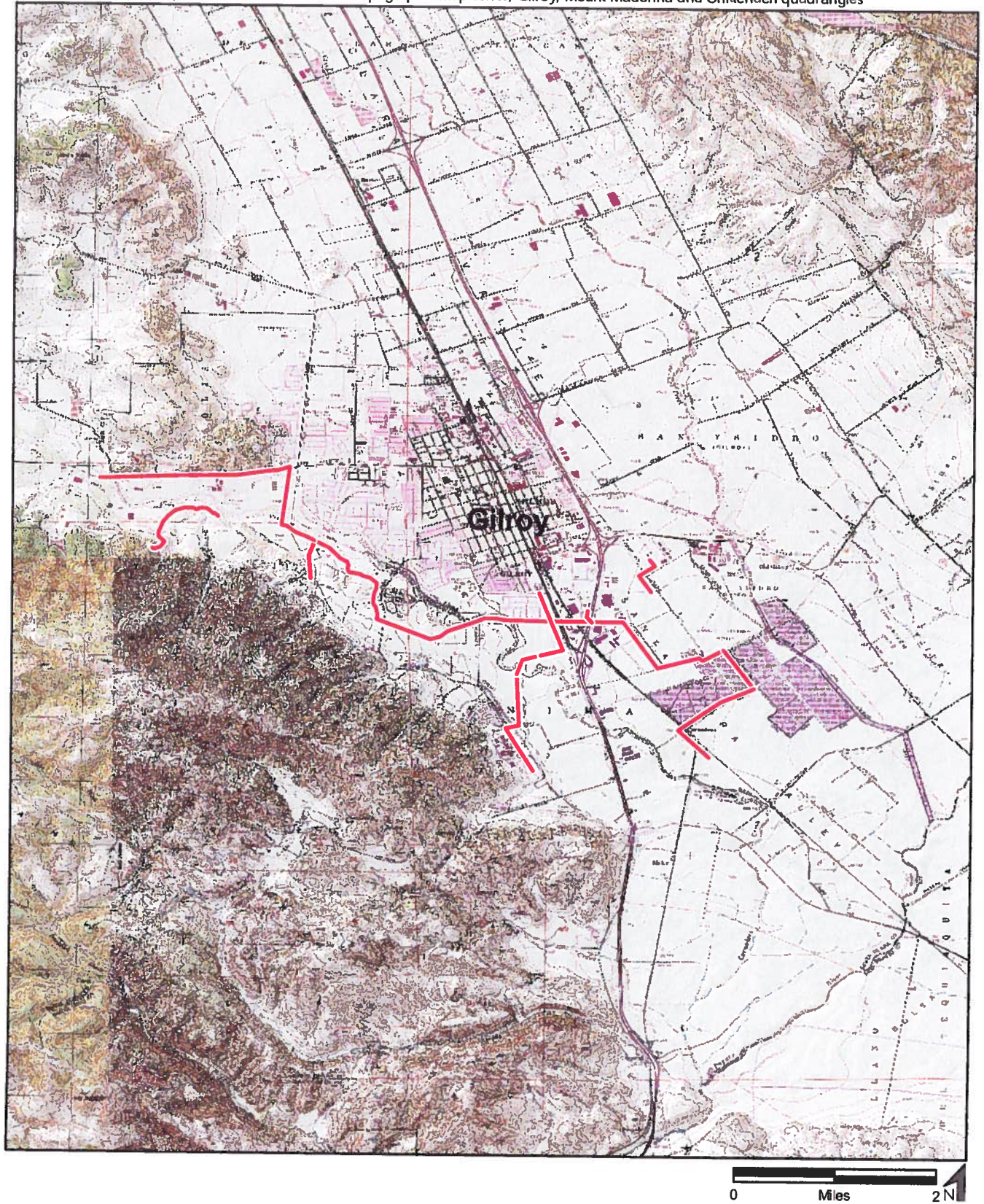
2.0 Introduction

The South County Recycled Water Master Plan Project is located in the City of Gilroy, California. Figure 1 shows the regional location of the project. Figure 2 shows the proposed pipeline project. The Santa Clara Valley Water District (District) and the South County Regional Wastewater Authority (SCRWA) are proposing the installation of approximately 10 miles of additional transmission and distribution pipelines, two new pump stations, and one new storage reservoir. Approximately 4.0 to 4.5 miles of the 10-mile pipeline is part of the short-term Capital Improvement Program (CIP). The remaining 5.5- to 6.0-mile segment will be part of long-term CIP projects. The majority of the proposed pipeline alignment would be located within existing or future road rights-of-way or commercial infrastructure.

This project would expand the use of recycled water to meet long-term water supply and wastewater needs in southern Santa Clara County, specifically in and near the city of Gilroy. The proposed improvements would increase the reliability of long-term water supplies, increase recycled water usage, lessen the demand on groundwater reserves, and provide SCRWA with additional discharge alternatives.



Map Source: USGS 7.5 minute topographic map series, Gilroy, Mount Madonna and Chittenden quadrangles



 Project location

RECON

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FIGURE 2
Project Location on USGS Map

Therefore, this report evaluates potential noise impacts due to the construction of the pipeline. Once operational, no adverse noise impacts associated with the project are anticipated.

3.0 Analysis Methodology

3.1 Applicable Standards and Definitions of Terms

The hourly equivalent sound level (L_{eq}) is the average A-weighted decibel [dB(A)] sound level over a stated period. A-weighting is a frequency correction that often correlates well with the subjective response of humans to noise.

The City does not specify numeric thresholds pertaining to construction noise. However, the hours of construction are limited. Section 16.38 of the City of Gilroy municipal code states that (City of Gilroy 2004):

- a) Unless otherwise provided for in a validly issued permit or approval, construction activities shall be limited to the hours of 7:00 A.M. to 7:00 P.M. Monday through Friday, and 9:00 A.M. to 7:00 P.M. on Saturday. Construction activities shall not occur on Sundays or City holidays, which include: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas. "Construction activities" are defined as including but not limited to excavation, grading, paving, demolitions, construction, alteration or repair of any building, site, street or highway, delivery or removal of construction material to a site, or movement of construction materials on a site.
- b) In the event, the chief building official or his or her designee determines that the public health and safety will not be impaired by the construction activities between the hours of 7:00 P.M. and 7:00 A.M., and that loss or inconvenience would result to any party in interest, the chief building official may grant permission for such work to be done between the hours of 7:00 P.M. and 7:00 A.M. upon an application being made at the time the permit for the work is issued or during the progress of the work.

3.2 Existing Noise Level Measurements

Existing noise levels adjacent to segments of the proposed pipeline project were measured using a Larson-Davis Model 720 Type 2 Integrating Sound Level Meter, serial

number 0269. The meter was calibrated before use and the following parameters were used:

Filter:	A-weighted
Response:	Fast
Time History Period:	5 seconds

Eight ground-floor measurements (five feet above the ground) were each made for a 15-minute period. Additionally, during the measurements traffic volumes were counted on the adjacent roadways.

4.0 Existing Conditions

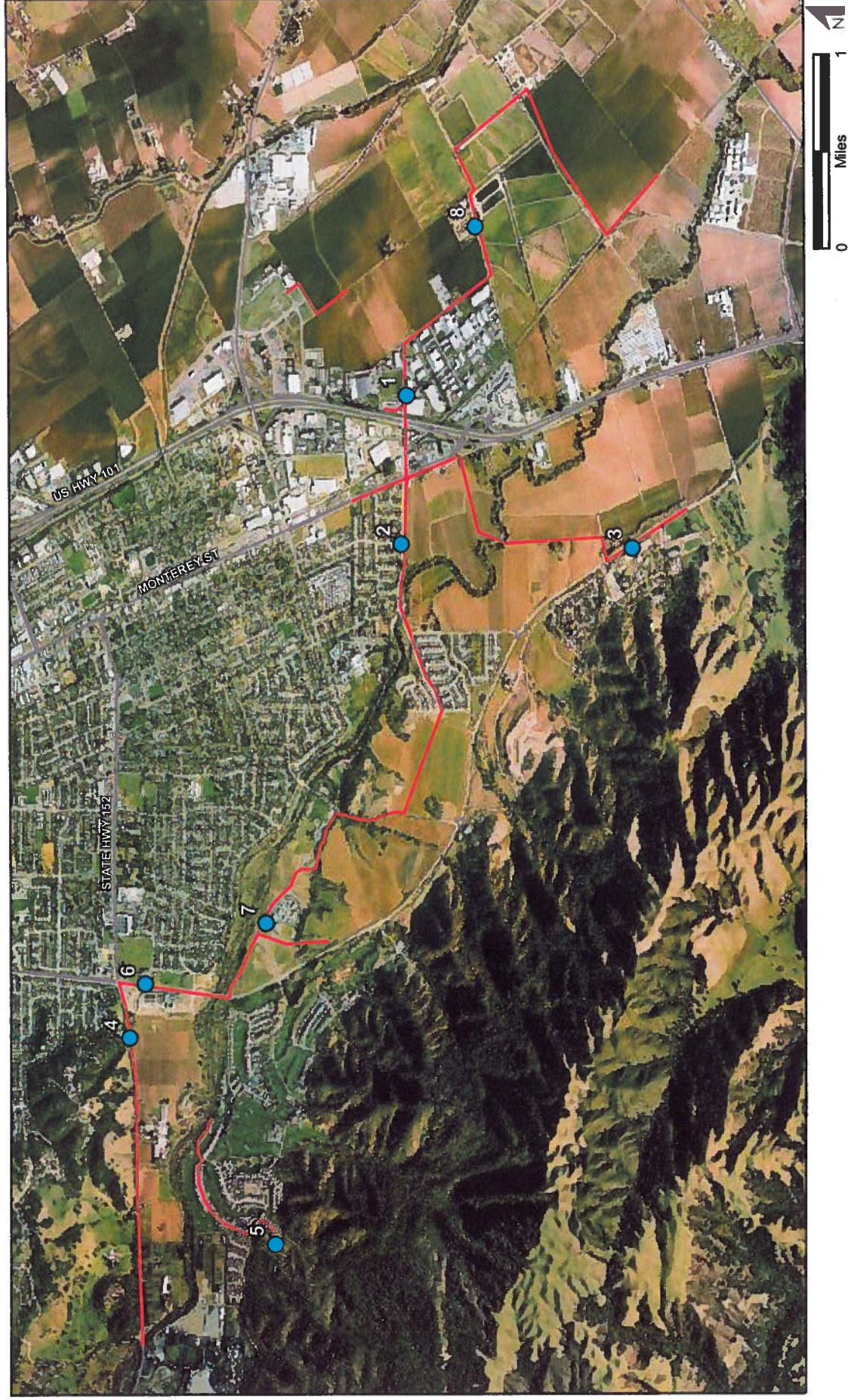
4.1 General Information

The City of Gilroy is generally characterized by agricultural lands, agricultural processing plants, mixed residential uses, mixed institutional and recreational uses, and commercial/light industrial areas. The City of Gilroy is located in the Santa Clara Valley within a broad, gently sloping plain enclosed on the northeast by the Diablo Mountains of the Contra Costa Range and on the west by the Santa Cruz Mountains.

Based on the Gilroy General Plan 2002–2020 (City of Gilroy 2002), the eastern portion of the proposed pipeline alignment is located within Public/Quasi-Public Facility and General Industrial land use categories. The central portion is located within a mixture of land use categories including Professional Office/General Service, Low Density Residential, Neighborhood District, Educational Facility, Park/Recreation, and Open Space. The western portion of the alignment is located in the Hecker Pass Special Use District.

4.2 Existing Noise Environment

Noise measurements were taken in the project area on Wednesday, November 16, 2005, between the hours of 11:22 A.M. and 5:10 P.M. The weather was warm and sunny with a slight breeze. Measurements were made near homes and businesses along the proposed pipeline route in the City of Gilroy to characterize existing daytime noise levels in the project area. A total of eight measurements were taken along the project site. Figure 3 shows the locations of the measurements. The noise measurement data are contained in Attachment 1.



● Noise measurement locations

~ Future transmission mains

FIGURE 3
Noise Measurement Locations

The measured noise levels range from 43.2 dB(A) L_{eq} to 68.9 dB(A) L_{eq} . A summary of the measurements is shown in Table 1. Traffic counts were made during the measurement and are summarized in Table 2.

**TABLE 1
MEASURED NOISE LEVELS**

Measurement	1	2	3	4	5	6	7	8
dB(A) L_{eq}	68.9	68.5	68.3	63.3	43.2	64.0	59.1	55.7

Measurement 1 was located near a commercial and industrial area adjacent to Luchesa Avenue, 50 feet from the centerline of the road. Adjacent to the location of the measurement, Luchesa Avenue is a two-lane road. The speed limit was not posted in the measurement vicinity but was observed to be 35 miles per hour (mph). Noise was measured for 15 minutes and traffic was counted during the measurement. The average measured noise level was 68.9 dB(A) L_{eq} .

Measurement 2 was located near residences adjacent to Thomas Road, 50 feet from the centerline of the road. The measurement was located on the street side of an approximately 6.5-foot-high sound wall. Adjacent to the location of the measurement, Thomas Road is a two-lane road with a posted speed of 40 mph. Noise was measured for 15 minutes and traffic was counted during the measurement. The average measured noise level was 68.5 dB(A) L_{eq} .

Measurement 3 was located near Gavilan College adjacent to Santa Teresa Boulevard, 50 feet from the centerline of the road. Adjacent to the location of the measurement, Santa Teresa Boulevard is a two-lane road with a posted speed of 45 mph. Noise was measured for 15 minutes and traffic was counted during the measurement. The average measured noise level was 68.3 dB(A) L_{eq} .

Measurement 4 was located near residences adjacent to Route 152 at 50 feet from the centerline of the road. Adjacent to the location of the measurement, Route 152 is a two-lane road with a westbound posted speed limit of 55 mph and an eastbound posted speed limit of 40 mph. Noise was measured for 15 minutes and traffic was counted during the measurement. The average measured noise level was 63.3 dB(A) L_{eq} .

Measurement 5 was located near residences in a cul-de-sac at the top of Hoylake Court. Noise was measured for 15 minutes. One car turned into the cul-de-sac during the measurement. The average measured noise level was 43.2 dB(A) L_{eq} .

Measurement 6 was located near residences adjacent to Santa Teresa Boulevard, 50 feet from the centerline of the road. Adjacent to the location of the measurement, Santa Teresa Boulevard is a two-lane road with a posted speed of 35 mph. Noise was

TABLE 2
15-MINUTE TRAFFIC COUNTS

Measurement		Autos	Motorcycles	Medium Trucks	Buses	Heavy Trucks
1	Eastbound	38	0	8	0	9
	Westbound	44	0	6	0	4
	TOTAL	82	0	14	0	13
2	Eastbound	74	0	3	0	0
	Westbound	42	1	1	0	7
	TOTAL	116	1	4	0	7
3	Southbound	36	0	0	0	5
	Northbound	26	0	0	0	0
	TOTAL	62	0	0	0	5
4	Westbound	53	1	0	0	1
	Eastbound	47	0	5	0	4
	TOTAL	100	0	5	0	5
6	Northbound	94	0	2	1	1
	Southbound	105	0	0	0	1
	TOTAL	199	0	2	1	2
5	Traffic in cul-de-sac	1	0	0	0	0
	TOTAL	1	0	0	0	0
7	Eastbound	4	0	0	0	0
	(through traffic)					
	Eastbound	13	0	0	0	0
	(right turn lane)					
	Westbound	30	0	0	0	0
	TOTAL	47	0	0	0	0
8	Eastbound	9	0	0	0	0
	Westbound	6	0	0	0	0
	TOTAL	15	0	0	0	0

measured for 15 minutes and traffic was counted during the measurement. The average measured noise level was 64.0 dB(A) L_{eq} .

Measurement 7 was located adjacent to the basketball courts of Ascencion Solorsano Middle School on Grenache Road 50 feet from the centerline. There was no activity on the basketball courts during the measurement. Adjacent to the location of the measurement, Grenache Road has one westbound lane, one through eastbound lane, and one eastbound right-turn lane into the school. There is no posted speed limit. Noise was measured for 15 minutes and traffic was counted during the measurement. The average measured noise level was 59.1 dB(A) L_{eq} .

Measurement 8 was located near residences adjacent to Southside Drive at 40 feet from the centerline of the road. A chain link fence prevented taking a measurement at 50 feet. Adjacent to the location of the measurement, Southside Drive is a two-lane road with no posted speed limit. Noise was measured for 15 minutes and traffic was counted during the measurement. The average measured noise level was 55.7 dB(A) L_{eq} .

5.0 Future Acoustical Environment and Impacts

Noise associated with the earthwork, construction, and surface preparation of the proposed project will result in short-term transient impacts. A variety of noise-generating equipment would be used during the construction phase of the project such as dump trucks, backhoes, jackhammers, concrete mixers, along with others.

Table 3 indicates the types of construction equipment that will be used for the pipeline installation (Zhu pers. com. 2005). This type of equipment can individually generate average noise levels that range between 78 dB(A) and 91 dB(A) at 50 feet from the source as listed in Table 3 (Bolt, Beranek, and Newman, Inc. 1971).

Table 4 shows the typical ranges of measured average noise levels at public works construction sites with 50 dB(A) and 70 dB(A) background ambient noise levels typical of suburban and urban residential areas, respectively (Bolt, Beranek, and Newman, Inc. 1971). Public works projects include road and highway work, sewers, and trenches.

**TABLE 3
CONSTRUCTION EQUIPMENT**

Equipment	Number	Function and Usage	Approximate Average Noise Level at 50 feet [dB(A) L _{eq}]*
Backhoe	2	One operates most of the time, particularly during trenching and pipeline installation. The other one operates as needed/.	85
Excavator	1	Operates most of the time, particularly during trenching and pipeline installation. Also used for soil compaction when backfilling the trench.	87
Dump Truck	Multiple	Operates during trenching to haul excavated materials off the site.	91
Utility Light Truck	Multiple	Carries tools and miscellaneous items.	91
Jackhammer	Multiple	Used in small area (corners) soil compaction during trench backfill.	88
Saw Cut	1	Used at the very beginning of the construction to saw cut the pavement. 1 or 2 days of work.	78
Parts Delivery Truck (Flatbed)	Multiple	To deliver parts (pipelines, fittings, valves, etc.) to sites. Usually delivers to Stage Area.	91
Material Delivery Truck	Multiple	To deliver backfill materials, aggregate to site	91
Concrete Truck	From Concrete Mix Plant	Only used occasionally for pour of small loads of concrete for fittings installation.	91
Asphalt Concrete Truck	Multiple	Operates at the end of construction to restore street pavements.	91
Asphalt Concrete Paving Machine	1	Restore street pavements at the end of construction.	89
Small Portable Pump	1 or 2	To fill the pipeline with water for hydrostatic test.	85
<i>Optional Equipment</i>			
Dewatering Pump	1 or more	To dewater during construction in case groundwater is high.	85

*SOURCE: Bolt, Beranek, and Newman, Inc. 1971

TABLE 4
TYPICAL AVERAGE NOISE LEVELS FOR PUBLIC WORKS CONSTRUCTION PROJECTS

Construction Phase	50 dB(A) Background Noise	70 dB(A) Background Noise
Ground Clearing	84 dB(A)	84 dB(A)
Excavation	78–88 dB(A)	79–89 dB(A)
Foundations	88 dB(A)	88–89 dB(A)
Erection	78–79 dB(A)	79 dB(A)
Finishing	84 dB(A)	84 dB(A)

Note: Maximum represents worse case scenario when all pertinent equipment is on site.

Construction noise generally can be treated as a point source. Noise from a point source attenuates at approximately 6 dB(A) for every doubling of distance with hard site conditions and 7.5 dB(A) for every doubling of distance with soft site conditions. Hard site conditions are generally appropriate for all situations except where:

The height of the line of site (between the source and receiver) is less than three meters; and

The view of the roadway (or other source) is interrupted by isolated buildings, clumps of bushes, scattered trees, or the intervening ground is soft or covered with vegetation (Federal Highway Administration 1979).

Under those situations, soft site conditions may be assumed.

The construction phases that result in the highest noise levels are excavations and laying of foundations. A noise level of 89 dB(A) L_{eq} at 50 feet would attenuate to 75 dB(A) L_{eq} at approximately 250 feet from the noise source with hard site conditions. Table 5 shows the distances to noise levels assuming a source noise of 89 dB(A) L_{eq} at 50 feet.

TABLE 5
DISTANCES TO NOISE LEVELS (feet)

dB(A) L_{eq}	85	80	75	70	65	60	55
Hard Site Conditions	79	141	251	446	792	1,409	2,506
Soft Site Conditions	72	115	182	288	456	723	1,145

Therefore, noise sensitive areas such as residences and schools will be exposed to elevated noise levels during construction of the pipeline. Although the City does not specify noise level thresholds for construction, if these noise levels were to occur during the nighttime hours an adverse impact could result.

6.0 Mitigation

Although noise sensitive areas will be exposed to elevated noise levels during construction of the pipeline, these activities will be temporary and the City does not specify numeric thresholds pertaining to construction noise. However, compliance with Section 16.38 of the City of Gilroy's Municipal Code will ensure that adverse impacts due to construction noise are avoided. Construction activities shall be limited to the hours of 7:00 A.M. to 7:00 P.M. Monday through Friday, and 9:00 A.M. to 7:00 P.M. on Saturday. Construction activities shall not occur on Sundays or city holidays, which include: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas.

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