

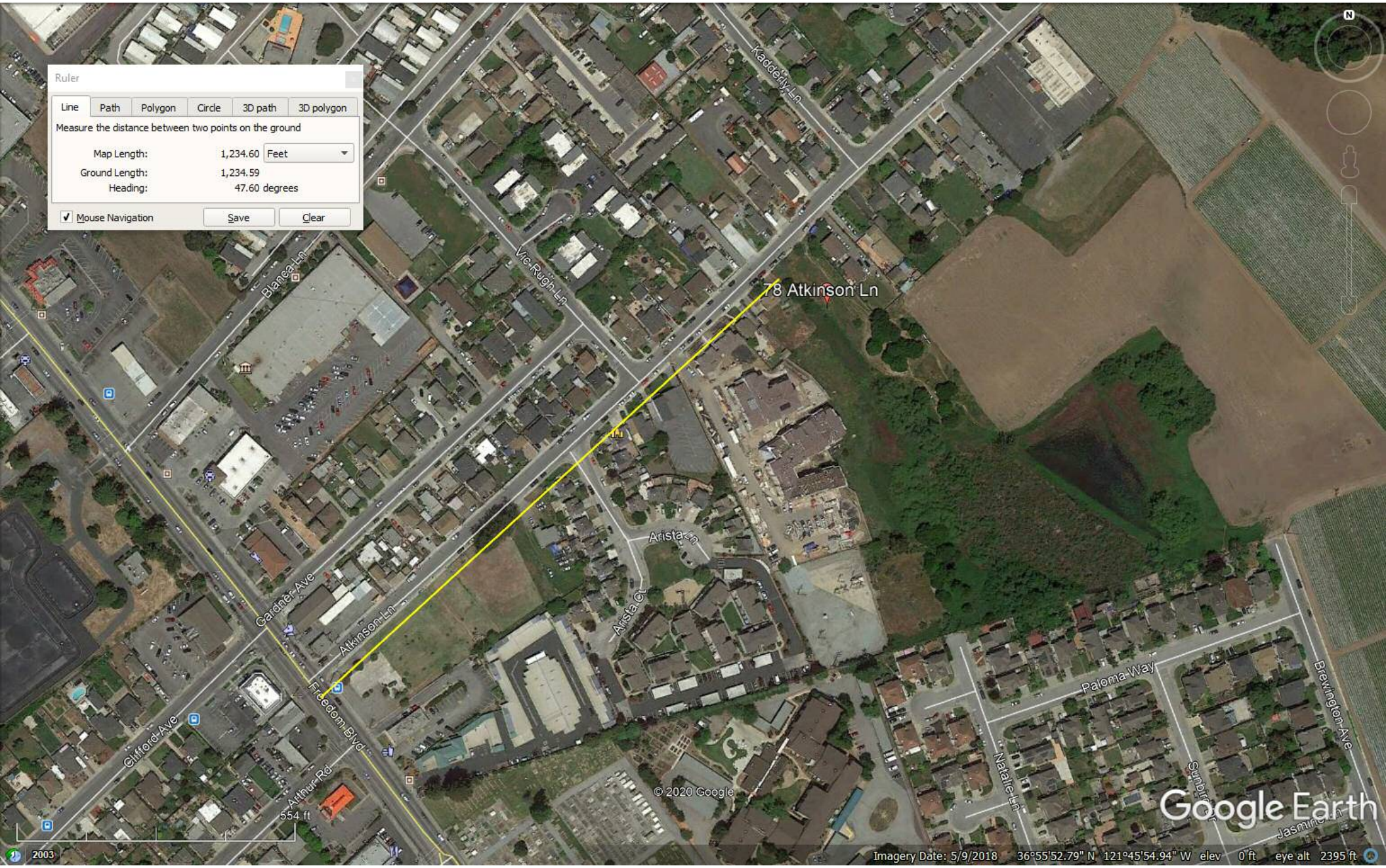
Ruler

Line Path Polygon Circle 3D path 3D polygon

Measure the distance between two points on the ground

Map Length:	1,234.60	Feet
Ground Length:	1,234.59	
Heading:	47.60	degrees

Mouse Navigation



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Google Earth

Find address or place

- Basemap
- Imagery
- Draw
- Erase
- Save Session
- Tools
- More Data

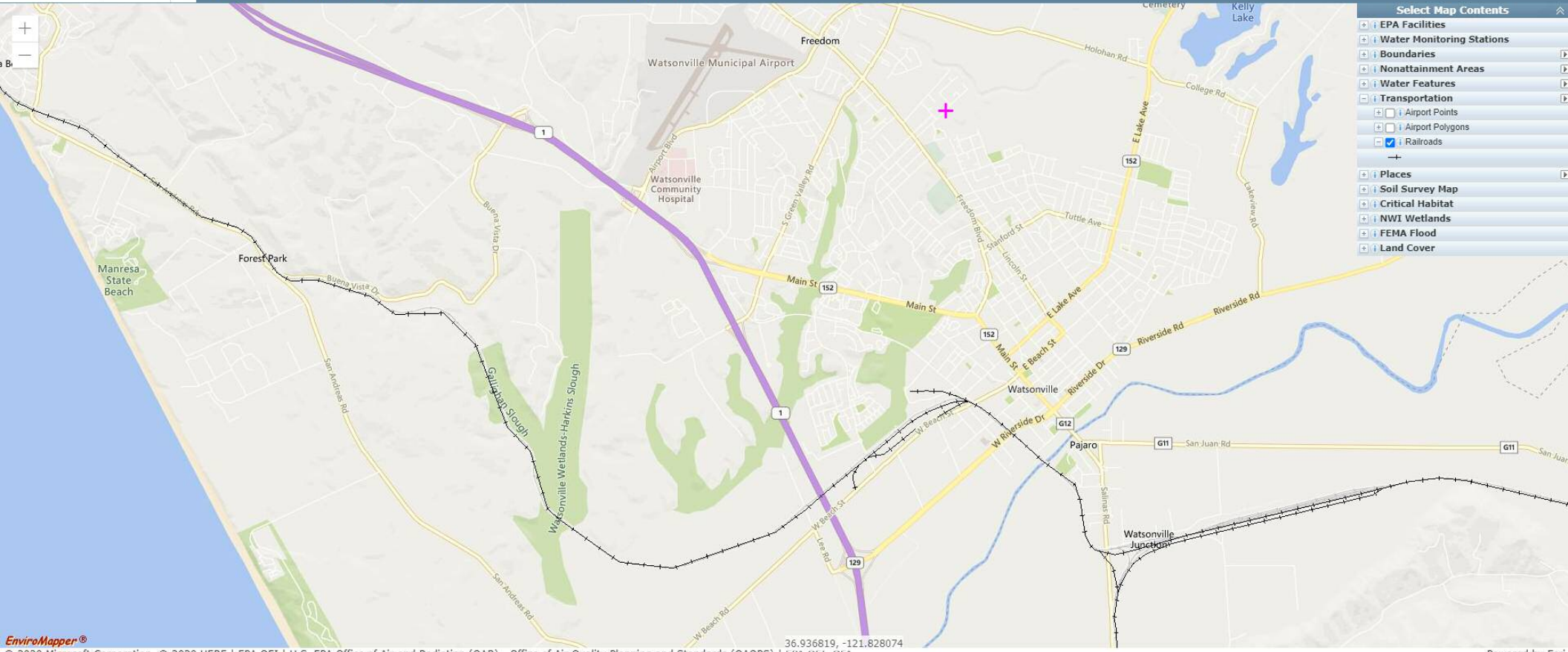


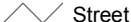

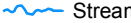








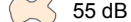


Figure 13.19  
**Watsonville Airport  
 Noise Contours**



**City of Watsonville**

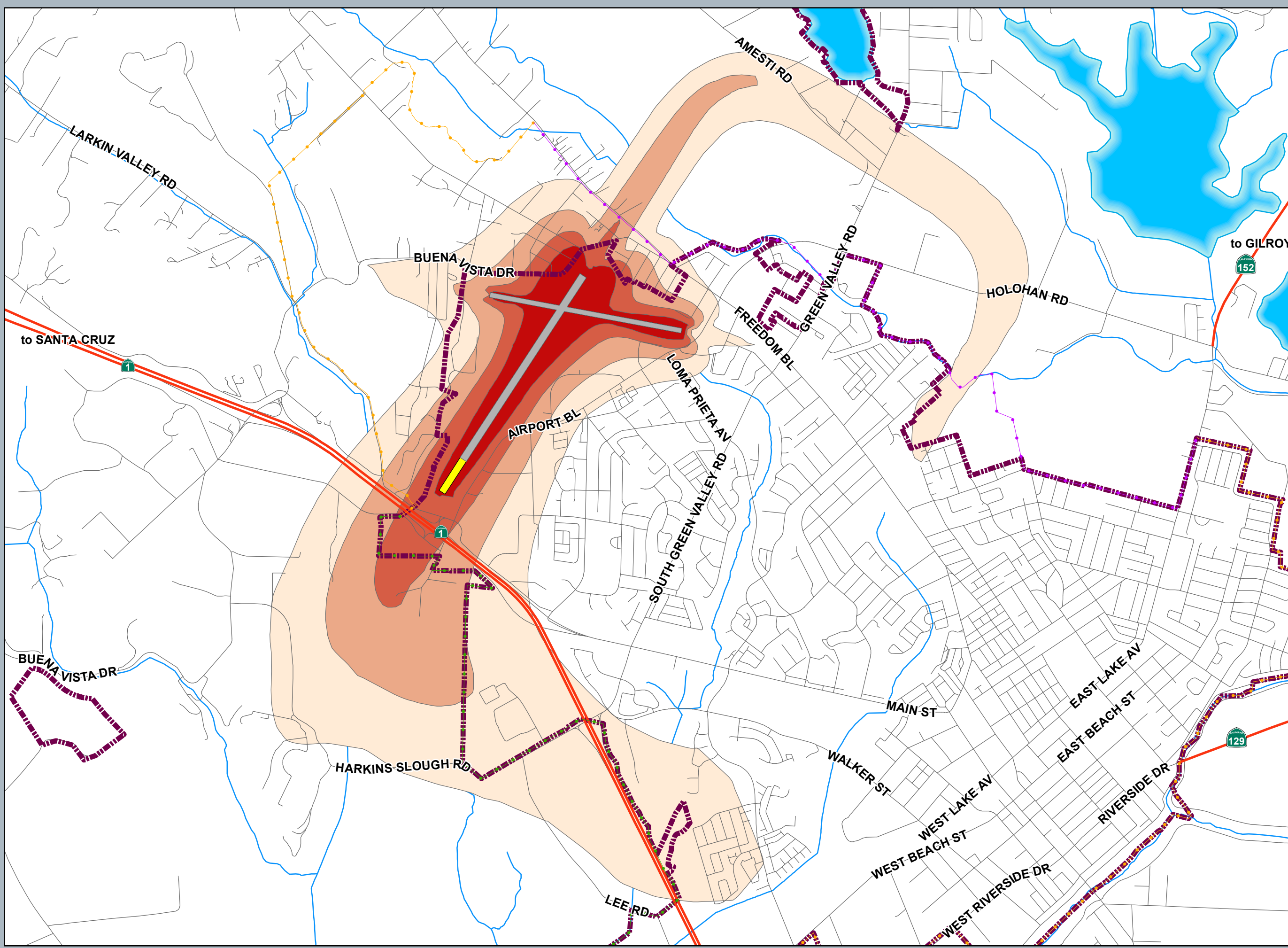
Prepared by Watsonville GIS Center 04/10/2012 (CDD03105).  
 This Document is a graphic representation using the best currently available sources.  
 The City of Watsonville assumes no responsibility for any errors.

**Legend**

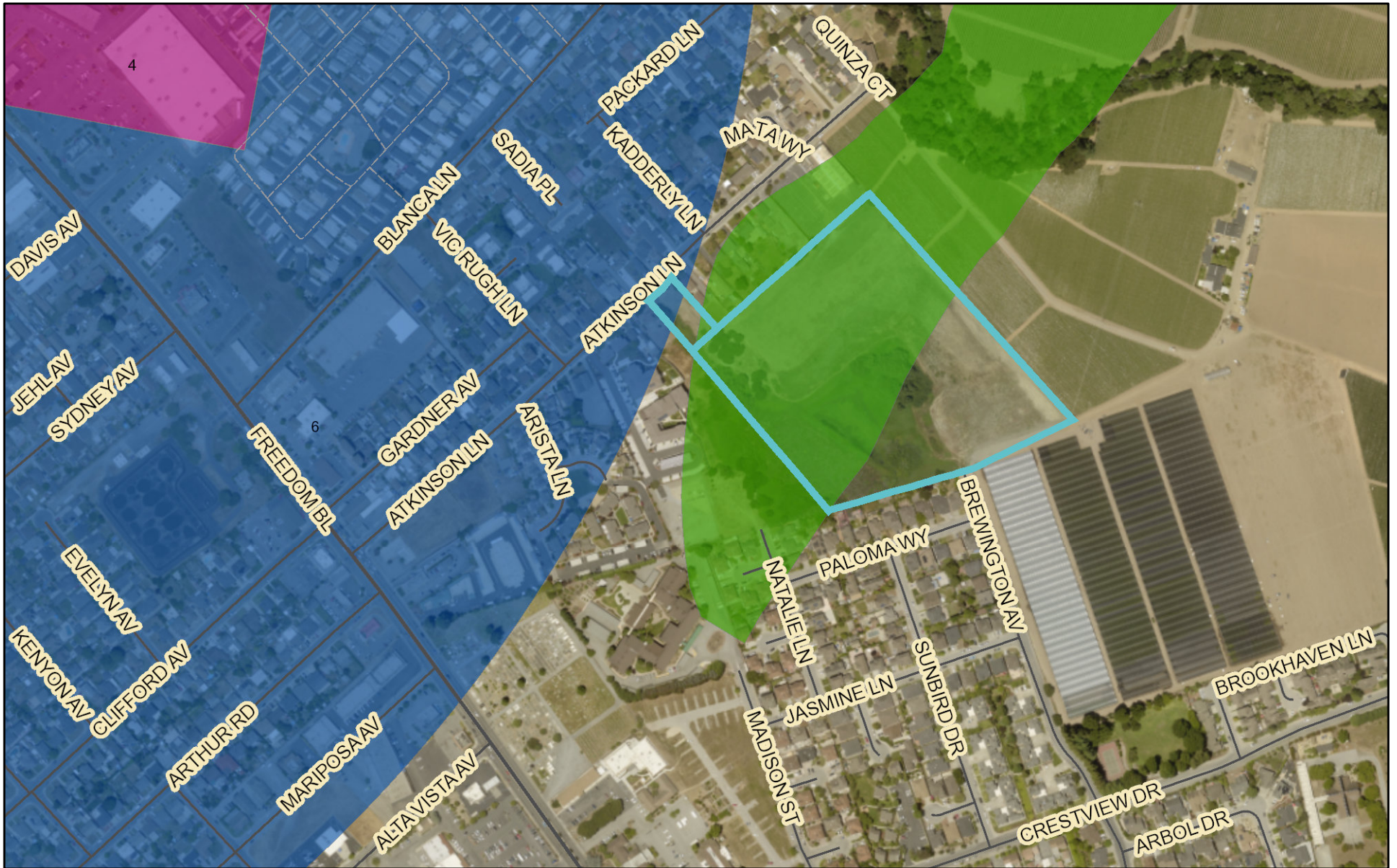
-  Street
-  Highway
-  Stream
-  Urban Limit Line West
-  20 yr. Urban Limit Line
-  25 yr. Urban Limit Line
-  Runway
-  Future Runway Extension
- Noise Contours 2020**
- CNEL VALUE**
-  70 dB
-  65 dB
-  60 dB
-  55 dB
-  Lakes
-  Watsonville City Limit



1 inch = 1,850 feet  
 500 0 500 1000 1500 2000  
 Feet



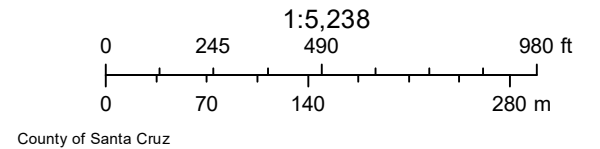
# Airport Zones and Noise Contours



May 14, 2021

## Watsonville Airport 2020 Noise Contours

- 55 dB CNEL
- 60 dB CNEL
- 65 dB CNEL
- 70 dB CNEL
- Runway





## 3.10 Noise

This section of the EIR discusses the existing noise environment in the project vicinity, and identifies potential noise impacts and mitigation measures related to development of the proposed project. The analysis evaluates noise levels caused by project-generated traffic and on-site activities and evaluates the noise levels relative to applicable criteria and to the existing ambient noise environment. This section is based on a noise modeling completed by RBF Consulting, which is incorporated herein. The noise modeling is incorporated **Appendix H** in Volume II of the EIR.

### 3.10.1 Environmental Setting

#### Noise Scales and Definitions

Sound is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. Noise is typically described as any unwanted or objectionable sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Because the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against sound frequencies in a manner approximating the sensitivity of the human ear.

The decibel scale is logarithmic. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range similar to how the Richter scale measures earthquake magnitudes. In terms of human response to noise, a sound 10 dBA higher than another is perceived to be twice as loud; 20 dBA higher, four times as loud; and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). Examples of various sound levels in different environments are shown in **Figure 3.10-1: Sound Levels and Human Response**.

In most situations, a 3-dBA change in sound pressure level is considered a “just-detectable” difference. A 5-dBA change (either louder or quieter) is readily noticeable, and a 10-dBA change is a doubling (if louder) or a halving (if quieter) of the subjective loudness. Sound from a small localized source (approximating a “point” source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates or drops-off at a rate of 6 dBA for each doubling of the distance (6 dBA/DD). This decrease, due to the geometric spreading of the energy over an ever-increasing area, is referred to as the inverse square law. However, highway traffic noise is not a single, stationary point source of sound. The movement of the vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over some time interval. Since the change in surface area of a cylinder only increases by two times for each doubling of the radius instead of the four times associated with spheres, the change in sound level is 3 dBA per doubling of distance.

Numerous methods have been developed to measure sound over a period of time. These methods include (1) the community noise equivalent level (CNEL); (2) the equivalent sound level (Leq); and (3) the day/night average sound level (L<sub>dn</sub>). These methods are described below.

#### Community Noise Equivalent Level (CNEL)

The predominant community noise rating scale used in California for land use compatibility assessments is the community noise equivalent level (CNEL). The CNEL reading represents the average of 24 hourly readings of equivalent levels (Leq) based on an A-weighted decibel and



adjusted upward to account for increased noise sensitivity in the evening and at night. These adjustments are +5 dBA for the evening (7:00 PM to 10:00 PM) and +10 dBA for the night (10:00 PM to 7:00 AM) CNEL may be indicated by “dBA CNEL” or just “CNEL”.

#### [L<sub>eq</sub>](#)

The L<sub>eq</sub> is the sound level containing the same total energy over a given sampling time period. The L<sub>eq</sub> is the steady sound level that, in a stated period of time, would contain the same acoustic energy as the time-varying sound level during the same period. L<sub>eq</sub> is typically computed over sampling periods of 1, 8 and 24 hours.

#### [Day Night Average \(L<sub>dn</sub>\)](#)

Another commonly used method is the day/night average level (L<sub>dn</sub>). The L<sub>dn</sub> measures the 24-hour average noise level at a given location. It was adopted by the U.S. Environmental Protection Agency (EPA) for developing criteria for the evaluation of community noise exposure. It is based on a measure of the L<sub>eq</sub> (the average noise level over a given time period). The L<sub>dn</sub> is calculated by averaging the L<sub>eq</sub> for each hour of the day at a given location after penalizing the “sleeping hours” (defined as 10:00 PM to 7:00 AM), by adding 10 dBA to account for the increased sensitivity of people to noises that occur at night.

#### [Other Noise Measures](#)

The maximum noise level recorded during a noise event is expressed as L<sub>max</sub>. The sound level exceeded over a specified time frame is expressed as L<sub>n</sub> (i.e., L<sub>90</sub>, L<sub>50</sub>, L<sub>10</sub>, etc.). L<sub>50</sub> is the level exceeded 50 percent of the time, L<sub>10</sub> ten percent of the time, etc.

### **Laws, Ordinances, Regulations and Standards**

Regulatory requirements related to environmental noise are typically promulgated at the local level. However, Federal and State agencies provide standards and guidelines to the local jurisdictions.

#### [State of California Guidelines](#)

The California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts. Under CEQA, a project has a potentially significant impact if it exposes people to noise levels in excess of standards established in the local general plan or noise ordinance. Additionally, a project has a potentially significant impact if the ambient noise levels in the project vicinity increase substantially above levels existing without the project. If a project has a potentially significant impact, mitigation measures must be considered. If mitigation measures reduce the impact to less than significant level are not feasible because of economic, social, environmental, legal, or other conditions, the most feasible mitigation measures must be considered.

California Government Code Section 65302 (f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services, as shown in **Table 3.10-3: Land Use Compatibility For Community Noise Environments**.



The guidelines rank noise-land use compatibility as normally acceptable, conditionally acceptable and clearly unacceptable noise levels for various land use types. Single-family homes are normally acceptable in exterior noise environments up to 60 CNEL and conditionally acceptable up to 70 CNEL. Multiple-family residential uses are normally acceptable up to 65 CNEL and conditionally acceptable up to 70 CNEL. Schools, libraries, and churches are normally acceptable up to 70 CNEL, as are office buildings and business, commercial and professional uses.

### Local Jurisdiction

Local agencies may regulate most noise level sources not regulated by the Federal government by providing standards for insulation of noise receivers, either within the structure or by placement of noise barriers, such as walls. Furthermore, a local agency may adopt land use decisions or project-related conditions that may reduce noise impacts by separating noise generators from noise sensitive uses.

Within the County of Santa Cruz, all new residential and noise sensitive land uses are required to conform with the Land Use Compatibility Guidelines and conform to a noise exposure standard of 60 dB  $L_{dn}$  for outdoor noise and 45 dB  $L_{dn}$  for indoor noise. Within the City of Watsonville, the maximum exterior sound level acceptable for residential land uses and other noise-sensitive areas is 60 dBA. The maximum allowable interior noise level for those uses is 45 dBA.

Certain land uses are considered particularly sensitive to noise. Schools, hospitals, rest homes, long-term medical and mental care facilities and parks and recreation areas are all considered sensitive receptors. Residential areas are also considered noise-sensitive, especially during the nighttime hours.

### Existing Noise Environment

#### Ambient Noise Levels

The planning area currently contains agricultural and rural residential land uses. The primary sources of stationary noise within the planning area are comprised of typical noise sources from residential activities (i.e., dogs barking, air conditioners, landscape maintenance, and conversations). Noise associated with these sources may represent a single event noise occurrence, short-term, or long-term/continuous noise. Agricultural noise sources in the project vicinity include the operation of farm equipment on adjacent agricultural fields.

To quantify existing ambient noise levels in the City, RBF Consulting conducted noise surveys on April 15, 2008 at several locations as noted in **Figure 3.10-2: Noise Measurement Locations**. The noise measurement sites were representative of existing noise exposure in a given time period (15 minutes) within the planning area and vicinity. According to these measurements (see **Table 3.10-1: Project and Vicinity Ambient Noise Measurements**), noise levels within the planning area range from 45 to 47.1 dBA in the AM and 42.1 to 43.4 dBA in the PM. Off-site noise levels in the vicinity of the planning area are highest along Freedom Boulevard at 66.4 dBA during the AM and 64.9 during the PM.



Table 3.10-1: Project and Vicinity Ambient Noise Measurements (Short-Term)

Site No.	Location	AM <sup>1</sup>		PM <sup>1</sup>	
		Leq (dBA)	Time	Leq (dBA)	Date and Time
1	Atkinson Lane at Vic Rugh Lane	50.8	9:40 AM	55.8	7:30 PM
2	Freedom Boulevard	66.4	10:00 AM	64.9	7:50 PM
3	Wagner Avenue and Bronson Street <sup>2</sup>	42.6	10:25 AM	46.2	3:25 PM
4	Crestview Drive and Crestview Court <sup>2</sup>	53.2	10:35 AM	56.2	3:40 PM
5	Brewington Avenue and Paloma Way <sup>2</sup>	53.7	10:50 AM	44.1	3:55 PM
6	Within the Planning Area <sup>2</sup>	45.0	11:10 AM	43.4	4:10 PM
7	Within the Planning Area <sup>2</sup>	46.5	11:20 AM	42.6	4:25 PM
8	Within the Planning Area <sup>2</sup>	47.1	11:55 AM	42.1	4:40 PM
Notes:					
Leq = equivalent sound level; dBA = A-weighted decibel					
<sup>1</sup> All measurements were taken on April 15, 2008.					
<sup>2</sup> Two measurements were taken at each location during the PM peak hour. However, the noise measurement in the table best represents the PM conditions within the planning area.					

Source: RBF Consulting 2008

### Stationary Noise Sources

The primary sources of stationary noise within the planning area are from typical noise sources from residential uses (i.e., dogs barking, air conditioners, landscape maintenance, and conversations).

### Mobile Noise Sources

The existing noise environment within the planning area and vicinity is influenced primarily by surface transportation noise emanating from vehicle traffic on area roadways. The planning area is surrounded by residential and agricultural land uses, which are accessed by two small two-lane roadways (e.g. Atkinson Lane, Brewington Avenue, etc.). The closest major roadway is Freedom Boulevard, which is a four-lane road located approximately 800 feet west of the western boundary of the planning area. The nearest truck route in the City is the Airport Boulevard/Holohan Road located north of the planning area.

The *City of Watsonville General Plan* identifies areas in the vicinity of Watsonville Municipal Airport and along Highway 1 as the areas in the City characterized by the greatest noise levels. The *City of Watsonville General Plan* states that where a direct line of site to Highway 1 is available, the 60 dBA noise contour extends more than 1,000 feet from Highway 1. Other areas of substantial noise are located along Route 129.

Existing roadway traffic noise levels for study roadway segments were calculated using the Federal Highway Administration Traffic Noise Prediction Model (RD-77-108). Traffic data used in the analysis was obtained from the traffic impact analysis prepared for the proposed project by RBF Consulting in December 2008. Input data included day/night percentage of autos, medium and heavy duty trucks, vehicle speeds, ground attenuation factors, and roadway widths. **Table 3.10-2: Summary of Existing Traffic Noise Levels** summarizes the existing CNEL at 100 feet





from roadway centerline and the distance from the existing centerline to the existing 60, 65, and 70 CNEL noise contours.

**Table 3.10-2: Summary of Existing Traffic Noise Levels along Study Roadway Segments**

Roadway Segment	Existing				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
<b>Holohan Road</b>					
Between Green Valley Road and East Lake Ave.	14,010	60.8	119	55	26
<b>Airport Boulevard</b>					
Between Freedom Blvd. and Green Valley Road	16,250	64.2	280	89	28
Between Freedom Blvd. and Highway 1	19,240	64.6	332	105	33
<b>Green Valley Road</b>					
North of Holohan Road	16,590	61.2	133	62	29
Between Freedom Blvd. and Holohan Road	14,250	63.5	246	78	25
Between Main Street and Freedom Blvd.	21,020	65.1	362	115	36
South of Main Street	25,580	65.8	441	139	44
<b>Freedom Boulevard</b>					
Between Airport Blvd. and Green Valley Road	12,560	61.6	155	49	16
Between Green Valley Road and Gardner Ave.	19,510	63.3	241	76	24
Between Gardner Ave. and Atkinson Lane	25,810	64.7	319	101	32
Between Atkinson Lane and Crestview Drive	20,210	63.7	250	79	25
<b>East Lake Avenue (Highway 152)</b>					
Between Wagner Ave. and Holohan Road	12,580	64.9	229	107	49
North of Holohan Road	13,830	65.2	244	113	53
<b>Main Street</b>					
Between Green Valley Road and Highway 1	31,910	66.6	550	174	55
Between Green Valley Road and Ohlone Parkway	33,990	67.0	587	186	59
<b>Crestview Drive</b>					
Between Freedom Blvd. and Brewington Ave.	3,075	55.5	38	12	4
East of Brewington Avenue	380	46.4	5	1	0
<b>Wagner Avenue</b>					
West of East Lake Ave.	310	44.0	3	1	0
East of East Lake Ave.	2,520	53.0	22	7	2
<b>Martinelli Street</b>					
Between Freedom Blvd. and Brewington Ave.	6,200	57.0	53	17	5
East of Brewington Ave.	6,170	57.0	53	17	5
<b>Brewington Avenue</b>					
South of Martinelli St.	1,320	50.2	11	4	1
Between Martinelli St. and Crestview Dr.	1,160	49.7	10	3	1
North of Crestview Dr.	360	44.7	3	1	0
<b>Gardener Avenue</b>					
East of Freedom Blvd.	2,780	53.6	24	8	2
<b>Clifford Avenue</b>					
South of Freedom Blvd.	5,320	56.3	46	14	5
<b>Highway 129 – Riverside Drive</b>					
East of North Bound On/Off Ramps	9,390	58.3	91	42	20
West of South Bound On/Off Ramps	6,250	57.2	69	32	15
<b>Harkins Slough Road</b>					
East of North Bound Off Ramp (Highway 1)	10,040	61.9	173	55	17
West of South Bound On Ramp (Highway 1)	2,610	53.4	39	18	8

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

Source: RBF Consulting 2008



### Railroad Noise

Railroad noise is concentrated primarily in the industrial triangle formed by Highway 1, Harkins Slough Road, and Beach Street, located approximately two miles south of the planning area. Therefore, railroad-related noise is not currently experienced within the planning area.

### Airport Noise

The Watsonville Municipal Airport is located approximately two miles north of the proposed project and is the only public use airport in Santa Cruz County. It is located on the northwest boundary of the City of Watsonville, three miles from the City center. It is a well-constructed, general aviation facility occupying 291 acres with two runways serving single and twin-engine aircraft and helicopters, as well as turboprops and turbine-powered business jets. The airport has an additional 53 non-contiguous acres of land for clear-zone protection.

The Watsonville Municipal Airport is considered a reliever airport for general aviation from the San Francisco Bay Area. In 2000, approximately 330 corporate and private aircrafts were based at the airport. By 2020, the number of aircrafts based out of the airport is expected to increase to 381. On average, 335 daily aircraft operations occurred in 2000. Runway operations are estimated to increase to an average of approximately 356 by 2010 and 395 by 2020. Three non-precision instrument approaches serve the airport. A terminal building with offices and a restaurant is located in the terminal area. The airport has various services including fixed based operators and fueling.

Approximately 92 percent of all aircraft owners at the Watsonville Municipal Airport are from Santa Cruz County. The remaining 8 percent are primarily from Santa Clara County and other California locations. Presently, 326 aircraft are based at the airport. The total is expected to increase to 381 by the year 2020. Growth will occur in all categories of aircraft, especially turboprop and turbine-powered business jets. Runway operations (landings and takeoffs) will increase to 144,503 by the year 2020, most of which will be general aviation.

To meet aviation demand, additional facilities and reconstruction of existing facilities have been analyzed and are described in detail in the *Watsonville Municipal Airport Master Plan* (City of Watsonville 2002). The existing 4,501-foot runway handles light based and transient business jets. A runway extension to 5,300 feet total length will be needed to safely accommodate turbine powered business jet aircraft with increased fuel and cargo loads, and for safety of landing IFR (Instrument Flight Rules) aircraft in the often foggy conditions. This extended runway will allow for utilization of 75 percent of business jets with 60 percent useful load. Increases in aircraft parking facilities will be necessary; the development of covered parking for the storage of based aircraft will handle the increased need.

Portions of Assessors Parcel Number 019-226-43, 019-226-44, 048-211-25, and 019-236-01 are located within the Zone 6 (Traffic Pattern Zone) Safety Compatibility Zones. A portion of the planning area is also located within the 55 dB CNEL 2020 Noise Contour for the *Watsonville Municipal Airport Master Plan*.



### Sensitive Receptors

Certain land uses are considered particularly sensitive to noise. Sensitive noise receptors are generally defined as residential land uses and facilities where people congregate, such as schools, hospitals, rest homes, long-term medical and mental care facilities, and parks and recreation areas. Sensitive receptors adjacent to the planning area include Crestview Park located south of the planning area and the residential neighborhoods to the northwest, west, and south of the planning area.

### 3.10.2 Regulatory Setting

Regulatory requirements related to environmental noise are typically promulgated at the local level. However, federal and state agencies provide standards and guidelines to the local jurisdictions.

#### State of California Guidelines

The California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts. Under CEQA, a project has a potentially significant impact if it exposes people to noise levels in excess of standards established in the local general plan or noise ordinance. Additionally, a project has a potentially significant impact if the ambient noise levels in the project vicinity increase substantially above levels existing without the project. If a project has a potentially significant impact, mitigation measures must be considered. If mitigation measures reduce the impact to less than significant level are not feasible because of economic, social, environmental, legal, or other conditions, the most feasible mitigation measures must be considered.

California Government Code Section 65302 (f) mandates that the legislative body of each County and City adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services, as shown in **Table 3.10-3: Land Use Compatibility for Community Noise Environments**.

The guidelines rank noise-land use compatibility as normally acceptable, conditionally acceptable and clearly unacceptable noise levels for various land use types. Single-family homes are normally acceptable in exterior noise environments up to 60  $L_{dn}$  and conditionally acceptable up to 70  $L_{dn}$ . Multiple-family residential uses are normally acceptable up to 65  $L_{dn}$  and conditionally acceptable up to 70  $L_{dn}$ . Schools, libraries, and churches are normally acceptable up to 70  $L_{dn}$ , as are office buildings and business, commercial and professional uses. Industrial uses are acceptable up to 75  $L_{dn}$ .



Table 3.10-3: Land Use Compatibility For Community Noise Environments

Land Use Category	Community Noise Exposure (Ldn)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential - Low Density, Single-Family, Duplex, Mobile Homes	50 – 60	55 – 70	70-75	75-85
Residential - Multiple Family	50 – 65	60 – 70	70 - 75	70 – 85
Transient Lodging - Motel, Hotels	50 – 65	60 – 70	70 - 80	80 – 85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 – 70	60 – 70	70 - 80	80 – 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 – 70	NA	65 – 85
Sports Arenas, Outdoor Spectator Sports	NA	50 – 75	NA	70 – 85
Playgrounds, Neighborhood Parks	50 – 70	NA	67.5 - 75	72.5 - 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 – 70	NA	70 - 80	80 – 85
Office Buildings, Business Commercial and Professional	50 – 70	67.5 - 77.5	75 - 85	NA
Industrial, Manufacturing, Utilities, Agriculture	50 – 75	70 – 80	75 - 85	NA
Ldn = Day night average; NA = not applicable.				
Notes:				
<u>Normally Acceptable</u> : Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.				
<u>Conditionally Acceptable</u> : New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features have been included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.				
<u>Normally Unacceptable</u> : New Construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise-insulation features must be included in the design.				
<u>Clearly Unacceptable</u> : New construction or development should generally not be undertaken.				
Source: City of Watsonville 2005				

**Local**

County of Santa Cruz General Plan

The *County of Santa Cruz General Plan and Local Coastal Program (Santa Cruz County General Plan)* was adopted by the Board of Supervisors in May of 1994 and certified by the California Coastal Commission in December of 1994. The following policies in the Santa Cruz County General Plan are applicable to noise.

**Policy 6.9.1, Land Use Compatibility Guidelines.** Require new development to conform with the Land Use Compatibility Guidelines. All new residential and noise sensitive land developments should conform to a noise exposure standard of 60 dB L<sub>dn</sub> (day/night average noise level) for outdoor use and 45dB L<sub>dn</sub> for indoor use. New development of land which cannot be made to conform to this standard shall not be permitted. Assure a compatible noise environment for various land uses through site planning, building orientation and design, interior layout, and physical barriers, landscaping, and buffer areas where appropriate.

**Policy 6.9.7, Construction Noise.** Require mitigation of construction noise as a condition of future project approvals.



**Policy 6.10.2 Evaluation and Mitigation.** Require the evaluation of mitigation measures for any project that would cause significant degradation of the noise environment by:

- (a) Causing the  $L_{dn}$  in existing residential areas to increase by 5 dB or more and remain below 60 dB;
- (b) Causing the  $L_{dn}$  in existing residential areas to increase by 3 dB or more and, thereby, exceed an  $L_{dn}$  of 60 dB;
- (c) Causing the  $L_{dn}$  in existing residential areas to increase by 3 dB or more if the  $L_{dn}$  currently exceeds 60 dB.

### Santa Cruz County Noise Ordinance

The County noise ordinance addresses curfews for offensive noise activities. The ordinance includes an exception for noise caused by farming operations carried out on any land designated within the Santa Cruz County General Plan for commercial agricultural use.

### City of Watsonville General Plan

The following policies in the 2005 *City of Watsonville General Plan* are applicable to the proposed Specific Plan.

**Policy 12.M, Noise.** The City shall utilize land use regulations and enforcement to ensure that noise levels in developed areas are kept at acceptable levels, and that future noise-sensitive land uses are protected from noise that is harmful.

**Implementation Measure 12.M.1, Traffic Noise.** The City shall enforce provisions of the California Vehicle Code and local ordinances to reduce vehicular noise intrusion in residential areas and near other noise sensitive land uses such as schools and hospitals.

**Implementation Measure 12.M.2, Truck Routes.** The City shall continue efforts to designate truck routes that bypass residential areas and other noise sensitive areas.

**Implementation Measure 12.M.3, Equipment Maintenance.** The City shall maintain all vehicles and mechanical equipment in peak operating conditions and correctly fitted with noise control devices.

**Implementation Measure 12.M.4, Soundproofing.** The City shall use the development review process and provisions of the Uniform Building Code to ensure adequate levels of soundproofing in all new construction.

**Implementation Measure 12.M.5, Noise Ordinance.** The City shall prepare, adopt, and enforce a comprehensive noise ordinance.

**Implementation Measure 12.M.6, Site Planning.** The City shall evaluate site orientation and building design to decrease the potential for noise intrusion, using the noise contour map and compatibility guidelines.



**Implementation Measure 12.M.7, Aircraft Noise.** The City shall periodically review and update noise contour measurements as aircraft operations increase or change in nature. Recommendations for noise attenuation contained in the Watsonville Airport Master Plan shall be implemented on a project-by-project basis.

### 3.10.3 Relevant Project Characteristics

The proposed Specific Plan and PUD includes approximately 34.7 net-acres designated for residential uses, including 10.5 net-acres for “Residential-High Density;” and 14.2 net-acres for “Residential-Medium Density;” 10.0 net-acres for “Residential Low Density;” and 3.5 acres of parks/recreational uses. The proposed project would also include 3.1 acres of a designated riparian area with a 1.6 acre riparian buffer adjacent to Corralitos Creek, which would be designated “Environmental Management”; preservation of a 3.9 acre existing wetland and incorporation of a 2.7 acre wetland buffer, which would be designated “Urban Open Space”; a 2.2 acre PG&E substation, which would remain as a public facility; and 14.1 acres for a 200-foot agricultural buffer, which would be located on the eastern boundary of the planning area adjacent to the existing agricultural fields. The proposed project also includes an interim agricultural buffer within the Phase 1 (County site) that would be terminated once the Phase 2 (City site) is rezoned.

### 3.10.4 Impacts and Mitigation Measures

#### Criteria for Determining Significance

In accordance with the CEQA, State CEQA Guidelines, agency and professional standards, a project impact would be considered significant if the project would:

- Expose persons to, or generate, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose persons to, or generate, excessive ground borne vibration or ground borne noise levels;
- Substantially permanently increase ambient noise levels in the project vicinity above levels existing without the project;
- Substantially temporarily or periodically increase ambient noise levels in the project vicinity above levels existing without the project;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels; and
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

#### Methodology

To quantify existing ambient noise levels in the City, RBF Consulting conducted noise surveys on April 15, 2008 within the planning area and vicinity. To evaluate traffic noise levels on study roadway segments, noise levels were calculated using the Federal Highway Administration Traffic Noise Prediction Model (RD-77-108). Traffic data used in the analysis was obtained from the traffic impact analysis prepared for the proposed project by RBF Consulting in December



2008. Input data included day/night percentage of autos, medium and heavy duty trucks, vehicle speeds, ground attenuation factors, and roadway widths.

Exposure to Short-term Construction Related Noise

**Impact 3.10-1: The proposed project could result in construction-related noise that would exceed applicable noise standards at nearby noise sensitive land uses. This is considered a potentially significant impact.**

During the construction phases of future development within the planning area (e.g. land clearing, grading, and excavation), noise from construction activities would add to the noise environment in the immediate project vicinity. Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Typical noise levels for individual pieces of construction equipment are summarized in **Table 3.10-4: Typical Construction Equipment Noise Levels** below.

Table 3.10-4: Typical Construction Equipment Noise Levels

Type of Equipment	Maximum Level (dBA at 50 feet)
Scrapers	88
Bulldozers	87
Heavy Trucks	88
Backhoe	85
Pneumatic Tools	85
Scrapers	88

Notes: dBA = A-weighted decibel.

Source: Cyril M. Harris, *Handbook of Noise Control*, 1979.

Individual equipment noise levels typically range from approximately 75 to 91 dBA at 50 feet. Typical operating cycles may involve two minutes of full power, followed by three or four minutes at lower power settings. Depending on the activities performed and equipment usage requirements combined average-hourly noise levels at construction sites typically range from approximately 65 to 89 dBA  $L_{eq}$  at 50 feet. Assuming a maximum construction noise level of 89 dBA  $L_{eq}$  and an average attenuation rate of 6 dBA per doubling of distance from the source, construction activities located within approximately 1,500 feet of noise-sensitive receptors could reach levels of approximately 60 dBA  $L_{eq}$ . Sensitive receptors adjacent to the planning area include Crestview Park located south of the planning area and the residential neighborhoods to the northwest, west, and south of the planning area.

Construction activities occurring during the more noise-sensitive nighttime hours may also result in increased levels of annoyance and potential sleep disruption to occupants of nearby residential dwellings. Construction-generated noise is therefore, considered an adverse effect to nearby noise sensitive land uses, which is considered a **potentially significant impact**. Implementation of the following mitigation measure would reduce the effects to nearby noise sensitive land uses to a **less than significant level**.



### Mitigation Measures

**MM 3.10-1a** To minimize impacts associated with short-term construction noise, the County of Santa Cruz Planning Department shall ensure that project applicants incorporate the following noise control measures into construction contracts for future development within County Phases 1 and 2 of the proposed project in accordance with Policy 6.9.7 *County of Santa Cruz General Plan*:

- Limit construction that involves motorized equipment to Monday through Friday from 7:30 am to 4:30 pm to avoid the times of day and the days of the week when noise effects would cause the greatest annoyance to residents and to those using the area for recreation;
- Allow exceptions to the specified construction hours only for construction emergencies and when approved by the County of Santa Cruz Planning Department; and
- Post a sign that is clearly visible to adjacent land uses that provides the phone number for the public to call to register complaints about construction-related noise problems. A single disturbance coordinator shall be assigned to log in and respond to all calls. All verified problems shall be resolved within 24 hours of registering the complaint.

**MM 3.10-1b** To reduce the effects of construction noise, the City of Watsonville Community Development Department shall ensure that the project applicants include the following on all construction contracts for future development within City Phases 1 and 2 of the proposed project:

- Restrict construction activities within 1,500 feet of noise-sensitive receptors between the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday. No construction shall occur on legal holidays. Equipment maintenance and servicing shall be confined to the same restrictions;
- Construction noise reduction methods such as shutting off idling equipment, installing temporary acoustic barriers around stationary construction noise sources, maximizing the distance between construction equipment staging areas and occupied residential areas, and use of electric air compressors and similar power tools, rather than diesel equipment, shall be used where feasible;
- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from sensitive noise receptors;
- Operate earthmoving equipment on the construction site, as far away as practical from noise sensitive receptors;
- Operate earthmoving equipment on the construction site, as far away from vibration sensitive sites as possible; and
- Post construction hours, allowable workdays, and the phone number of the job superintendent at all construction entrances to allow for surrounding owners and residents to contact the job superintendent. If the City or the job superintendent receive a complaint during construction activities, the superintendent shall investigate, take appropriate corrective actions, and report the action taken to the reporting party.





Implementation of this mitigation measure would limit construction activities to the less noise sensitive periods of the day and would ensure that proper operating procedures are followed during construction to ensure that construction activities do not adversely affect nearby sensitive receptors. This would reduce this impact to a **less than significant level**.

#### Exposure to Increased Transportation-Related Noise

**Impact 3.10-2:** The proposed project would result in the exposure of the planning area and existing uses along study roadway segments to additional transportation noise. The predicted increase in noise levels would range between 0.1 dBA and 7.3 dBA. However, resulting noise levels at sensitive receptors along study roadway segments would be within City and County standards with implementation of the proposed project. Therefore, this is considered a less than significant impact.

Implementation of the proposed project would generate increased traffic volumes along study roadway segments. According to the traffic impact analysis prepared for the proposed project, the proposed project would result in a net total of 3,814 trips per day with implementation of the proposed project (RBF 2008). The traffic impact analysis was a conservative analysis, which analyzed construction of a maximum of 498 residential units within the planning area versus the proposed 450 residential units proposed within the Specific Plan. As the noise analysis was based on the traffic volumes in the traffic impact analysis, the noise analysis would therefore be considered conservative.

The proposed project would increased traffic volumes along study roadway segments, including the following: Holohan Road, Airport Boulevard, Green Valley Road, Freedom Boulevard, East Lake Boulevard (Highway 152), Main Street, Wagner Avenue, Crestview Drive, Martinelli Street, Brewington Avenue, Gardener Avenue, Highway 129-Riverside Drive, and Harkins Slough Road. To describe the existing noise levels due to traffic, the *Federal Highway Administration Traffic Noise Prediction Model* (RD-77-108) was used to evaluate resulting noise levels on these study roadway segments. The model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to receiver, and the acoustical characteristics of the planning area. Predicted noise levels were calculated based on traffic data obtained from the traffic impact analysis. Predicted noise levels are summarized in **Table 3.10-5: Predicted Noise Levels**, which compares “Existing” conditions to “Existing Plus Background Plus Project” conditions.

Based on the modeling conducted, the proposed project would result in an increase in ambient noise levels along these study roadways. Predicted increases in noise levels on study roadway segments would be below 3 dBA except on the following study roadway segments where predicted noise levels would increase by approximately: 3.4 dBA on Wagner Avenue, west of East Lake Drive to a predicted noise level of 47.4 dBA; 7.1 dBA on Brewington Avenue, north of Crestview Drive to a predicted noise level of 51.8 dBA; and 7.3 dBA west of the Southbound On/Off-Ramps at the Highway 129-Riverside Drive intersection to a predicted noise level of 50.6 dBA. Within the City of Watsonville and the County of Santa Cruz, the maximum exterior noise levels acceptable for residential land uses and other noise sensitive areas is 60 dBA. Based on the resulting noise levels as shown in **Table 3.10-5: Predicted Noise Levels**, noise levels on these study roadway segments would be within City and County standards. Based on predicted exterior noise levels, interior noise levels would be within 45 dBA.



Although, the proposed project would result in an increase in noise levels, as predicted noise levels along these study roadway segments would be within the City and County noise standards, the increases in ambient noise levels with implementation of the proposed project at residential uses or other sensitive receptors located adjacent to these study roadway segments would be considered a **less than significant impact**.



Table 3.10-5: Noise Levels at Existing Plus Background and Existing Plus Background Plus Project Conditions

Roadway Segment	Existing + Background					Existing + Background + Project					Difference in dBA @ 100 feet from Roadway
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	
<b>Holohan Road</b>											
Between Green Valley Road and East Lake Ave.	14,090	60.8	119	55	26	14,090	60.8	119	55	26	0
<b>Airport Boulevard</b>											
Between Freedom Blvd. and Green Valley Road	16,670	64.3	287	91	29	16,670	64.3	287	91	29	0
Between Freedom Blvd. and Highway 1	19,750	64.7	341	108	34	20,500	64.9	354	112	35	.2
<b>Green Valley Road</b>											
North of Holohan Rd.						19,070	64.8	329	104	33	
Between Freedom Blvd. and Holohan Road	19,360	64.9	334	106	33	19,440	64.9	335	106	33	0
Between Main Street and Freedom Blvd.	21,790	65.2	376	119	38	22,230	65.3	383	121	38	.1
<b>Freedom Boulevard</b>											
Between Airport Blvd. and Green Valley Road	17,590	63.0	217	69	22	18,560	63.2	229	72	23	.2
Between Green Valley Road and Gardner Ave.	27,060	64.7	334	106	33	29,030	65.0	358	113	36	.3
Between Gardner Ave. and Atkinson Lane	24,735	64.5	305	96	31	26,590	64.7	329	104	33	.2
Between Atkinson Lane & Crestview Drive	26,330	64.8	325	103	33	26,970	64.8	333	105	33	0
<b>East Lake Avenue (Highway 152)</b>											
Between Wagner Ave. and Holohan Road	12,640	64.9	230	107	50	12,860	65.0	233	108	50	.1
North of Holohan Road	9,510	63.6	190	88	41	9,700	63.7	193	90	42	.1
<b>Main Street</b>											
Between Green Valley Road and Highway 1	33,090	66.7	570	180	57	33,310	66.8	574	182	57	.1
Between Green Valley Road and Ohlone Parkway	38,280	67.5	660	209	66	38,280	67.5	660	209	66	0



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Roadway Segment	Existing + Background					Existing + Background + Project					Difference in dBA @ 100 feet from Roadway
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	
<b>Crestview Drive</b>											
Between Freedom Blvd. & Brewington Ave.	3,075	55.5	38	12	4	4,125	56.8	51	16	5	1.3
East of Brewington Ave.	380	46.4	5	1	0	630	48.6	8	2	1	2.2
<b>Wagner Avenue</b>											
West of East Lake Ave.	310	44.0	3	1	0	680	47.4	6	2	1	3.4
East of East Lake Ave.	2,100	52.2	18	6	2	2,100	52.2	18	6	2	0
<b>Martinelli Street</b>											
Between Freedom Blvd. & Brewington Ave.	6,410	57.2	55	17	6	6,490	57.2	56	18	6	0
East of Brewington Ave.	6,340	57.1	54	17	5	6,340	57.1	54	17	5	0
<b>Brewington Avenue</b>											
South of Martinelli St.	1,360	50.4	12	4	1	1,470	50.7	13	4	1	.3
Between Martinelli St. & Crestview Dr.	1,285	50.1	11	3	1	1,500	50.8	13	4	1	.7
North of Crestview Dr.	360	44.7	3	1	0	1,850	51.8	16	5	2	7.1
<b>Gardener Avenue</b>											
East of Freedom Blvd.	2,780	53.6	24	8	2	4,360	55.5	37	12	4	1.9
Clifford Avenue											
South of Freedom Blvd.	5,710	56.6	49	15	5	5,900	56.7	51	16	5	.1
<b>Highway 129-Riverside Drive</b>											
East of North Bound On/Off Ramps	16,470	60.7	133	62	29	16,470	60.7	133	62	29	0
West of South Bound On/Off Ramps	7,340	57.9	77	36	17	1,370	50.6	25	12	5	7.3
<b>Harkins Slough Road</b>											
East of North Bound Off Ramp (Highway 1)	10,070	61.9	174	55	17	10,290	62.0	177	56	18	.1
West of South Bound On Ramp (Highway 1)	2,610	53.4	39	18	8	2,610	53.4	39	18	8	0
Source: RBF Consulting 2008											



### Long-term Exposure to Noise

**Impact 3.10-3:** The proposed project would result in an increase in on-site noise levels within the planning area. However, adherence to City and County noise standards for residential uses would ensure that potential increases in noise levels from future residential uses would be less than significant.

Implementation of the proposed project would create new noise sources typical of a residential neighborhood including such things as children playing, pet noise, amplified music, car repair, spa equipment, woodworking and home repair. Noise typically associated with residential land uses does not produce noise levels greater than 60 dBA. Noise from residential noise sources would primarily occur during the “daytime” activity hours of 7:00 AM to 10:00 PM. Furthermore, future residential uses would be required to comply with the noise standards set forth in the *County of Santa Cruz General Plan* for County Phases 1 and 2 of the proposed project and the *City of Watsonville General Plan* for City Phases 1 and Phase 2 of the proposed project. Therefore, increases in noise levels from future residential uses within the planning area are anticipated to be a **less than significant impact**.

### Exposure of the Proposed Project to Airport Noise

**Impact 3.10-4:** The proposed project would not be exposed to excessive noise levels from the Watsonville Municipal Airport. Therefore, this would be considered a less than significant impact.

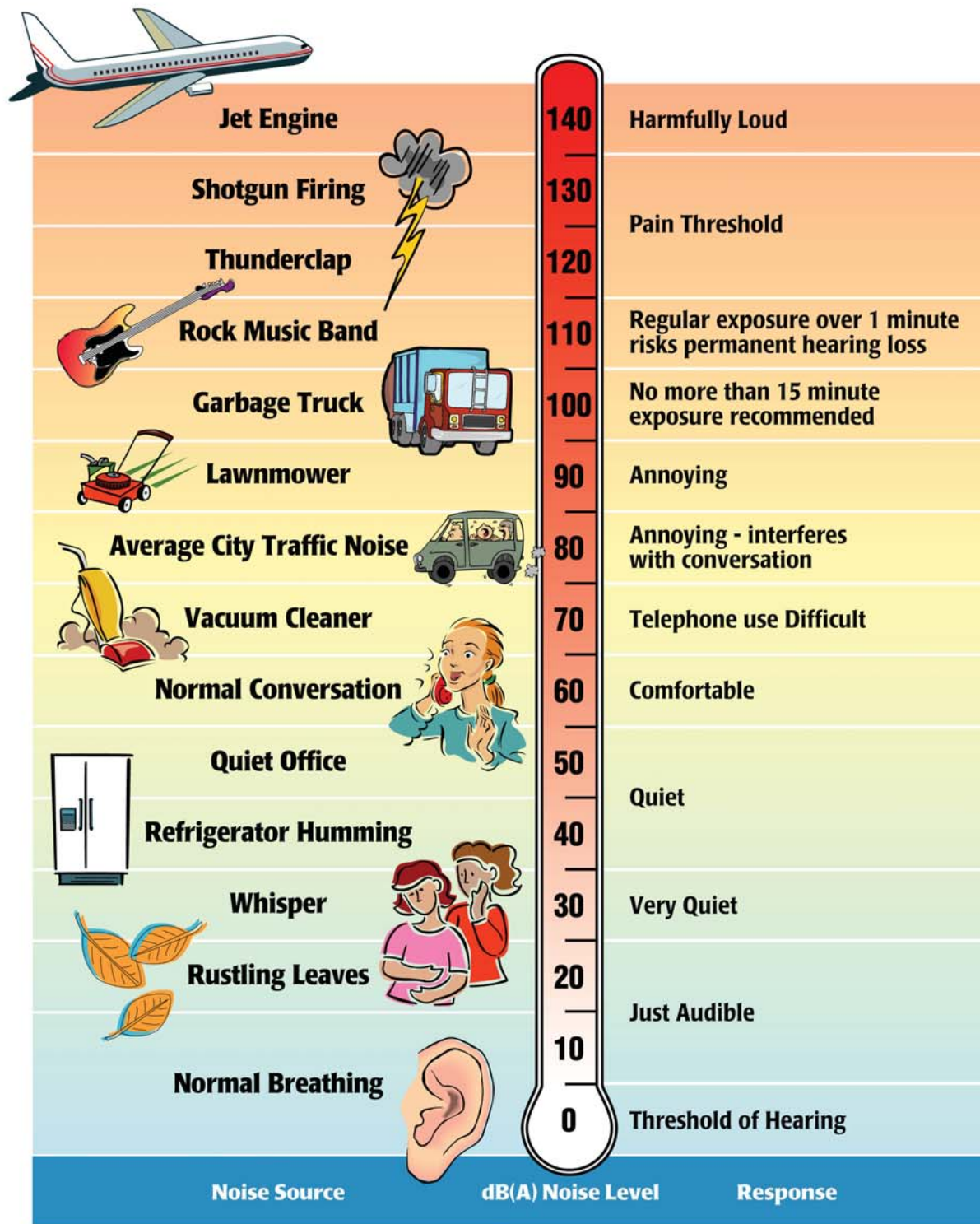
A portion of the planning area is located within the 55 dB CNEL 2020 Noise Contour for the *Watsonville Municipal Airport Master Plan*. Residential, commercial, manufacturing and production uses are allowed uses within the 55 dB CNEL contour for the *Watsonville Municipal Airport Master Plan* (City of Watsonville 2002). Therefore, the proposed Specific Plan would not result in an exposure to excessive noise levels from the airport, which would be considered a **less than significant impact**.

### Exposure of the Proposed Project Railroad Noise

Railroad noise is concentrated primarily in the industrial triangle formed by Highway 1, Harkins Slough Road, and Beach Street, located approximately two miles south of the planning area. Therefore, railroad-related noise would not be experienced within the planning area. Railroad noise would therefore not be considered an impact within the planning area.



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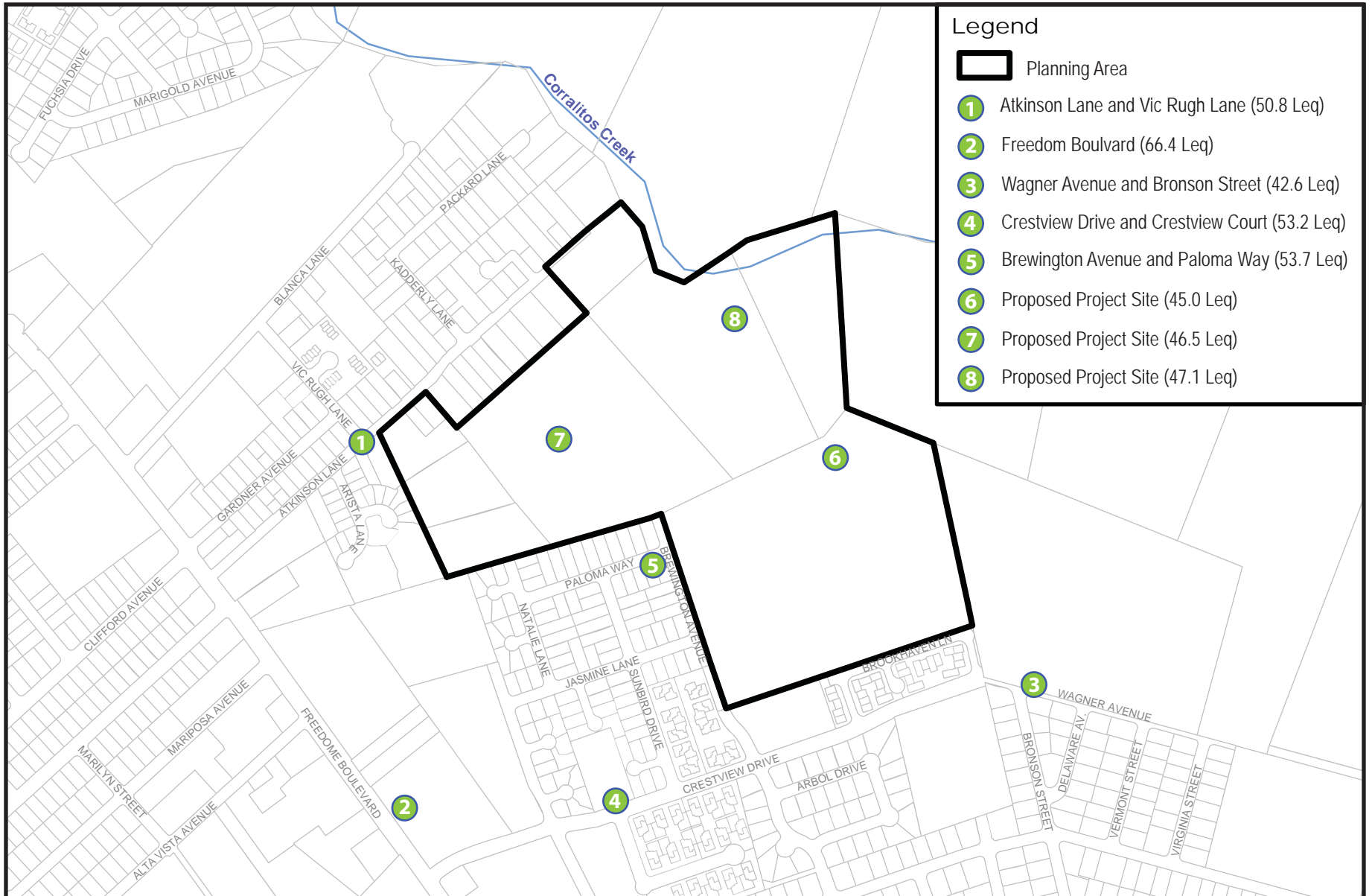


**Source:**

Melville C. Branch and R. Dale Beland, *Outdoor Noise in the Metropolitan Environment*, 1970.

Environmental Protection Agency, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004)*, March 1974.

Source: (See Above)



Source: RBF Consulting (2008)



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ATKINSON LANE SPECIFIC PLAN & PUD EIR  
**Noise Measurement Locations**

**Figure 3.10-2**