

Figure 5-4
CONSTRUCTION NOISE RECEPTOR SITE MAP



SOURCE: MGA/L&B, 2011

The construction-related noise impacts associated with the long-term project elements would be the same as the construction-related noise impacts described for the short-term project elements. Similar types of equipment will be used. Temporary construction noise barriers, such as sound blankets may be of some use if they are high enough and have no flanking around the sides. This generally would require a continuous wall of such blankets. While a minimum barrier of this type may provide from 5 to 10 dB of noise reduction, it is not practical along the haul roads as the necessary breaks for driveways would create holes in the barrier that would render them mostly ineffective.

Long-Term Mitigation Measure

Develop of construction noise control plan prior to initiation of construction for all of the long term projects. Night construction work should use back up beepers that adjust to ambient levels or use flag men as a substitute for back up beepers. Unless night construction is required, all construction shall be limited to the hours of 7 a.m. to 5 p.m. on weekdays with no construction permitted on weekends or federal holidays. Even with this mitigation, construction noise will be a significant adverse short term impact for the long term projects.

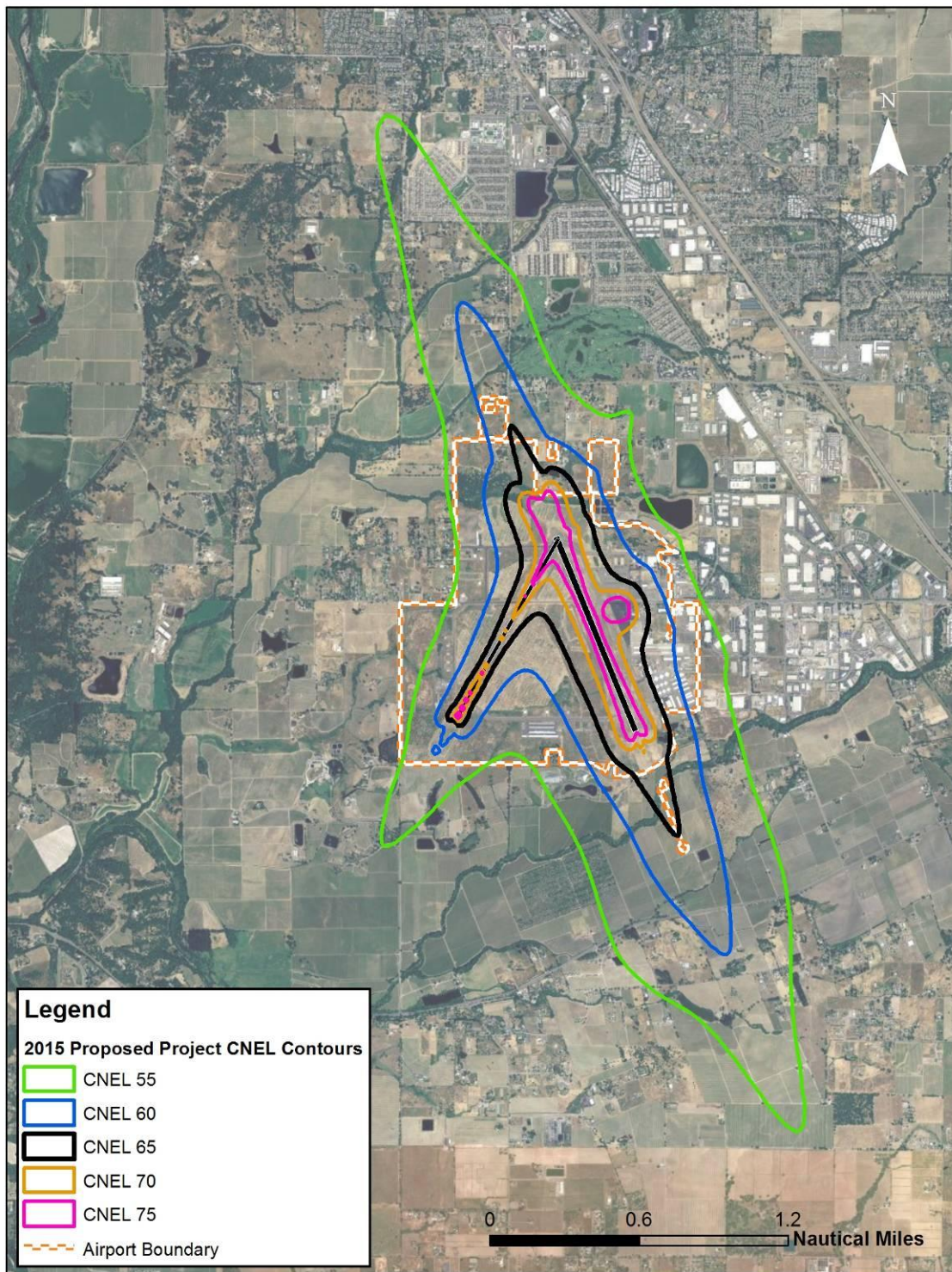
5.4.2 Proposed Project Aircraft Noise Modeling Assumptions

Runway use and flight track locations are critical components of the analysis of noise exposure for this alternative. The runway utilization and time of day utilization is not expected to change with the implementation of the Proposed Project relative to the Baseline condition. Flight track allocations associated with the Proposed Project is identical to Baseline and No Project Alternative conditions. The fleet mix changes from the 2015 and 2030 No Project Alternative by adding the Canadair Regional Jet 200 to the 2015 Proposed Project, and by adding the Canadair Regional Jet 900 to the 2030 Proposed Project, respectively. (See Table 5-1). The Proposed Project does change the points at which the aircraft touchdown and the point at which aircraft begin takeoff roll. Changing these aircraft flight characteristics normally changes the shape and coverage area of the noise contours.

5.4.3 Proposed Project CNEL Noise Contours

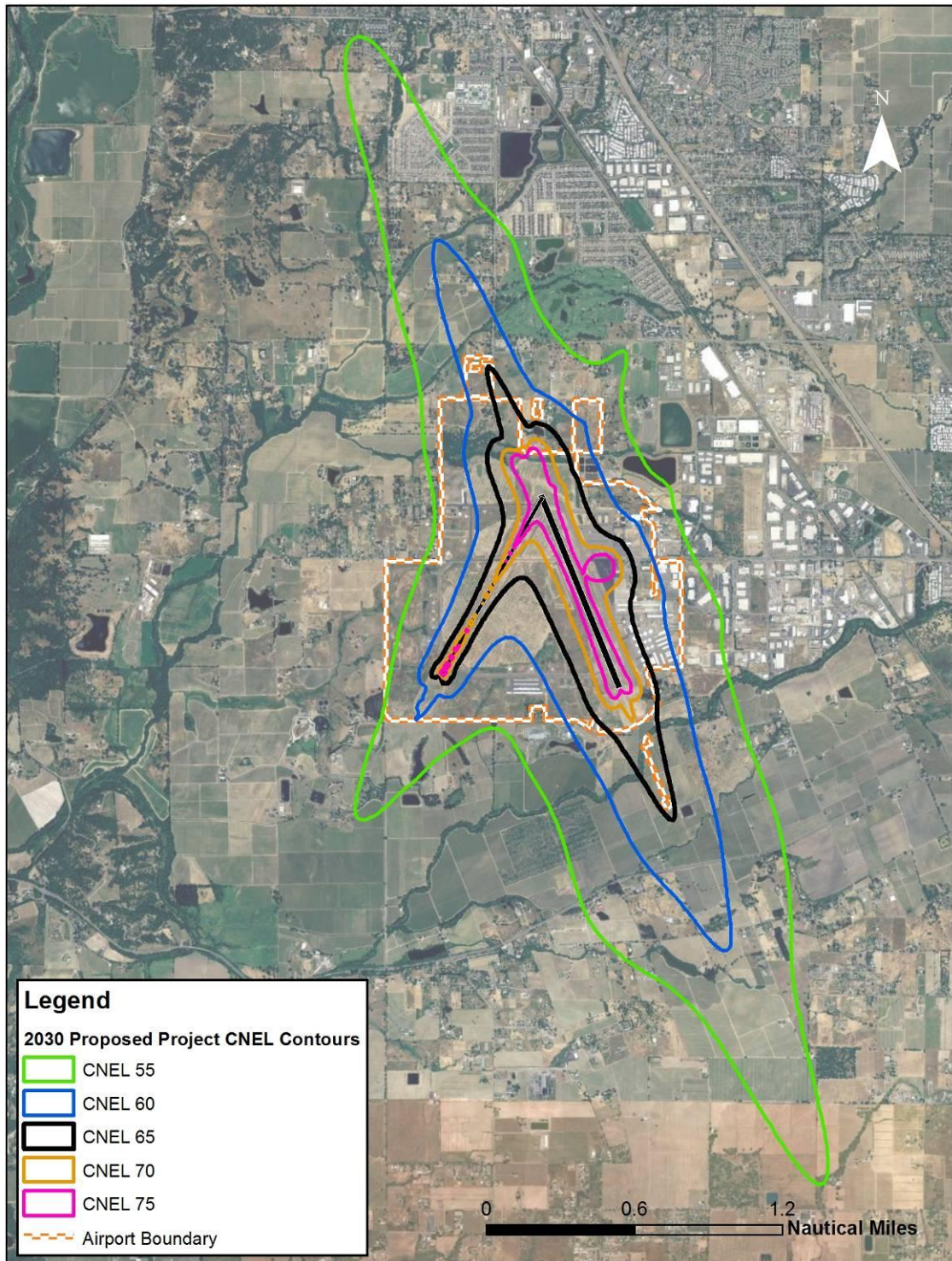
The Proposed Project CNEL contours for the Airport were prepared using the Integrated Noise Model Version 7.0b for the year 2015 and 2030. These contours are shown in Figure 5-4a and 5-4b.

Figure 5-4a
PROPOSED PROJECT – YEAR 2015 CNEL CONTOURS



SOURCE: MGA/L&B (2011)

Figure 5-4b
PROPOSED PROJECT – YEAR 2030 CNEL CONTOURS



SOURCE: MGA/L&B (2011)

Table 5-8 below describes the size of the respective 2015 and 2030 Proposed Project CNEL contours. The contour areas for the Baseline 2009 and the 2015 and 2030 No Project and Proposed Projects are shown for comparison.

Table 5-8
PROPOSED PROJECT – YEARS 2015 AND 2030 CNEL EXPOSURE AREA IN ACRES

Contour CNEL (dB)	Baseline 2009	2015 No Project Alt.	2015 Proposed Project	2030 No Project Alt.	2030 Proposed Project
55 – 60	1,006	1,450	1,421	1,762	1,745
60 – 65	398	565	550	667	652
65 – 70	159	224	219	263	259
70 – 75	71	93	98	106	108
75 +	50	72	74	83	87
55 CNEL & greater	1,684	2,404	2,362	2,881	2,851

SOURCE: MGA/L&B (2011)

As shown in Table 5-8, the No Project Alternative contains a larger area than either the Proposed Project for the same year and the Baseline cases for areas within the 55 to 60, 60 to 65, and 65 to 70 CNEL contour bands. For the CNEL contour bands 70 to 75 CNEL and greater than 75 CNEL, the area within the Proposed Project is greater than the No Project Alternative for the same year and the Baseline 2009 contour bands. For all of the area within the 55 CNEL contour, the No Project Alternative is larger than Proposed Project for the same year and Baseline 2009 case. Note that there are no homes within the 65 CNEL contour for any case.

The 2015 and 2030 Proposed Project 55, 60, and 65 CNEL contour area is smaller than the same contour areas for the No Project Alternative because the departure threshold is moved north for south flow traffic (the dominant traffic flow). Moving the Runway 14 landing threshold to the north will have two effects: it will cause the arrival noise to increase north of the Airport and the departure noise to decrease south of the Airport. The area of noise decrease will be larger than the area of noise increase. For this reason, the 55-70 dB CNEL contour for the Proposed Project is smaller than the 55-70 dB CNEL for the No Project Alternative.

The modeled noise levels at the receptor locations for 2015 and 2030 Proposed Project are shown below in Table 5-9. The Baseline 2009 and 2015 and 2030 No Project Alternative noise levels are included as reference. Note that in all cases the noise exposure at the residential or school noise receptors for future conditions with or without the Proposed Project are less than 65 dB CNEL.

Table 5-9

CNEL SUMMARY OF ALTERNATIVES AT NOISE RECEPTOR SITES – YEARS 2015 & 2030

Receptor Sites	Name	Land Use	Baseline 2009	2015		2030	
				No Project Alt. CNEL (dB)	Proposed Project CNEL (dB)	No Project Alt. CNEL (dB)	Proposed Project CNEL (dB)
1	Airport Property East	Airport	59.4	61.2	61.2	62.0	62.0
2	Airport Property West	Airport	55.2	57.0	57.7	57.8	58.5
3	Triple Oak Way	Residential	50.9	52.8	52.1	53.8	53.1
4	Cutrer Winery	Commercial	47.3	49.2	49.2	49.9	50.0
5	Rio Ruso Dr	Residential	44.6	46.3	46.8	47.2	47.7
6	Windsor High School	School	49.9	51.6	51.4	52.4	52.2
7	Mitchell Ln	Residential	47.8	49.6	50.2	50.3	50.9
8	Trione Cir	Residential	50.1	51.9	52.8	52.6	53.6
9	Olivet Rd	Residential	47.8	49.5	49.9	50.2	50.6
10	Piner High School	School	43.2	45.1	44.6	46.2	45.7

SOURCE: MGA/L&B (2011)

Table 5-10 below lists the changes in noise level at each of the 10 noise receptor locations of the 2015 and 2030 No Project Alternative, and the 2015 and 2030 Proposed Project compared to existing conditions. There are no residential or school noise receptors that are located within the areas of significant impact as described in next section 5.4.3.

Table 5-10

**CHANGE OF CNEL OF 2015 & 2030 NO PROJECT AND PROPOSED PROJECT
COMPARED TO EXISTING CONDITIONS**

Receptor Sites	Name	Land Use	Baseline 2009	2015 No Project Alternative CNEL Change (dB)	2015 Proposed Project CNEL Change (dB)	2030 No Project Alternative CNEL Change (dB)	2030 Proposed Project CNEL Change (dB)
1	Airport Property East	Airport	59.4	+1.8	+1.8	+2.6	+2.6
2	Airport Property West	Airport	55.2	+1.8	+2.5	+2.6	+3.3
3	Triple Oak Way	Residential	50.9	+1.9	+1.2	+2.9	+2.2
4	Cutrer Winery	Commercial	47.3	+1.9	+1.9	+2.6	+2.7
5	Rio Ruso Dr	Residential	44.6	+1.7	+2.2	+2.6	+3.1
6	Windsor High School	School	49.9	+1.7	+1.5	+2.5	+2.3
7	Mitchell Ln	Residential	47.8	+1.8	+2.4	+2.5	+3.1
8	Trione Cir	Residential	50.1	+1.8	+2.7	+2.5	+3.5
9	Olivet Rd	Residential	47.8	+1.7	+2.1	+2.4	+2.8
10	Piner High School	School	43.2	+1.9	+1.4	+3.0	+2.5

SOURCE: MGAL&B (2011)

5.4.4 Thresholds of Significance

The Thresholds of Significance used are based on the land use compatibility standards described in the Sonoma County General Plan Noise Element and CALUP augmented by the thresholds of significance used by the FAA on airport environmental analysis. Impacts due to noise exposure associated with the operation of the airport would be considered significant if the project would cause a discernable increase in noise levels. The increase in noise levels due to the project is based on a comparison of conditions with the project and conditions without the project in the same analysis year. For transportation noise, an increase in noise levels of 5.0 dB is considered discernible where existing noise levels are less than 60.0 dB CNEL^{1*}. In addition, an increase in noise of 3.0 dB or more is considered discernible for existing noise levels between 60.0 and 65.0 dB CNEL^{*}, and an increase in noise by 1.5 dB or more is considered discernible for existing noise levels greater than 65.0 dB CNEL^{*}. (Federal Interagency Committee on Noise [FICON], 1992).

A significant cumulative noise impact will occur if the future with project conditions results in a discernable increase over existing conditions, using the same definition for a discernable increase as above. The project contribution to a discernable increase in noise will be cumulatively considerable if it contributes 1.0 dB or more to the cumulative noise level increase. If the project's contribution to the cumulative increase is less than cumulatively considerable (see CEQA Guidelines Section 15064 (h)) then the project will not result in a significant cumulative noise impact.

* According to Sonoma County Comprehensive Airport Land Use Plan, all residential uses are unacceptable with noise above 65 dBA CNEL. Residences are conditionally acceptable between 55 and 60 dBA CNEL, subject to an outdoor-to-indoor noise level reduction of at least 25 decibels, and between 60 and 65 dBA CNEL, subject to an outdoor-to indoor noise level reduction of at least 30 decibels. (2001).

According to the Sonoma County General Plan Noise Element, Policy NE-1a designates areas exposed to existing or projected exterior noise levels that exceed 60 dB CNEL as noise impacted areas. Policy NE-1b states to avoid noise sensitive land use development in noise impacted areas unless noise levels can be reduced to 60 dB CNEL or less. A maximum exterior noise level of 65 dB CNEL is allowed given that the interior noise level does not exceed 45 dB CNEL. (2008).

It is common to assume that a home with typical construction will provide 20 dB outdoor to indoor noise reduction with windows and doors closed. This assumption dates back to the 1960's and is based on typical Southern California wood frame construction. This is the value assumed in the California Airport Noise Regulations (California Administrative Code Title 21, Division of Aeronautics, Chapter 6)^{xviii}. This assumption is conservative, as homes built since the mid 1970's, when the building code was enhanced to improve energy insulation, and in areas where cooler winters and warmer summers are prevalent homes are more likely to provide sound insulation more in the range of 25 dB or higher as a result of better construction or home improvements to reduce energy costs. The key factors are how well the windows and doors seal in their frame, and the window area. For the homes around the Airport, and in particular those that will not be acquired, 25 dB is a good assumption for the noise reduction with windows and doors closed. Of course, this is an assumption that could vary with the house. A poorly maintained home with broken or cracked windows, or windows that are jammed in an open or partially open position won't even achieve a 20 dB noise reduction. This is not the case for the average home in Sonoma County. Therefore, homes located between Proposed Project 55 and 60 dB CNEL meet the Sonoma County Noise Compatibility Standards. Homes located between 60 and 65 dB CNEL and above 65 dB CNEL do not meet the standards.

5.4.5 Proposed Project Impact Conclusion

The Proposed Project impact areas were produced by calculating the changes in CNEL between the Proposed Project and the No Action Alternative in the same analysis year. Figures 5-5a and 5-5b show the 2015 and 2030 areas where the significant noise criteria are exceeded by the implementation of the Proposed Project. The 2015 and 2030 Proposed Project impact areas extend over Public / Quasi-Public and Diverse Agricultural land use and does not include noise sensitive areas. Therefore, no significant noise impacts would occur as a result of the implementation of the Proposed Project in year 2015 and 2030.

Noise contours that show the cumulative impact areas as a result of the implementation of the Proposed Project were produced by calculating the cumulative changes in CNEL between the 2015 Proposed Project and existing conditions, between the 2030 Proposed Project and existing conditions, and the project contribution for 2009, 2015, and 2030. Figures 5-5c thru 5-5g show the 2009 with Proposed Project, 2015 Proposed Project, and 2030 Proposed Project areas where the significant cumulative impact criteria are exceeded.

The 2015 Proposed Project significant cumulative impact areas extend over Public / Quasi-Public and Diverse Agricultural land use and do not include noise sensitive areas, except of for a few homes north of the Airport that will be acquired as part of the long-term project. Therefore, the implementation of the Proposed Project in year 2015 would result in a potential impact on these homes until they are acquired.

Figure 5-5f shows the 2030 Proposed Project area where the significant cumulative impact criteria are exceeded. Figure 5-5g (a close-up version of Figure 5-5f) shows the extent of this area of significant cumulative impact in a transparent color. The extent of this area does not include noise sensitive areas, and therefore, there would be no impact as a result of the implementation of the 2030 Proposed Project.