Environmental Noise Assessment

North Coast Railroad Authority Russian River Division Freight Rail Project - Northern California

BAC Job # 2007-102

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ENVIRONMENTAL SETTING

Project Description

The North Coast Railroad Authority (NCRA) proposes to resume freight rail service on the Russian River Division (RRD) of the Northwestern Pacific Railroad (NWP). The RRD section of the NWP is approximately 142 miles in length, extending south from Willits (Mendocino County) to Lombard (Napa County). The project rail line runs through portions of Mendocino, Sonoma, Marin, and Napa Counties, with a majority of the line paralleling U.S. Highway 101. The project rail line runs through the communities of Willits, Ukiah, Hopland (Mendocino County), Cloverdale, Healdsburg, Windsor, Santa Rosa, Rohnert Park/Cotati, Petaluma (Sonoma County), and Novato (Marin County), among others. Please refer to the project area graphic presented as Figure 1.

The project proposes two round-trip freight train operations per day along the length of the project line with an additional one round-trip freight operation between Santa Rosa and Lombard. It is expected that the two full-length, round-trip trains would service commercial/industrial customers along the line. One of these trains would include 1 locomotive and 10-25 cars, while the second would include 2 locomotives and approximately 60 cars. The round-trip operation between Santa Rosa and Lombard would be used to transport solid waste, and would likely include 2 locomotives with 60 cars. These operations are illustrated in Figure 2. It is the noise produced by the primary movements (pass-bys) of these trains that is addressed in the following.

Noise exposure from proposed project construction associated with the rehabilitation and maintenance of the rail corridor are addressed in general terms. Noise associated with train operations on spur lines and sidings, loading and unloading of train cars, and routine maintenance of trains is not addressed in the following. Additional, site-specific analyses may be required if such activities would be expected to produce significant noise exposure.

Commuter/Passenger Train Operations (Cumulative Noise)

The following addresses the cumulative noise exposure from the proposed project freight train operations and proposed Sonoma-Marin Area Rail Transit (SMART) commuter/passenger train operations. SMART train operations are proposed between Cloverdale and Ignacio on the project railway. These operations are referred to as the "*SMART Rail Service: Cloverdale to Larkspur Alternative*" in the August 2004 Noise Study prepared for the 2006 SMART EIR. Specifically, SMART proposes the operation of 12 diesel multiple units (DMUs) completing four daily round trips between Cloverdale and Ignacio, two daily round trips between Healdsburg and Ignacio, three daily round trips between Windsor and Ignacio, two daily round trips between Petaluma and Ignacio, and two daily round trips between Healdsburg and Petaluma. Each SMART train would be composed of two DMUs. SMART train operations data, as it pertains to the modeling of primary SMART train noise exposure along the project rail, is presented in Table 1. This information was established based on proposed SMART train schedules presented in SMART Working Paper #5 (October 2003).

The cumulative project would include rail improvements between Cloverdale and Ignacio, including replacement of the existing jointed rail with continuously welded rail. This improvement would allow for higher train speeds, and is addressed in the train noise modeling presented below.

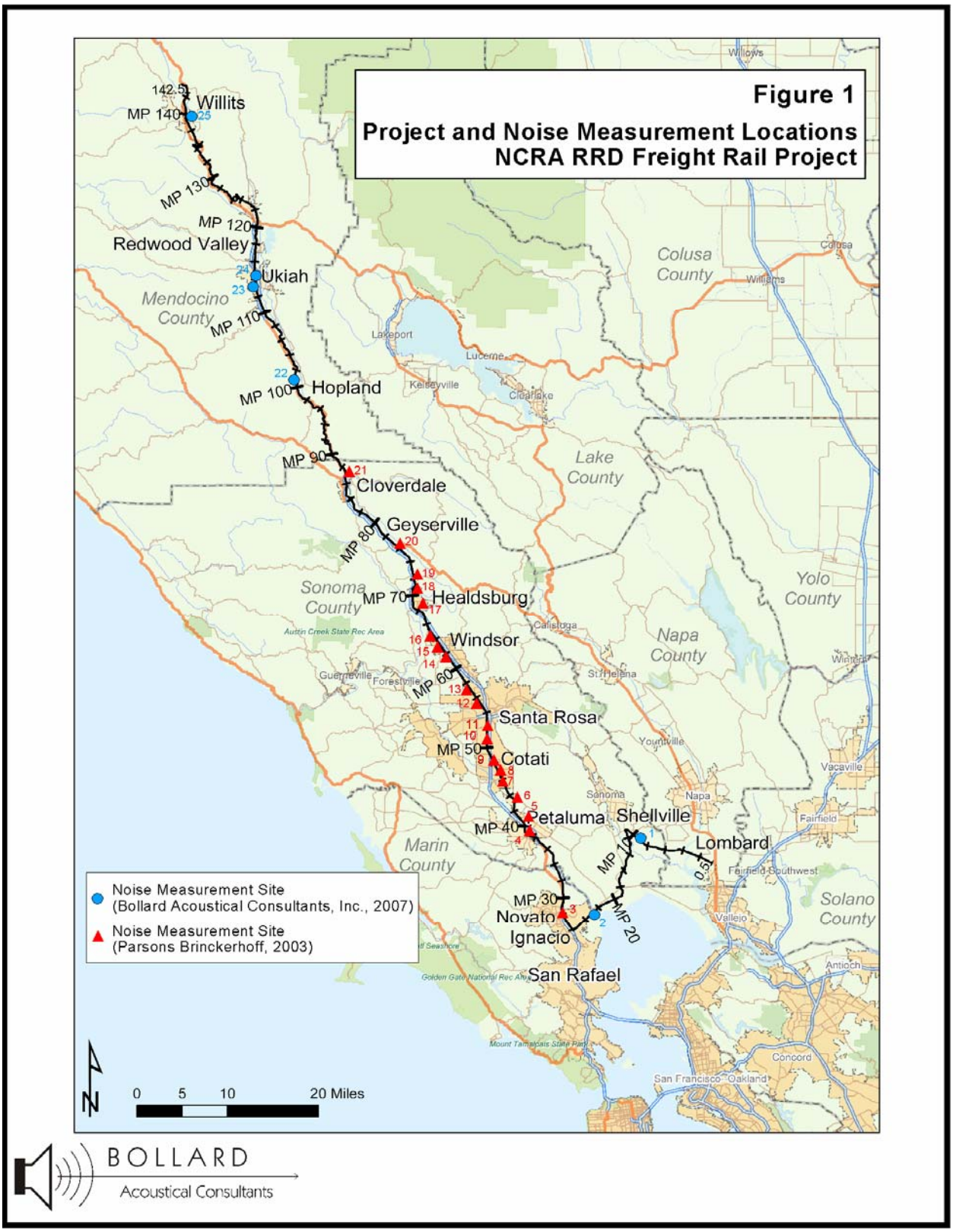
Figure 1
Project and Noise Measurement Locations
NCRA RRD Freight Rail Project
Willits
MP 140
142.5
MP 130
MP 120
Redwood Valley
Ukiah
MP 110
Hopland
MP 100
MP 90
Cloverdale
Geyserville
MP 80
Healdsburg
MP 70
Windsor
MP 60
Santa Rosa
MP 50
Cotati
Petaluma
MP 40
Shellville
Lombard
MP 30
Novato
Ignacio
San Rafael
MP 20
Mendocino County
Lake County
Colusa County
Yolo County
Napa County
Sonoma County
Marin County
Solano County
Noise Measurement Site
(Bollard Acoustical Consultants, Inc., 2007)
Noise Measurement Site
(Parsons Brinckerhoff, 2003)
0 5 10 20 Miles
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Figure 2

Assumed Project Daily Freight Train Operations
NCRA RRD Freight Rail Project

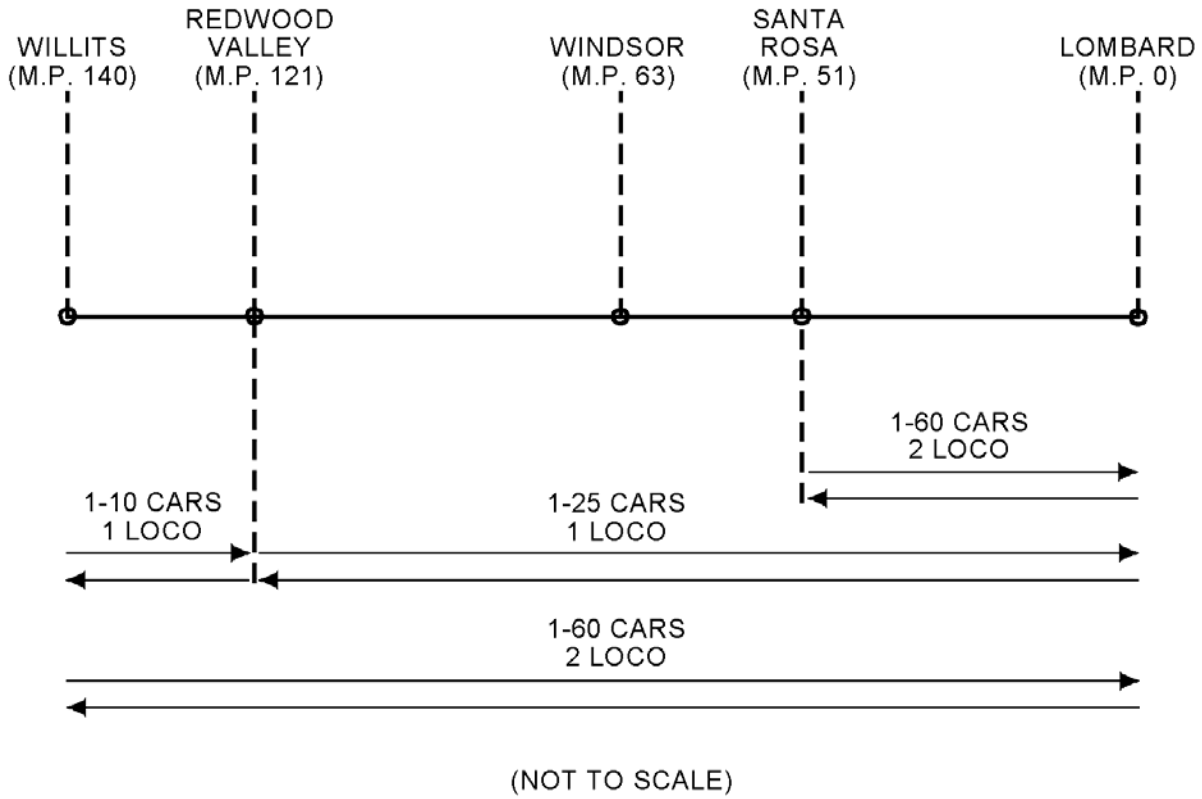

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Table 1

SMART Passenger Train Operations Data

Passenger Stations	Mile Posts	Average Speed (MPH)	Train Operations		
			Daytime	Nighttime	Daytime Hour
Cloverdale – Healdsburg	84.6-68.0	55	7	1	1
Healdsburg – Windsor	68.0-63.0	43	15	1	4
Windsor – N. Santa Rosa	63.0-54.9	50	21	3	4
N. Santa Rosa – Santa Rosa	54.9-53.8	30	21	3	4
Santa Rosa – Rohnert Park	53.8-48.7	38	21	3	4
Rohnert Park – Cotati	48.7-46.0	41	21	3	4
Cotati – Petaluma	46.0-41.0	45	22	2	4
Petaluma – S. Petaluma	41.0-38.5	20	19	5	3
S. Petaluma – N. Novato	38.5-28.7	53	19	5	4
N. Novato – S. Novato	28.7-24.6	35	19	5	4

Source: SMART Working Paper #5 (October 2003)

Project Area/Site Inspection

Bollard Acoustical Consultants, Inc. staff, with guidance from American Rail Consultants, Inc. staff, toured much of the project area via hi-rail and adjacent surface roadways on November 13 and 20, 2007. This inspection proved to be valuable with respect to establishing a better understanding of the breadth of the project and noting areas where project-related noise exposure would be most critical.

Existing Land Uses in the Project Vicinity

The project area is extensive (approximately 142 miles in length) and is adjacent to numerous different land uses. Some acoustically sensitive uses adjacent to the rail line include single- and multi-family residences, transient lodging (e.g., hotels, motels), schools, libraries, churches, hospitals, performing arts venues, and parks and other outdoor recreation areas. Also adjacent to the rail corridor are relatively noise-insensitive properties, including commercial/office, retail, and light- and heavy-industrial uses.

Existing Ambient Noise Environment in the Project Vicinity

To quantify the existing ambient noise environment in the project vicinity, 24-hour ambient noise level measurement surveys were conducted at 25 different locations along the project rail corridor. A majority of the measurements (20) were completed by Parsons Brinckerhoff Quade & Douglas, Inc. for the 2006 SMART EIR project. These measurements were completed sometime during calendar year 2003. The remaining ambient noise level measurements, which included sites along the rail line between Novato and Lombard and between Cloverdale and Willits, were completed by Bollard Acoustical Consultants, Inc. on December 11-12, 2007. The ambient noise level

measurement locations are illustrated in Figure 1. The ambient noise measurement results are summarized in Table 2.

Table 2

Summary of Ambient Noise Level Measurement Results

Measurement Site	Description of Measurement Site	Average Daytime L_{eq}, dB	L_{dn}, dB
1	2567 Dale Avenue, Sonoma	52	61
2	20 Beattle Lane, Novato	53	54
3	Railroad Avenue and West Orange Ave., Novato	61	64
4	Payran Street, Petaluma	48	53
5	North McDowell Boulevard, Petaluma	60	66
6	Oak Street at East Street, Penngrove	57	67
7	Lacrosse Park, Rohnert Park	50	58
8	Windmill Farms Drive, Cotati	53	59
9	Seed Farm Road, Rohnert Park	53	58
10	Anteeo Way, Santa Rosa	57	65
11	Whitewood Drive at Hearn Avenue, Santa Rosa	63	71
12	Cleveland Ave. – 10th and 11th Streets, Santa Rosa	63	67
13	Barnes Road at Hopper Avenue, Santa Rosa	53	55
14	Eagle Drive at 13th Hole Drive, Windsor	44	49
15	Bell Road, Windsor	53	58
16	Park Glen at Windsor Drive, Windsor	49	52
17	University Street, Healdsburg	49	51
18	Grove Street at Healdsburg Avenue, Healdsburg	52	55
19	Healdsburg Ave. at Lytton Springs Road, Lytton	49	51
20	Railroad Avenue at Merrill Street, Geyserville	53	59
21	McCray Road, Cloverdale	43	50
22	41 McAsey Lane, Hopland	52	55
23	15 Olga Place, Ukiah	51	57
24	204 Ford Street, Ukiah	53	57
25	270 E. San Francisco Street, Willits	51	56

Notes:

Data for Sites 3-21 was taken from the SMART EIR Noise Study of 2004 prepared by Parsons Brinckerhoff Quade & Douglas, Inc. The average daytime L_{eq} data was estimated based on graphics (Figure 4.1) in the noise study.

Data for Sites 1, 2, and 22-25 was recorded by Bollard Acoustical Consultants, Inc. on December 11-12, 2007. These measurements were completed specifically for the NCRA RRD Freight Rail project.

Existing ambient noise levels recorded by Bollard Acoustical Consultants, Inc. staff were completed using Larson-Davis Laboratories (LDL) Model 820 precision integrating sound level meters equipped with LDL Model 2560 of G.R.A.S. 40AQ ½" microphones. The meters were calibrated

before use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute (ANSI) for Type 1 (precision) sound level meters (ANSI S1.4). Noise level measurement equipment and techniques incorporated by Parsons Brinckerhoff Quade & Douglas, Inc. are unknown.

FUNDAMENTALS OF ACOUSTICS

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that human hearing can detect. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, or Hertz (Hz). Human hearing is generally capable of detecting sound between 20 Hz and 20,000 Hz.

Human hearing is generally capable of processing air pressure variations (sound) over an extremely broad dynamic range. Therefore, the measurement of sound directly in terms of pressure would require a very large and awkward range of numbers. The logarithmic treatment of these numbers – converting measured sound pressure (Pa) into sound pressure level (decibels, dB) – was developed primarily to limit the range of numbers. The decibel scale allows for 5 orders of sound pressure magnitude to be expressed within a range of 0-100 dB.

The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by the A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way human hearing perceives noise. For this reason, the A-weighted sound level has become a standard tool for environmental noise assessment. All noise levels reported here are A-weighted.

Community noise is commonly described in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool used to measure the ambient noise level is the average, or equivalent sound level (L_{eq}), which corresponds to a steady-state, A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually 1 hour). The L_{eq} is the foundation for the day/night average level (L_{dn}).

The L_{dn} is based on the average noise level over a continuous 24-hour period, with a +10 dB weighting (or penalty) applied to noise occurring during nighttime (10 p.m.-7 a.m.) hours. The nighttime penalty is based on the assumption that people generally react to nighttime noise exposures as though they are twice as loud as daytime exposures. Because the L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Figure 3 illustrates typical A-weighted noise levels associated with common noise sources. Table 3 provides definitions of acoustical terminology relevant to this study.

Figure 3
Typical Sound Levels of Common Noise Sources

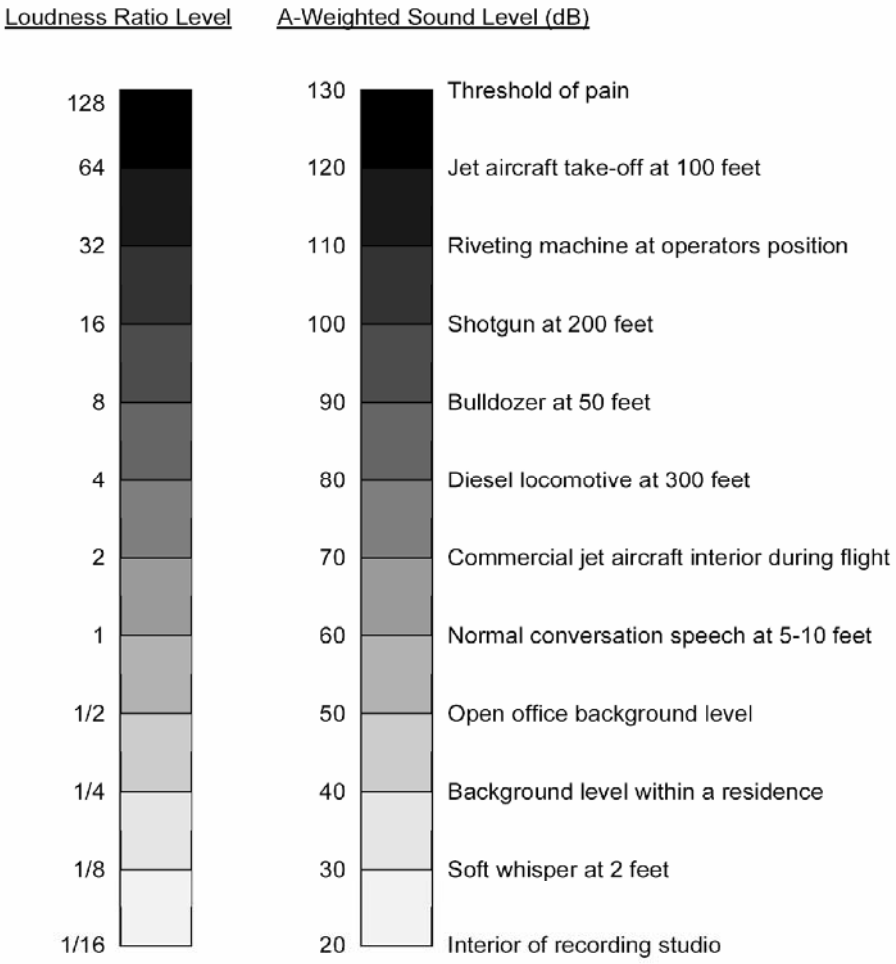

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Table 3

Relevant Acoustical Terminology

Acoustics	The science (or physics) of sound.
Ambient Noise	The distinctive acoustical characteristics of a given environment consisting of all noise sources audible at a given location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of noise.
A-Weighting	A frequency filter that conditions a given sound signal to approximate human hearing response.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours (10 p.m. - 7 a.m.) weighted by a factor of 10 prior to averaging.
Decibel or dB	A Bel is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure (20 µPa) squared. A Decibel is one-tenth of a Bel.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).
L_{dn}	The day/night average level. Similar to CNEL but with no evening weighting. The hours of 7–10 p.m. are considered daytime.
L_{eq}	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
L_n	The measured sound pressure level exceeded (n) percent of the time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Noise	Unwanted sound.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB at 1,000 Hz for persons with good hearing.
SEL	A single-number rating indicating the total energy of a discrete noise event compressed into a 1-second time duration.

IMPACT CRITERIA

Airborne Noise

Train Operations – Federal Transit Administration (FTA)

The FTA offers regulations regarding noise exposure associated with federally funded rail projects such as the NCRA RRD Freight Rail project. Please see Chapter 3 of the FTA's Guidance Manual regarding Transit Noise and Vibration Impact Assessment (Harris Miller Miller & Hanson, Inc., April 1995/May 2006). The Federal Rail Administration (FRA) has adopted these criteria. "Moderate impact" and "severe impact" criteria are established based on the existing ambient noise environment and the noise sensitivity of the receiving land use. Three categories of land use are established for the impact analysis.

- Category 1: Includes lands set aside for serenity and quiet or for outdoors performing arts entertainment (e.g., national historic landmarks, outdoor amphitheaters).

- Category 2: Residences and buildings where people normally sleep (e.g., homes, hospitals, hotels).

- Category 3: Institutional land with primary daytime and/or evening use (e.g., schools, libraries, churches, medical offices, theaters, parks).

Figure 4 is a graphical representation of the FTA's noise impact criteria. Please note that Categories 1 and 3 apply the L_{eq} for the noisiest hour of train-related activity during hours of noise sensitivity. For these categories, the criteria are established based on the average Hourly L_{eq} measured during the daytime hours (7 a.m.-10 p.m.) at the ambient measurement sites presented in Table 2. Category 2 applies the L_{dn} since these receivers may be impacted by nighttime (10 p.m.-7 a.m.) train events.

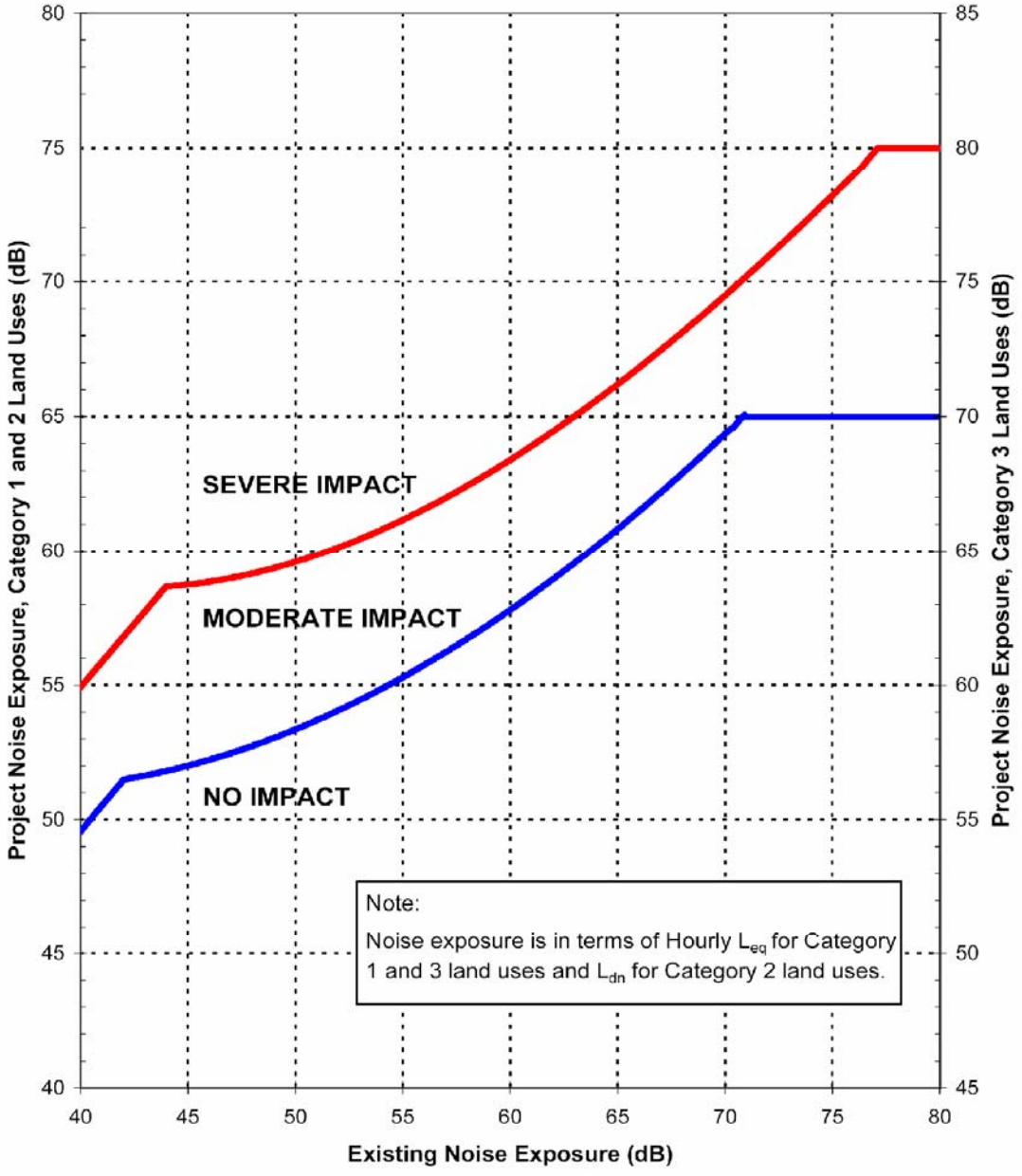
Subjectively speaking, a "moderate impact" is generally noticeable to most people but may not be sufficient to cause strong, adverse reactions from the community. A "severe impact" would likely produce a high percentage of highly annoyed people in the community.

Train Operations – General Plan Standards

As discussed above, the project extends through parts of Mendocino, Sonoma, Marin, and Napa Counties. The project would directly affect people/properties within the communities of Willits, Ukiah, Hopland, Cloverdale, Healdsburg, Windsor, Santa Rosa, Rohnert Park/Cotati, Petaluma, and Novato. Each of these communities offer transportation-related noise exposure limits within their respective General Plan Noise Element. Most of the affected jurisdictions – with the exception of the City of Cotati – applies a "normally acceptable" transportation noise exposure limit of 60 dB L_{dn} for noise-sensitive receptors (i.e., residential). In some cases, a "conditionally acceptable" level of up to 70 dB L_{dn} may be allowed if the 60 dB L_{dn} criterion cannot be met with reasonable planning or construction efforts. It is our understanding that the City of Cotati has established a "normally acceptable" limit of 65 dB L_{dn}.

Figure 4

FTA Noise Impact Criteria
NCRA RRD Freight Rail Project



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Project Construction/Maintenance

To the best of our knowledge, no standardized noise exposure criteria currently exist to address short-term construction noise exposure. Construction noise is generally not regulated due to its necessity and relatively short duration. It is generally regarded as a short-term nuisance for nearby receivers unless levels are high enough to produce adverse health effects. To address the issue of potential health effects, the FTA/FRA, as presented in Chapter 12 of the FTA Guidance Manual, proposes the basic construction noise level limits presented in Table 4. It is assumed that these levels would be applied at outdoor recreations areas or where people would congregate.

Table 4

Proposed FTA/FRA Construction Noise Criteria

Land Use	Hourly L_{eq} (dB)	
	Daytime (7 a.m.-10 p.m.)	Nighttime (10 p.m.-7 a.m.)
Residential	90	80
Commercial	100	100
Industrial	100	100

Source: FTA Guidance Manual, Chapter 12

Ground-Borne Vibration

Train Operations

Based on extensive research involving human subjective reaction to ground-borne vibration produced by passenger train operations, the FTA and FRA have established ground-borne vibration impact limits as summarized in Table 5. A more detailed explanation of the standards is provided within Chapter 8 of the FTA Guidance Manual.

Table 5

Ground-Borne Vibration Impact Criteria (Frequent Train Events) – FTA/FRA Guidelines

Land Use Category	Vibration Level (VdB re 1 µinch/sec)	Vibration Velocity (max RMS, inches/sec)
1 – High Sensitivity[1]	65	0.0018
2 – Residential[2]	72	0.0040
3 – Institutional[3]	75	0.0056

[1] Buildings where low ambient vibration is essential for interior operations (e.g., vibration-sensitive research and manufacturing, hospital research areas, concert halls, TV/recording studios).

[2] Residences and buildings where people would sleep (e.g., all residential, hospital patient rooms, hotels).

[3] Institutional land uses with primarily daytime use (e.g., schools, churches, commercial offices).

Please note that vibration-sensitive land uses are split into three primary categories in order of sensitivity. These categories should not to be confused with the categories specified in Figure 4 for airborne noise. One should also note that the "frequent event" criteria are applied for this project due to the extended duration of individual freight train events relative to individual passenger train (SMART) events, and not due to the total number of daily operations. This approach is recommended by the FTA/FRA, and is considered to be a conservative assessment of project-related train vibration.

Project Construction/Maintenance

Like airborne noise produced by short-term construction or maintenance operations associated with the project, ground-borne vibration associated with these activities is generally considered to be a nuisance, and is accepted and not limited. The exception to this general rule occurs when the vibration is potentially strong enough to create structural damage to nearby buildings. In these cases, the FTA/FRA have developed general construction vibration damage criteria as summarized in Table 6. See Chapter 12 of the FTA Guidance Manual for more detail regarding this topic.

Table 6

Construction Vibration Damage Criteria – FTA/FRA Guidelines

Building Category	PPV (in/sec)	Approximate L_v (VdB)*
I. Reinforced concrete, steel, or timber (no plaster/stucco)	0.5000	102
II. Engineered concrete and masonry (no plaster/stucco)	0.3000	98
III. Non-engineered timber and masonry	0.2000	94
IV. Buildings extremely susceptible to vibration damage (e.g., historic)	0.1200	90

* Calculations assume a crest factor of 4 (i.e., PPV/RMS velocity = 4). Vibration level or velocity level (VdB) re 1 µinch/sec.

Please note that the construction vibration criteria in Table 6 are in terms of peak particle velocity (PPV) not the root-mean squared (RMS) velocity used to evaluate vibration associated with train operations/events.

AIRBORNE NOISE EXPOSURE ASSESSMENTS

As mentioned in the Environmental Setting section above, this project focuses primarily on long-term noise/vibration exposure associated with proposed continuous rail activity in the project area; that is, noise/vibration exposure associated with main freight and commuter/passenger (SMART) train movements on the NCRA RRD line. Construction noise/vibration associated with the project is discussed in general terms.

This study does not attempt to predict noise/vibrations exposure associated with freight operations on spur lines or sidings, and does not address noise/vibration associated with any train maintenance activities. Noise and vibration exposure associated with other SMART operations and

facilities (e.g., stations, park-and-ride, buses, maintenance, etc.) is addressed in the 2006 SMART EIR, and is not discussed in the following.

Reference Freight Train Noise Level Measurements

Bollard Acoustical Consultants, Inc. staff completed reference freight train noise level measurements at several locations in Placer County, California during the months of November and December, 2007. Noise level measurements of Union Pacific Railroad (UPRR) freight trains were recorded in the Cities of Lincoln and Auburn at locations illustrated in Figure 5.

Figure 5

Reference Noise and Vibration Measurement Locations
NCRA RRD Freight Rail Project

The reference noise level measurements were recorded using Larson-Davis Laboratories (LDL) Model 820 precision integrating sound level meters equipped with LDL Model 2560 ½" microphones. The meters were calibrated before use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute (ANSI) for Type 1 (precision) sound level meters (ANSI S1.4).

The reference noise level measurements were taken at a distance of 50 feet from the center of the tracks. The track at all measurement locations was continuous welded rail. The measurement microphones were placed approximately 5 feet above the ground, and within ±3 feet of the track elevations. Weather conditions during the measurement sessions included temperatures of 30-45º F, calm-light winds, and moderate humidity.

A total of 18 freight train events were recorded during the measurement sessions. Train speeds ranged from approximately 15-50 mph, with an average speed of approximately 35 mph. Freight train locomotives (engines) and cars were measured independently for each train passby. The average train locomotive and car produced a sound exposure level (SEL) of approximately 94 dB and 90 dB, respectively, at a distance of 50 feet from the center of the tracks. Using the FTA methodology presented below, the recorded noise levels were adjusted to a normalized train speed of 50 mph, producing SELs of approximately 96 dB and 85 dB for individual freight locomotives and cars, respectively. These levels were used in the modeling of project-related freight train noise exposure.

FTA/FRA Train Noise Modeling – Project Train Noise

Modeling of proposed freight and SMART train pass-bys on the project rail was completed using the methodology documented in Chapters 5 and 6 of the FTA's Guidance Manual. This methodology has been adopted by the FRA. The modeling methodology applied is as follows.

1. Establish reference noise levels for locomotives, rail cars, DMUs, and warning horns at a distance of 50 feet from the center of the tracks. Levels for locomotives and cars were established through reference measurements to be 96 dB SEL and 85 dB SEL, respectively, as discussed above. The reference SEL for DMU's was established in the 2006 SMART EIR to be 84 dB at 50 feet. Levels of 108 dB SEL and 105 dB SEL were assumed for warning horns at 50 feet from the grade crossing and ½-Zone points, respectively. In this case, the warning horn "zone" is assumed to include ¼-mile (1,320 feet) on each side of a given grade crossing. More details regarding warning horn noise exposure and its modeling are presented below.

2. Collect data regarding track type. For this project all track is assumed to be jointed except for the SMART section of the track which would be upgraded to welded rail under the project alternative. A majority of the track witnessed during our project rail inspection was jointed.

3. Collect operations data including total number of train operations (events/pass-bys); number of locomotives, cars, or DMUs; train speeds; and day/night distribution of operations.

4. Using the reference and operations data (1-3) and the equations summarized in Table 7

(see Table 6-4 of the FTA's Guidance Manual), calculate Hourly L_{eq} and L_{dn} noise exposure at a distance of 50 feet from the tracks.

5. Based on the established ambient noise level data, determine the moderate impact and severe impact noise levels/thresholds using Figure 4.

6. Assuming a sound propagation attenuation rate of -4.5 dB per doubling of distance from the tracks (accounting for cylindrical divergence and ground absorption appropriate for a moving point source), determine the locations of the noise contours (i.e., moderate impact, severe impact, and General Plan criteria).

Table 7

Train Noise Modeling Computation Equations – FTA/FRA Guidelines

Locomotives Hourly L_{eq} at 50 feet:	$L_{eqL}(h) = SEL_{ref} + 10\log(N_{locomotives}) - 10\log\left(\frac{S}{50}\right) + 10\log(V) - 35.6$
Rail Cars Hourly L_{eq} at 50 feet:	$L_{eqC}(h) = SEL_{ref} + 10\log(N_{cars}) + 20\log\left(\frac{S}{50}\right) + 10\log(V) - 35.6 + 5$ *Note: The +5 dB accounts for additional noise from jointed rail*
Warning Horns Hourly L_{eq} at 50 feet:	$L_{eqH}(h) = SEL_{ref} - 10\log\left(\frac{S}{50}\right) + 10\log(V) - 35.6$
Combined Hourly L_{eq} at 50 feet:	$L_{eq}(h) = 10\log\left[10^{\left(L_{eqL}/10\right)} + 10^{\left(L_{eqC}/10\right)} + 10^{\left(L_{eqH}/10\right)}\right]$
Daytime L_{eq} at 50 feet:	$L_{eq}(day) = L_{eq}(h)\Big\|_{V=V_d}$
Nighttime L_{eq} at 50 feet:	$L_{eq}(night) = L_{eq}(h)\Big\|_{V=V_n}$
L_{dn} at 50 feet:	$L_{dn} = 10\log\left[15 \cdot 10^{\left(L_{eq}(day)/10\right)} + 9 \cdot 10^{\left(L_{eq}(night)+10/10\right)}\right] - 13.8$

SEL_{ref} = Reference sound exposure level

$N_{locomotives}$ = average number of locomotives per train

N_{cars} = average number of cars per train

S = train speed in miles per hour (MPH)

V = average hourly volume of train traffic

V_d = average hourly daytime (7 a.m.-10 p.m.) volume of train traffic

V_n = average hourly nighttime (10 p.m.-7 a.m.) volume of train traffic

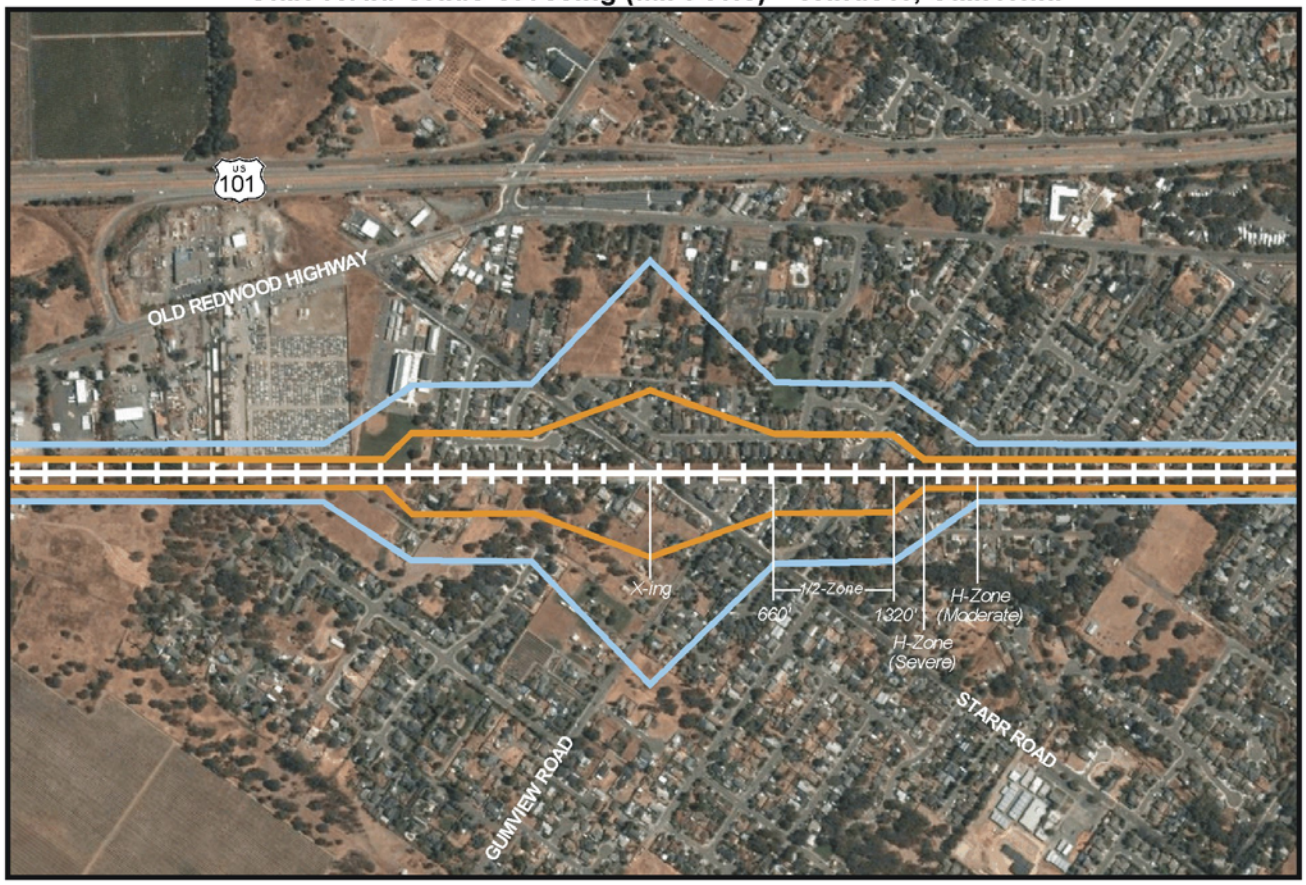
Source: FTA Guidance Manual, Chapter 6

Train-related noise exposure was calculated based on operations data provided by the NCRA, SMART, and Kleinfelder for both freight and SMART train operations. A summary of the input modeling information is presented as Appendix A. Appendices B-E represents summaries of the modeling results for proposed NCRA freight and cumulative NCRA freight + SMART train operations on the project rail line – including operations with warning horns (i.e., at grade crossings) and those without warning horn noise (i.e., between grade crossings). Please note that the addition of SMART trains to the project, and the track improvements provided as a result, would allow for higher freight train speeds on sections of the track between Ignacio (M.P. 25.9) and Cloverdale (M.P. 84.5). The noise modeling and contours do not reflect the effects of atmospherics (e.g., winds, inversions) or topographic or structural shielding (e.g., buildings, barriers). In this case we have conservatively assessed project-related noise exposure since these effects would tend to impede sound propagation and mitigate noise exposure.

With respect to train warning horn noise exposure, FRA field measurements have shown that warning horns are generally sounded using intermittent, short bursts between ¼- and ⅛-mile from the grade crossing. This area is referred to at the "½-Zone" in this report. As the train approaches the grade crossing, the horn is generally sounded with more continuous and louder bursts. With respect to the modeling of train warning horn noise exposure, an SEL of 108 dB at 50 feet perpendicular to the tracks is assumed at the grade crossing. This level decreases linearly to a level of 105 dB SEL in the ½-Zone area (i.e., between 660-1,320 feet from the crossing) at 50 feet perpendicular to the tracks. Finally the warning horn noise exposure is assumed to decrease at a rate of -4.5 dB per doubling of distance along the track until the "no horn" noise exposure is intersected. The distance along the tracks between the grade crossing and the intersection of the "horn" and "no horn" noise contours is referred to as the "H-Zone" distance in this report. Again, train noise modeling input data is summarized in Appendix A. Results of the train warning horn noise modeling is summarized in Appendices C and E. For reference purposes, FTA/FRA Category 2 (residential) train warning horn noise exposure at the Starr Road grade crossing in Windsor, California is presented as Figure 6. The applicable noise exposure contours for any location along the project tracks may be plotted using the appendix data and Figure 6. Formal plotting of the project noise exposure contours is currently beyond the scope of this project.

Figure 6

Example of Train Warning Horn Noise Exposure (Cumulative Impacts)
NCRA RRD Freight Rail Project
Starr Road Grade Crossing (M.P. 63.8) – Windsor, California



BOLLARD Acoustical Consultants

: FTA/FRA Category 2 Moderate Impact Zone Contour

: FTA/FRA Category 2 Severe Impact Zone Contour

250' 750'
0 500' 1,000'

The data presented in Appendices B-E indicate that the project would produce moderate-severe impacts at nearby noise-sensitive uses/receivers over a majority of the project corridor. Residential receivers near any project grade crossing would likely be impacted by project train warning horns.

Project Construction/Maintenance Noise

Airborne noise from construction equipment associated with project construction and maintenance would be expected to add to the noise environment in the immediate project vicinity. Activities included in project construction/maintenance would likely generate maximum noise levels ranging from 76-101 dB at a distance of 50 feet. Reference construction equipment noise levels are summarized in Table 8. Construction activities would be temporary in nature and would generally occur during normal daytime working hours (7 a.m.-6 p.m.). Still, existing residences located in the vicinity of the construction areas could be impacted by this noise.

Table 8

Reference Construction Equipment Noise Emission Levels

Construction Equipment	Noise Exposure Level, dB L_{max} @ 50 Feet
Air Compressor	78-81
Backhoe	78-80
Ballast Equalizer	82
Ballast Tamper	83
Compactor	82-83
Concrete Mixer (Truck)	79-85
Concrete Pump (Truck)	81-82
Concrete Vibrator	76-80
Crane	81-88
Dozer	82-85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88-89
Loader	79-85
Paver	77-89
Pile Driver (Impact)	101
Pneumatic Tool	85
Pump	76-81
Rail Saw	90
Rock Drill	81-98
Roller	74-80
Saw	76
Scarifier	83-90
Scraper	84-89
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Heavy Diesel Truck	88

Sources: FTA Guidance Manual (Chapter 12), FHWA RCNM V.1.00

Noise would also be generated during the construction phases by increased truck traffic on local area roadways and construction rail traffic on the NCRA RRD tracks. A potentially significant project-generated noise source would be truck and rail traffic associated with the transport of heavy materials and equipment to and from the construction sites.

Based on the construction equipment noise levels presented in Table 8 and a noise attenuation of -6 dB per doubling of distance from the construction noise source(s), it may be expected that project-related construction/maintenance noise could impact residential receivers within 175 feet of the activities. That is, project-related construction/maintenance noise, assuming operation of the loudest equipment (e.g., 101 dB at 50 feet), could be expected to exceed 90 dB L_{eq} at distances within 175 feet of the construction/maintenance activities.

Existing Noise Mitigation

Project-related noise exposure, as described above, was estimated with no adjustments for acoustical shielding from existing building/wall structures. A specific barrier analysis for every location where this type of shielding currently exists is beyond the scope of this work. More site-specific analyses would be required to determine the noise mitigation performance of existing building structures or property-line noise barriers within the project corridor.

Although more detailed study would be required to accurately define the noise-mitigation performance of existing barriers, it may be expected that property-line noise barriers measuring at least 6 feet high above the tracks would provide no less than 6 dB of noise attenuation where not affected by train warning horns (i.e., more than ¼-mile from a grade crossing). The performance of existing noise barriers near grade crossings is significantly reduced due to the height of the train warning horn(s) relative to barrier and receiver heights.

GROUND-BORNE VIBRATION ASSESSMENTS

Reference Freight Train Ground-Borne Vibration Levels

Bollard Acoustical Consultants, Inc. staff completed reference freight train vibration level measurements at two locations in Auburn, California (Placer County) during the months of November and December, 2007. Vibration levels produced by UPRR freight trains were recorded at the two Auburn, California sites as illustrated in Figure 5.

The reference vibration level measurements were recorded using an LDL Model HVM 100 vibration meter equipped with a PCB Piezotronics, Inc. accelerometer. The equipment used meets all pertinent specifications of the International Organization for Standardization (ISO) for Type 1 (precision) vibration measurement equipment (ISO 8041).

The reference vibration level measurements were taken at a distance of 50 feet from the center of the tracks. The track at all measurement locations was welded rail. The measurement accelerometer was attached rigidly to a ¼" steel stake (½" head) which had been hammered into the ground to a depth of approximately 1 foot. The accelerometer was attached to the head of the stake using an adhesive. The head of the stake and measurement accelerometer was no more than 4 inches above the ground and ±3 feet of the track elevations for all measurements. Weather conditions during the measurement sessions included temperatures of 30-45º F, calm-light winds, and moderate humidity.

A total of eight freight and passenger (AmTrak) train events were recorded during the measurement sessions. Train speeds ranged from approximately 15-35 mph. Maximum measured root-mean-square (RMS) train vibration levels ranged from approximately 0.0049-0.0080 inch/sec. at a distance of 50 feet from the center of the tracks. These values translate to decibel vibration velocity levels (L_v) of approximately 74-78 VdB (re 1 µinch/sec.). Therefore, at a distance of 50 feet from the tracks, it can be expected that the FTA/FRA 65-75 VdB criteria (Table 5) would be exceeded.

Project Train Vibration

Assuming a vibration level of 78 VdB at 50 feet from the tracks and a reduction in vibration level of -6 VdB per doubling of distance from the tracks, the 65 VdB vibration velocity impact contour for an individual freight train event and Category 1 receiver would be approximately 225 feet from the tracks. The 72 VdB (Category 2-Residential) and 75 VdB (Category 3) contours would be approximately 100 feet and 70 feet from the tracks, respectively. Please see Table 5 above for the applicable impact criteria. It is expected that corresponding land uses within these contours would be impacted by long-term, ground-borne freight train vibration. It is our opinion that this is a conservative assessment of the areas that would be impacted by ground-borne vibration associated with the long-term operation of proposed project freight trains.

The assessment of impact with respect to vibration produced by train operations is not a function of potential damage to building structures, but is related to the subjective reaction and requirements for vibration-sensitive receivers and uses.

Project Construction/Maintenance Vibration

Rehabilitation of the project track, grade crossings, and other ancillary structures – in addition to the day-to-day maintenance of the rail corridor – would be expected to introduce ground-borne vibration into the surrounding areas. Project construction/maintenance operations could produce vibration levels as-high-as 105 VdB at a distance of 25 feet. Examples of construction equipment vibration production are provided in Table 9.

Based on the reference levels presented in Table 9 and a reduction of -6 VdB per doubling of distance from the construction equipment source(s), daytime construction vibration levels could impact residential structures (Category III, Table 6) at distances of no more than 90 feet from the source(s). Extremely sensitive structures (Category IV) may be impacted at distances within 140 feet of the construction source(s).

Table 9

Vibration Source Levels for Construction Equipment

Equipment	PPV at 25 Feet (in/sec)	Approximate L_v, VdB at 25 Feet*
Pile Driver (Impact)	0.6440-1.5180	104-112
Pile Driver (Sonic)	0.1700-0.7340	93-105
Clam Shovel Drop	0.2020	94
Hydromill	0.0080-0.0170	66-75
Large Dozer	0.0890	87
Caisson Drilling	0.0890	87
Loaded Trucks	0.0760	86
Jackhammer	0.0350	79
Small Dozer	0.0030	58

* Calculations assume a crest factor of 4 (i.e., PPV/RMS velocity = 4). Vibration level or velocity level (VdB) re 1 µinch/sec.

IMPACTS AND MITIGATION MEASURES

Impact 1: Project Freight Train Noise

Noise exposure generated by project freight train operations is expressed in terms of the noise exposure contour information presented in Appendices B and C. Based on this data, the project would be expected to produce at least a moderate level of impact at noise-sensitive uses directly adjacent to the tracks. The project-related noise impact increases substantially near grade crossings due to the use of train warning horns. As shown in Appendix C, severe impact contours encompass residential uses within approximately700 feet of the tracks (Category 2) along some sections of the line. This impact is considered significant.

Mitigation 1

Project-related freight train warning horns at grade crossings would produce the highest noise exposure levels and impact the largest number of noise-sensitive uses when compared to any other project-related noise source. The application of "Quiet Zones" in the most populated areas of the project corridor would significantly reduce freight train noise exposure and the number of impacted uses and people.

Although the potential application of Quiet Zones along portions of the project corridor would help to reduce the number impacted by the project, it would not mitigate noise exposure to a less than significant level in all areas. Noise exposure produced by freight train events without the warning horn would still produce a moderate noise exposure impact at many residential uses within approximately 375 feet of the tracks, with severe impacts within approximately 150 feet of the tracks in some sections (see Appendix B).

No additional mitigation measures are known or recommended at this time. Therefore, this impact is considered significant and unavoidable.

Impact 2: Cumulative Train Noise (Project Alternative)

Noise exposure generated by proposed cumulative NCRA freight and SMART passenger train operations is expressed in terms of the noise exposure contour information presented in Appendices D and E. Based on this data, the project would be expected to produce at least a moderate level of impact at noise-sensitive uses directly adjacent to the tracks. The project-related noise impact increases substantially near grade crossings due to the use of train warning horns. As shown in Appendix E, moderate impact contours encompass residential uses within approximately 1,300 feet of the tracks (Category 2) along some sections of the line. This impact is considered significant.

Mitigation 2

Train warning horns at grade crossings would produce the highest noise exposure levels and impact the largest number of noise-sensitive uses when compared to any other project-related noise source. The application of Quiet Zones in the most populated areas of the project corridor would significantly reduce cumulative train noise exposure and the number of impacted uses and people.

Although the potential application of Quiet Zones along portions of the project corridor would help to reduce the number impacted by the project, this measure would not mitigate noise exposure to a less than significant level. Noise exposure produced by cumulative train events without the warning horn would still produce a moderate impact at many residential uses within approximately 400 feet of the tracks, with severe impacts within approximately 170 feet of the tracks in some sections (see Appendix D).

No additional mitigation measures are known or recommended at this time. Therefore, this impact is considered significant and unavoidable.

Impact 3: Project Freight Train Vibration

As presented above, it is expected that adjacent uses with high sensitivity to ground-borne vibration (Category 1) could be impacted by the project train operations if they are within 225 feet of the tracks. Likewise, residential uses (Category 2) could be impacted by vibration produced by the project freight trains within 100 feet of the tracks, and institutional uses (Category 3) could be impacted if they are within 70 feet of the tracks. For this project, it is believed that a significant number of residential uses lie within 100 feet of the project tracks, and may be impacted by long-term operations of project freight trains. Therefore, this impact is considered to be significant.

Mitigation 3

The project would provide significant improvements to the rail and rail structure. These improvements may reduce the production of ground-borne vibration from train operations. Still, ground-borne vibration produced by freight train operations in the most populated areas of the project may exceed the applicable criteria at the closest vibration-sensitive receivers, especially residential receivers within a 100 foot setback of the tracks.

No other mitigation efforts are known or recommended at this time. Therefore, the project-related impact regarding ground-borne vibration from long-term freight train operations is considered significant and unavoidable.

Impact 4: Project Construction/Maintenance Noise

As presented above, project rehabilitation and maintenance construction would introduce additional noise into the surrounding environments. It is anticipated that this noise exposure could significantly impact residential receivers (outdoors) within 175 feet of the construction/maintenance activities. This impact is potentially significant.

Mitigation 4

To mitigate this potentially significant impact, we recommend that the project contractor(s) survey the construction areas for residential and other noise-sensitive outdoor receivers adjacent to the construction sites. If noise-sensitive receivers are within the specified distance, alternative construction equipment/practices may be necessary to mitigate potentially damaging noise levels. A qualified acoustical consultant may be contracted to provide site-specific analyses, recommendations and/or monitoring to mitigate this potentially significant impact.

Results of the proposed mitigation efforts described above regarding project construction/maintenance noise exposure would be expected to result in a less than significant project-related impact.

Impact 5: Project Construction/Maintenance Vibration

As presented above, project rehabilitation and maintenance construction would introduce ground vibration into the surrounding areas. It is anticipated that this vibration could significantly affect

residential structures within 90 feet of the construction and extremely sensitive structures within 140 feet of the construction. This impact is potentially significant.

Mitigation 5

To mitigate this potentially significant impact, we recommend that the project contractor(s) survey the construction areas for residential and extremely sensitive structures near the construction sites. If vibration-sensitive structures are within the distances specified above, alternative construction equipment/practices may be necessary to mitigate potential building structure damage. A qualified acoustical consultant may be contracted to provide site-specific analyses, recommendations, and/or monitoring to mitigate this potentially significant impact.

Results of the proposed mitigation efforts described above regarding project construction/maintenance vibration would be expected to result in a less than significant project-related impact.

This concludes our Environmental Noise Assessment for the NCRA RRD Freight Rail project. Please contact me at (530) 745-0550 or jasonm@bacnoise.com if you have any questions or require additional information.

Appendix A
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – Input Data

City		Crossing Street Name	Mile Post	Distance (Miles)	Speed (mph)	Number of Trains			Number of Locomotives			Number of Cars		
						Day	Night	Total	Day	Night	Total	Day	Night	Total
Lombard	1	Green Island Rd.	0.8	0.75	20	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	2	Milton Rd.	3.0	2.29	10	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	3	Skaggs Island Rd.	6.7	3.65	35	5.0	1.0	6.0	8.0	2.0	10	230	60	290
Shellville	4	Cameros Hwy.	10.6	3.88	15	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	5	Redding Rd.	13.6	3.06	35	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	6	Sears Point Rd.	18.1	4.45	35	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	7	Reclamation Rd.	20.1	2.06	35	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	8	Private	20.5	0.39	35	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	9	Port Sonoma Rd.	21.8	1.28	35	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	10	Grandview Ave.	22.9	1.05	10	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	11	Parking lot access	23.1	0.23	10	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	12	Stone Tree Ln.	23.3	0.17	10	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	13	Private	24.5	1.24	35	5.0	1.0	6.0	8.0	2.0	10	230	60	290
Ignacio	14	Hanna Ranch Rd.	25.9	1.40	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	15	Possible crossing near Franklin Ave.	27.5	1.56	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	16	Grant Ave.	27.9	0.44	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
Novato	17	Olive Ave.	28.1	0.20	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	18	Golden Gate Place	28.4	0.25	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	19	Rush Creek Place	28.5	0.15	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	20	County Dump Rd.	32.0	3.48	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	21	Caulfield Ln.	38.1	6.12	25	5.0	1.0	6.0	8.0	2.0	10	230	60	290
Petaluma	22	D St.	38.5	0.40	25	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	23	Washington St.	38.6	0.10	25	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	24	Madison St.	38.8	0.20	25	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	25	W. Payran St.	39.2	0.40	25	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	26	South Point Blvd.	40.4	1.20	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	27	N. McDowell Blvd.	40.7	0.30	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	28	Corona Rd.	41.1	0.40	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	29	Ely Rd.	42.2	1.10	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	30	Main St.	43.3	1.10	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	31	Adobe Rd.	43.6	0.30	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	32	E. Railroad Ave.	44.8	1.20	25	5.0	1.0	6.0	8.0	2.0	10	230	60	290
Cotati	33	E. Cotati Ave.	46.1	1.30	25	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	34	Southwest Blvd.	46.8	0.70	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	35	Possible crossing near Carlita Cir.	46.9	0.10	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	36	Rohnert Park Expy.	47.4	0.50	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	37	Golf Course Dr.	48.5	1.10	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	38	Scenic Ave.	49.4	0.90	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	39	Todd Rd.	50.3	0.90	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	40	W. Robles Ave.	50.8	0.50	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	41	Bellvue Ave.	51.3	0.50	40	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	42	Hearn Ave.	52.2	0.90	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	43	W Barham Ave.	53.0	0.80	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	44	Sebastopol Rd.	53.4	0.40	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Santa Rosa	45	3rd St.	53.7	0.30	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	46	6th St.	53.8	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	47	7th St.	53.9	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	48	8th St.	54.0	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	49	9th St.	54.1	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	50	College Ave.	54.4	0.30	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	51	Guerneville Rd.	55.3	0.90	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	52	W. Steele Ln.	55.6	0.30	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	53	Piner Rd.	56.3	0.70	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	54	San Miguel Ave.	56.8	0.50	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	55	Fulton Rd.	58.5	1.70	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170

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						Day	Night	Total	Day	Night	Total	Day	Night	Total
	56	River Rd.	58.8	0.30	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	57	Airport Blvd.	59.9	1.10	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	58	Aviation Blvd.	60.2	0.30	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	59	Shiloh Rd.	61.1	0.90	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	60	Mitchell Ln.	61.7	0.60	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Windsor	61	Windsor River Rd.	62.9	1.20	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	62	Starr Rd.	63.8	0.90	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Grant	63	Limerick Ln.	66.2	2.40	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	64	Grant Ave.	66.9	0.70	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	65	Bailhache Ave.	67.4	0.50	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Healdsburg	66	Front St.	67.7	0.30	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	67	Mill St.	68.2	0.50	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	68	Matheson St.	68.4	0.20	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	69	W. North St.	68.5	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	70	Grant St.	68.8	0.30	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	71	Dry Creek Rd.	69.5	0.70	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	72	Grove St.	70.3	0.80	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	73	Parking lot access near Parkland Farms Blvd.	70.5	0.20	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	74	Site Access near Passalacqua Rd.	70.9	0.35	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	75	Lytton Springs Rd.	71.9	1.05	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Geyserville	76	State Highway 128	75.8	3.90	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	77	Washington School Rd.	80.9	5.10	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	78	Kelly Rd.	83.2	2.26	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	79	Asti Rd.	84.5	1.34	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	80	Possible crossing near Railroad Ave.	85.3	0.80	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Cloverdale	81	E. 1st St.	85.4	0.10	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	1.06	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
County Line		Not a crossing	89.6	3.14	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Hopland	83	State Highway 175	99.9	10.30	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	84	Henry Station Rd.	105.8	5.90	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	85	Norgard Ln.	111.7	5.90	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	86	Commerce Dr.	112.9	1.20	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	87	State Highway 222	113.0	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	88	E. Gobbi St.	113.6	0.60	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Ukiah	89	E. Perkins St.	114.0	0.40	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	90	Clara Ave.	114.4	0.40	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	91	Ford St.	114.5	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	92	Brush St.	114.6	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	93	Ford Rd.	115.2	0.60	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	94	Masonite Truck Rd.	115.7	0.50	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	95	Hollow Tree Rd.	115.9	0.20	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	96	Lake Mendocino Dr.	117.0	1.10	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	97	Moore St.	119.8	2.80	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Redwood Valley	98	E. School Way	122.1	2.30	40	4.0	0.0	4.0	6.0	0.0	6	140	0	140
	99	Laughlin Way	123.0	0.90	20	4.0	0.0	4.0	6.0	0.0	6	140	0	140
	100	E. Hill Road	123.9	0.90	25	4.0	0.0	4.0	6.0	0.0	6	140	0	140
	101	E. Valley Road	137.8	13.90	25	4.0	0.0	4.0	6.0	0.0	6	140	0	140
Willits	102	E. Commercial St.	139.5	1.70	25	4.0	0.0	4.0	6.0	0.0	6	140	0	140
End of line		Not a crossing	142.5	3.00	25	4.0	0.0	4.0	6.0	0.0	6	140	0	140

Appendix A
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (With Track Improvements) – Input Data

City		Crossing Street Name	Mile Post	Distance (Miles)	Speed (mph)	Number of Trains			Number of Locomotives			Number of Cars		
						Day	Night	Total	Day	Night	Total	Day	Night	Total
Lombard	1	Green Island Rd.	0.8	0.75	20	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	2	Milton Rd.	3.0	2.29	10	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	3	Skaggs Island Rd.	6.7	3.65	35	5.0	1.0	6.0	8.0	2.0	10	230	60	290
Shellville	4	Cameros Hwy.	10.6	3.88	15	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	5	Redding Rd.	13.6	3.06	35	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	6	Sears Point Rd.	18.1	4.45	35	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	7	Reclamation Rd.	20.1	2.06	35	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	8	Private	20.5	0.39	35	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	9	Port Sonoma Rd.	21.8	1.28	35	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	10	Grandview Ave.	22.9	1.05	10	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	11	Parking lot access	23.1	0.23	10	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	12	Stone Tree Ln.	23.3	0.17	10	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	13	Private	24.5	1.24	35	5.0	1.0	6.0	8.0	2.0	10	230	60	290
Ignacio	14	Hanna Ranch Rd.	25.9	1.40	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	15	Possible crossing near Franklin Ave.	27.5	1.56	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	16	Grant Ave.	27.9	0.44	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
Novato	17	Olive Ave.	28.1	0.20	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	18	Golden Gate Place	28.4	0.25	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	19	Rush Creek Place	28.5	0.15	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	20	County Dump Rd.	32.0	3.48	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	21	Caulfield Ln.	38.1	6.12	25	5.0	1.0	6.0	8.0	2.0	10	230	60	290
Petaluma	22	D St.	38.5	0.40	25	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	23	Washington St.	38.6	0.10	25	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	24	Madison St.	38.8	0.20	25	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	25	W. Payran St.	39.2	0.40	25	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	26	South Point Blvd.	40.4	1.20	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	27	N. McDowell Blvd.	40.7	0.30	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	28	Corona Rd.	41.1	0.40	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	29	Ely Rd.	42.2	1.10	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	30	Main St.	43.3	1.10	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	31	Adobe Rd.	43.6	0.30	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	32	E. Railroad Ave.	44.8	1.20	25	5.0	1.0	6.0	8.0	2.0	10	230	60	290
Cotati	33	E. Cotati Ave.	46.1	1.30	25	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	34	Southwest Blvd.	46.8	0.70	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	35	Possible crossing near Carlita Cir.	46.9	0.10	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	36	Rohnert Park Expy.	47.4	0.50	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	37	Golf Course Dr.	48.5	1.10	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	38	Scenic Ave.	49.4	0.90	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	39	Todd Rd.	50.3	0.90	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	40	W. Robles Ave.	50.8	0.50	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	41	Bellvue Ave.	51.3	0.50	50	5.0	1.0	6.0	8.0	2.0	10	230	60	290
	42	Hearn Ave.	52.2	0.90	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	43	W Barham Ave.	53.0	0.80	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	44	Sebastopol Rd.	53.4	0.40	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Santa Rosa	45	3rd St.	53.7	0.30	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	46	6th St.	53.8	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	47	7th St.	53.9	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	48	8th St.	54.0	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	49	9th St.	54.1	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	50	College Ave.	54.4	0.30	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	51	Guerneville Rd.	55.3	0.90	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	52	W. Steele Ln.	55.6	0.30	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	53	Piner Rd.	56.3	0.70	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	54	San Miguel Ave.	56.8	0.50	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	55	Fulton Rd.	58.5	1.70	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170

Appendix A
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (With Track Improvements) – Input Data

City		Crossing Street Name	Mile Post	Distance (Miles)	Speed (mph)	Number of Trains			Number of Locomotives			Number of Cars		
						Day	Night	Total	Day	Night	Total	Day	Night	Total
	56	River Rd.	58.8	0.30	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	57	Airport Blvd.	59.9	1.10	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	58	Aviation Blvd.	60.2	0.30	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	59	Shiloh Rd.	61.1	0.90	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	60	Mitchell Ln.	61.7	0.60	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Windsor	61	Windsor River Rd.	62.9	1.20	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	62	Starr Rd.	63.8	0.90	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Grant	63	Limerick Ln.	66.2	2.40	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	64	Grant Ave.	66.9	0.70	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	65	Bailhache Ave.	67.4	0.50	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Healdsburg	66	Front St.	67.7	0.30	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	67	Mill St.	68.2	0.50	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	68	Matheson St.	68.4	0.20	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	69	W. North St.	68.5	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	70	Grant St.	68.8	0.30	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	71	Dry Creek Rd.	69.5	0.70	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	72	Grove St.	70.3	0.80	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	73	Parking lot access near Parkland Farms Blvd.	70.5	0.20	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	74	Site Access near Passalacqua Rd.	70.9	0.35	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	75	Lytton Springs Rd.	71.9	1.05	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Geyserville	76	State Highway 128	75.8	3.90	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	77	Washington School Rd.	80.9	5.10	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	78	Kelly Rd.	83.2	2.26	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	79	Asti Rd.	84.5	1.34	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	80	Possible crossing near Railroad Ave.	85.3	0.80	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Cloverdale	81	E. 1st St.	85.4	0.10	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	1.06	50	4.0	0.0	4.0	6.0	0.0	6	170	0	170
County Line		Not a crossing	89.6	3.14	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Hopland	83	State Highway 175	99.9	10.30	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	84	Henry Station Rd.	105.8	5.90	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	85	Norgard Ln.	111.7	5.90	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	86	Commerce Dr.	112.9	1.20	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	87	State Highway 222	113.0	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	88	E. Gobbi St.	113.6	0.60	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Ukiah	89	E. Perkins St.	114.0	0.40	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	90	Clara Ave.	114.4	0.40	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	91	Ford St.	114.5	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	92	Brush St.	114.6	0.10	25	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	93	Ford Rd.	115.2	0.60	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	94	Masonite Truck Rd.	115.7	0.50	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	95	Hollow Tree Rd.	115.9	0.20	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	96	Lake Mendocino Dr.	117.0	1.10	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
	97	Moore St.	119.8	2.80	40	4.0	0.0	4.0	6.0	0.0	6	170	0	170
Redwood Valley	98	E. School Way	122.1	2.30	40	4.0	0.0	4.0	6.0	0.0	6	140	0	140
	99	Laughlin Way	123.0	0.90	20	4.0	0.0	4.0	6.0	0.0	6	140	0	140
	100	E. Hill Road	123.9	0.90	25	4.0	0.0	4.0	6.0	0.0	6	140	0	140
	101	E. Valley Road	137.8	13.90	25	4.0	0.0	4.0	6.0	0.0	6	140	0	140
Willits	102	E. Commercial St.	139.5	1.70	25	4.0	0.0	4.0	6.0	0.0	6	140	0	140
End of line		Not a crossing	142.5	3.00	25	4.0	0.0	4.0	6.0	0.0	6	140	0	140

Appendix A
NCRA RRD Freight Rail Project
SMART Noise Modeling – Input Data

City		Crossing Street Name	Mile Post	Distance (Miles)	Speed (mph)	Number of Trains				Number of DMUs		
						Day	Night	Total	Peak Hour	Day	Night	Total
Ignacio	14	Hanna Ranch Rd.	25.9	1.40	35	19	5	24	4	38	10	48
	15	Possible crossing near Franklin Ave.	27.5	1.56	35	19	5	24	4	38	10	48
	16	Grant Ave.	27.9	0.44	35	19	5	24	4	38	10	48
Novato	17	Olive Ave.	28.1	0.20	35	19	5	24	4	38	10	48
	18	Golden Gate Place	28.4	0.25	35	19	5	24	4	38	10	48
	19	Rush Creek Place	28.5	0.15	53	19	5	24	4	38	10	48
	20	County Dump Rd.	32.0	3.48	53	19	5	24	4	38	10	48
	21	Caulfield Ln.	38.1	6.12	53	19	5	24	4	38	10	48
Petaluma	22	D St.	38.5	0.20	20	19	5	24	3	38	10	48
	23	Washington St.	38.6	0.10	20	19	5	24	3	38	10	48
	24	Madison St.	38.8	0.20	20	19	5	24	3	38	10	48
	25	W. Payran St.	39.2	0.40	20	19	5	24	3	38	10	48
	26	South Point Blvd.	40.4	1.20	20	19	5	24	3	38	10	48
	27	N. McDowell Blvd.	40.7	0.30	20	19	5	24	3	38	10	48
	28	Corona Rd.	41.1	0.40	45	22	2	24	4	44	4	48
	29	Ely Rd.	42.2	1.10	45	22	2	24	4	44	4	48
	30	Main St.	43.3	1.10	45	22	2	24	4	44	4	48
	31	Adobe Rd.	43.6	0.30	45	22	2	24	4	44	4	48
	32	E. Railroad Ave.	44.8	1.20	45	22	2	24	4	44	4	48
Cotati	33	E. Cotati Ave.	46.1	1.30	41	21	3	24	4	42	6	48
	34	Southwest Blvd.	46.8	0.70	41	21	3	24	4	42	6	48
	35	Possible crossing near Carlita Cir.	46.9	0.10	41	21	3	24	4	42	6	48
	36	Rohnert Park Expy.	47.4	0.50	41	21	3	24	4	42	6	48
	37	Golf Course Dr.	48.5	1.10	38	21	3	24	4	42	6	48
	38	Scenic Ave.	49.4	0.90	38	21	3	24	4	42	6	48
	39	Todd Rd.	50.3	0.90	38	21	3	24	4	42	6	48
	40	W. Robles Ave.	50.8	0.50	38	21	3	24	4	42	6	48
	41	Bellvue Ave.	51.3	0.50	38	21	3	24	4	42	6	48
	42	Hearn Ave.	52.2	0.90	38	21	3	24	4	42	6	48
	43	W Barham Ave.	53.0	0.80	38	21	3	24	4	42	6	48
	44	Sebastopol Rd.	53.4	0.40	38	21	3	24	4	42	6	48
Santa Rosa	45	3rd St.	53.7	0.30	38	21	3	24	4	42	6	48
	46	6th St.	53.8	0.10	30	21	3	24	4	42	6	48
	47	7th St.	53.9	0.10	30	21	3	24	4	42	6	48
	48	8th St.	54.0	0.10	30	21	3	24	4	42	6	48
	49	9th St.	54.1	0.10	30	21	3	24	4	42	6	48
	50	College Ave.	54.4	0.30	30	21	3	24	4	42	6	48
	51	Guerneville Rd.	55.3	0.90	50	21	3	24	4	42	6	48
	52	W. Steele Ln.	55.6	0.30	50	21	3	24	4	42	6	48
	53	Piner Rd.	56.3	0.70	50	21	3	24	4	42	6	48
	54	San Miguel Ave.	56.8	0.50	50	21	3	24	4	42	6	48
	55	Fulton Rd.	58.5	1.70	50	21	3	24	4	42	6	48
	56	River Rd.	58.8	0.30	50	21	3	24	4	42	6	48
	57	Airport Blvd.	59.9	1.10	50	21	3	24	4	42	6	48
	58	Aviation Blvd.	60.2	0.30	50	21	3	24	4	42	6	48
	59	Shiloh Rd.	61.1	0.90	50	21	3	24	4	42	6	48
	60	Mitchell Ln.	61.7	0.60	50	21	3	24	4	42	6	48
Windsor	61	Windsor River Rd.	62.9	1.20	43	21	3	24	4	42	6	48
	62	Starr Rd.	63.8	0.90	43	15	1	16	4	30	2	32
Grant	63	Limerick Ln.	66.2	2.40	43	15	1	16	4	30	2	32
	64	Grant Ave.	66.9	0.70	43	15	1	16	4	30	2	32
	65	Bailhache Ave.	67.4	0.50	43	15	1	16	4	30	2	32
Healdsburg	66	Front St.	67.7	0.30	43	15	1	16	4	30	2	32
	67	Mill St.	68.2	0.50	55	7	1	8	1	14	2	16

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NCRA RRD Freight Rail Project
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City		Crossing Street Name	Mile Post	Distance (Miles)	Speed (mph)	Number of Trains				Number of DMUs		
						Day	Night	Total	Peak Hour	Day	Night	Total
	68	Matheson St.	68.4	0.20	55	7	1	8	1	14	2	16
	69	W. North St.	68.5	0.10	55	7	1	8	1	14	2	16
	70	Grant St.	68.8	0.30	55	7	1	8	1	14	2	16
	71	Dry Creek Rd.	69.5	0.70	55	7	1	8	1	14	2	16
	72	Grove St.	70.3	0.80	55	7	1	8	1	14	2	16
	73	Parking lot access near Parkland Farms Blvd.	70.5	0.20	55	7	1	8	1	14	2	16
	74	Site Access near Passalacqua Rd.	70.9	0.35	55	7	1	8	1	14	2	16
	75	Lytton Springs Rd.	71.9	1.05	55	7	1	8	1	14	2	16
Geyserville	76	State Highway 128	75.8	3.90	55	7	1	8	1	14	2	16
	77	Washington School Rd.	80.9	5.10	55	7	1	8	1	14	2	16
	78	Kelly Rd.	83.2	2.26	55	7	1	8	1	14	2	16
	79	Asti Rd.	84.5	1.34	55	7	1	8	1	14	2	16

Appendix B
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – No Horn

City		Crossing Street Name	Mile Post	Existing Ambient	FTA Category 1			
					Moderate Impact		Severe Impact	
				L_{eq}	L_{eq}	Contour	L_{eq}	Contour
Lombard	1	Green Island Rd.	0.8	52	54	455	60	179
	2	Milton Rd.	3	52	54	553	60	218
	3	Skaggs Island Rd.	6.7	52	54	600	60	236
Shellville	4	Cameros Hwy.	10.6	52	54	468	60	184
	5	Redding Rd.	13.6	52	54	600	60	236
	6	Sears Point Rd.	18.1	53	54	565	60	225
	7	Reclamation Rd.	20.1	53	54	565	60	225
	8	Private	20.5	53	54	565	60	225
	9	Port Sonoma Rd.	21.8	53	54	565	60	225
	10	Grandview Ave.	22.9	53	54	521	60	207
	11	Parking lot access	23.1	53	54	521	60	207
	12	Stone Tree Ln.	23.3	53	54	521	60	207
	13	Private	24.5	53	54	565	60	225
Ignacio	14	Hanna Ranch Rd.	25.9	61	58	201	64	86
	15	Possible crossing near Franklin Ave.	27.5	61	58	201	64	86
	16	Grant Ave.	27.9	61	58	201	64	86
Novato	17	Olive Ave.	28.1	61	58	201	64	86
	18	Golden Gate Place	28.4	61	58	201	64	86
	19	Rush Creek Place	28.5	61	58	201	64	86
	20	County Dump Rd.	32	61	58	201	64	86
	21	Caulfield Ln.	38.1	48	53	433	59	162
Petaluma	22	D St.	38.5	48	53	433	59	162
	23	Washington St.	38.6	48	53	433	59	162
	24	Madison St.	38.8	48	53	433	59	162
	25	W. Payran St.	39.2	48	53	433	59	162
	26	South Point Blvd.	40.4	60	58	219	63	93
	27	N. McDowell Blvd.	40.7	60	58	219	63	93
	28	Corona Rd.	41.1	60	58	219	63	93
	29	Ely Rd.	42.2	57	56	279	62	115
	30	Main St.	43.3	57	56	279	62	115
	31	Adobe Rd.	43.6	57	56	279	62	115
	32	E. Railroad Ave.	44.8	50	53	394	60	151
Cotati	33	E. Cotati Ave.	46.1	53	54	333	60	133
	34	Southwest Blvd.	46.8	53	54	366	60	146
	35	Possible crossing near Carlita Cir.	46.9	53	54	366	60	146
	36	Rohnert Park Expy.	47.4	53	54	366	60	146
	37	Golf Course Dr.	48.5	53	54	366	60	146
	38	Scenic Ave.	49.4	57	56	279	62	115
	39	Todd Rd.	50.3	57	56	279	62	115
	40	W. Robles Ave.	50.8	57	56	279	62	115
	41	Bellvue Ave.	51.3	57	56	279	62	115
	42	Hearn Ave.	52.2	63	60	167	65	72
	43	W Barham Ave.	53	63	60	167	65	72
	44	Sebastopol Rd.	53.4	63	60	152	65	66
Santa Rosa	45	3rd St.	53.7	63	60	152	65	66
	46	6th St.	53.8	63	60	152	65	66
	47	7th St.	53.9	63	60	152	65	66
	48	8th St.	54	63	60	152	65	66
	49	9th St.	54.1	63	60	152	65	66
	50	College Ave.	54.4	63	60	152	65	66
	51	Guerneville Rd.	55.3	63	60	167	65	72
	52	W. Steele Ln.	55.6	63	60	167	65	72
	53	Piner Rd.	56.3	53	54	366	60	146
	54	San Miguel Ave.	56.8	53	54	366	60	146

Appendix B
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – No Horn

City		Crossing Street Name	Mile Post	Existing Ambient	FTA Category 1			
					Moderate Impact		Severe Impact	
				L_{eq}	L_{eq}	Contour	L_{eq}	Contour
	55	Fulton Rd.	58.5	53	54	366	60	146
	56	River Rd.	58.8	53	54	366	60	146
	57	Airport Blvd.	59.9	44	52	549	59	192
	58	Aviation Blvd.	60.2	44	52	549	59	192
	59	Shiloh Rd.	61.1	44	52	549	59	192
	60	Mitchell Ln.	61.7	44	52	549	59	192
Windsor	61	Windsor River Rd.	62.9	49	53	455	59	172
	62	Starr Rd.	63.8	49	53	455	59	172
Grant	63	Limerick Ln.	66.2	49	53	455	59	172
	64	Grant Ave.	66.9	49	53	455	59	172
	65	Bailhache Ave.	67.4	49	53	455	59	172
Healdsburg	66	Front St.	67.7	49	53	414	59	157
	67	Mill St.	68.2	49	53	414	59	157
	68	Matheson St.	68.4	49	53	414	59	157
	69	W. North St.	68.5	49	53	414	59	157
	70	Grant St.	68.8	49	53	455	59	172
	71	Dry Creek Rd.	69.5	52	54	389	60	153
	72	Grove St.	70.3	52	54	389	60	153
	73	Parking lot access near Parkland Farms Blvd.	70.5	52	54	389	60	153
	74	Site Access near Passalacqua Rd.	70.9	52	54	389	60	153
	75	Lytton Springs Rd.	71.9	49	53	455	59	172
Geyserville	76	State Highway 128	75.8	53	54	366	60	146
	77	Washington School Rd.	80.9	53	54	366	60	146
	78	Kelly Rd.	83.2	43	52	564	58	221
	79	Asti Rd.	84.5	43	52	564	58	221
	80	Possible crossing near Railroad Ave.	85.3	43	52	985	58	386
Cloverdale	81	E. 1st St.	85.4	43	52	985	58	386
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	43	52	985	58	386
County Line		Not a crossing	89.6	43	52	698	58	274
Hopland	83	State Highway 175	99.9	52	54	680	60	267
	84	Henry Station Rd.	105.8	52	54	680	60	267
	85	Norgard Ln.	111.7	51	54	719	60	279
	86	Commerce Dr.	112.9	51	54	510	60	198
	87	State Highway 222	113	51	54	510	60	198
	88	E. Gobbi St.	113.6	51	54	510	60	198
Ukiah	89	E. Perkins St.	114	51	54	510	60	198
	90	Clara Ave.	114.4	53	54	454	60	181
	91	Ford St.	114.5	53	54	454	60	181
	92	Brush St.	114.6	53	54	454	60	181
	93	Ford Rd.	115.2	53	54	640	60	255
	94	Masonite Truck Rd.	115.7	53	54	640	60	255
	95	Hollow Tree Rd.	115.9	53	54	640	60	255
	96	Lake Mendocino Dr.	117	53	54	640	60	255
	97	Moore St.	119.8	53	54	640	60	255
Redwood Valley	98	E. School Way	122.1	53	54	640	60	255
	99	Laughlin Way	123	53	54	429	60	171
	100	E. Hill Road	123.9	51	54	510	60	198
	101	E. Valley Road	137.8	51	54	510	60	198
Willits	102	E. Commercial St.	139.5	51	54	510	60	198
End of line		Not a crossing	142.5	51	54	510	60	198

Appendix B
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – No Horn

City		Crossing Street Name	Mile Post	Existing Ambient	FTA Category 2			
					Moderate Impact		Severe Impact	
				L_{dn}	L_{dn}	Contour	L_{dn}	Contour
Lombard	1	Green Island Rd.	0.8	61	58	164	64	70
	2	Milton Rd.	3	61	58	200	64	85
	3	Skaggs Island Rd.	6.7	61	58	215	64	92
Shellville	4	Cameros Hwy.	10.6	61	58	169	64	72
	5	Redding Rd.	13.6	61	58	215	64	92
	6	Sears Point Rd.	18.1	54	55	368	61	148
	7	Reclamation Rd.	20.1	54	55	368	61	148
	8	Private	20.5	54	55	368	61	148
	9	Port Sonoma Rd.	21.8	54	55	368	61	148
	10	Grandview Ave.	22.9	54	55	342	61	137
	11	Parking lot access	23.1	54	55	342	61	137
	12	Stone Tree Ln.	23.3	54	55	342	61	137
	13	Private	24.5	54	55	368	61	148
Ignacio	14	Hanna Ranch Rd.	25.9	64	60	106	66	46
	15	Possible crossing near Franklin Ave.	27.5	64	60	106	66	46
	16	Grant Ave.	27.9	64	60	106	66	46
Novato	17	Olive Ave.	28.1	64	60	106	66	46
	18	Golden Gate Place	28.4	64	60	106	66	46
	19	Rush Creek Place	28.5	64	60	106	66	46
	20	County Dump Rd.	32	64	60	106	66	46
	21	Caulfield Ln.	38.1	53	54	232	60	92
Petaluma	22	D St.	38.5	53	54	232	60	92
	23	Washington St.	38.6	53	54	232	60	92
	24	Madison St.	38.8	53	54	232	60	92
	25	W. Payran St.	39.2	53	54	232	60	92
	26	South Point Blvd.	40.4	66	61	86	67	38
	27	N. McDowell Blvd.	40.7	66	61	86	67	38
	28	Corona Rd.	41.1	66	61	86	67	38
	29	Ely Rd.	42.2	67	62	78	67	35
	30	Main St.	43.3	67	62	78	67	35
	31	Adobe Rd.	43.6	67	62	78	67	35
	32	E. Railroad Ave.	44.8	58	57	164	62	68
Cotati	33	E. Cotati Ave.	46.1	59	57	151	63	63
	34	Southwest Blvd.	46.8	58	57	179	62	75
	35	Possible crossing near Carlita Cir.	46.9	58	57	179	62	75
	36	Rohnert Park Expy.	47.4	58	57	179	62	75
	37	Golf Course Dr.	48.5	58	57	179	62	75
	38	Scenic Ave.	49.4	65	61	96	66	42
	39	Todd Rd.	50.3	65	61	96	66	42
	40	W. Robles Ave.	50.8	65	61	96	66	42
	41	Bellvue Ave.	51.3	65	61	96	66	42
	42	Hearn Ave.	52.2	71	65	17	70	8
	43	W Barham Ave.	53	71	65	17	70	8
	44	Sebastopol Rd.	53.4	67	62	25	67	11
Santa Rosa	45	3rd St.	53.7	67	62	25	67	11
	46	6th St.	53.8	67	62	25	67	11
	47	7th St.	53.9	67	62	25	67	11
	48	8th St.	54	67	62	25	67	11
	49	9th St.	54.1	67	62	25	67	11
	50	College Ave.	54.4	67	62	25	67	11
	51	Guerneville Rd.	55.3	67	62	27	67	12
	52	W. Steele Ln.	55.6	67	62	27	67	12
	53	Piner Rd.	56.3	55	55	79	61	32
	54	San Miguel Ave.	56.8	55	55	79	61	32

Appendix B
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – No Horn

				Existing Ambient	FTA Category 2			
					Moderate Impact		Severe Impact	
City		Crossing Street Name	Mile Post	L_{dn}	L_{dn}	Contour	L_{dn}	Contour
	55	Fulton Rd.	58.5	55	55	79	61	32
	56	River Rd.	58.8	55	55	79	61	32
	57	Airport Blvd.	59.9	49	53	111	59	42
	58	Aviation Blvd.	60.2	49	53	111	59	42
	59	Shiloh Rd.	61.1	49	53	111	59	42
	60	Mitchell Ln.	61.7	49	53	111	59	42
Windsor	61	Windsor River Rd.	62.9	52	54	95	60	37
	62	Starr Rd.	63.8	52	54	95	60	37
Grant	63	Limerick Ln.	66.2	51	54	101	60	39
	64	Grant Ave.	66.9	51	54	101	60	39
	65	Bailhache Ave.	67.4	51	54	101	60	39
Healdsburg	66	Front St.	67.7	51	54	93	60	36
	67	Mill St.	68.2	51	54	93	60	36
	68	Matheson St.	68.4	51	54	93	60	36
	69	W. North St.	68.5	51	54	93	60	36
	70	Grant St.	68.8	51	54	101	60	39
	71	Dry Creek Rd.	69.5	55	55	79	61	32
	72	Grove St.	70.3	55	55	79	61	32
	73	Parking lot access near Parkland Farms Blvd.	70.5	55	55	79	61	32
	74	Site Access near Passalacqua Rd.	70.9	55	55	79	61	32
	75	Lytton Springs Rd.	71.9	51	54	101	60	39
Geyserville	76	State Highway 128	75.8	59	57	58	63	24
	77	Washington School Rd.	80.9	59	57	58	63	24
	78	Kelly Rd.	83.2	50	53	106	60	41
	79	Asti Rd.	84.5	50	53	106	60	41
	80	Possible crossing near Railroad Ave.	85.3	50	53	184	60	70
Cloverdale	81	E. 1st St.	85.4	50	53	184	60	70
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	50	53	184	60	70
County Line		Not a crossing	89.6	50	53	132	60	51
Hopland	83	State Highway 175	99.9	55	55	136	61	55
	84	Henry Station Rd.	105.8	55	55	136	61	55
	85	Norgard Ln.	111.7	57	56	118	62	49
	86	Commerce Dr.	112.9	57	56	85	62	35
	87	State Highway 222	113	57	56	85	62	35
	88	E. Gobbi St.	113.6	57	56	85	62	35
Ukiah	89	E. Perkins St.	114	57	56	85	62	35
	90	Clara Ave.	114.4	57	56	85	62	35
	91	Ford St.	114.5	57	56	85	62	35
	92	Brush St.	114.6	57	56	85	62	35
	93	Ford Rd.	115.2	57	56	118	62	49
	94	Masonite Truck Rd.	115.7	57	56	118	62	49
	95	Hollow Tree Rd.	115.9	57	56	118	62	49
	96	Lake Mendocino Dr.	117	57	56	118	62	49
	97	Moore St.	119.8	57	56	118	62	49
Redwood Valley	98	E. School Way	122.1	57	56	106	62	44
	99	Laughlin Way	123	57	56	77	62	32
	100	E. Hill Road	123.9	56	56	85	62	35
	101	E. Valley Road	137.8	56	56	85	62	35
Willits	102	E. Commercial St.	139.5	56	56	85	62	35
End of line		Not a crossing	142.5	56	56	85	62	35

Appendix B
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – No Horn

City		Crossing Street Name	Mile Post	Existing Ambient	FTA Category 3			
					Moderate Impact		Severe Impact	
				L_{eq}	L_{eq}	Contour	L_{eq}	Contour
Lombard	1	Green Island Rd.	0.8	52	59	211	65	83
	2	Milton Rd.	3	52	59	257	65	101
	3	Skaggs Island Rd.	6.7	52	59	279	65	110
Shellville	4	Cameros Hwy.	10.6	52	59	217	65	85
	5	Redding Rd.	13.6	52	59	279	65	110
	6	Sears Point Rd.	18.1	53	59	262	65	104
	7	Reclamation Rd.	20.1	53	59	262	65	104
	8	Private	20.5	53	59	262	65	104
	9	Port Sonoma Rd.	21.8	53	59	262	65	104
	10	Grandview Ave.	22.9	53	59	242	65	96
	11	Parking lot access	23.1	53	59	242	65	96
	12	Stone Tree Ln.	23.3	53	59	242	65	96
	13	Private	24.5	53	59	262	65	104
Ignacio	14	Hanna Ranch Rd.	25.9	61	63	93	69	40
	15	Possible crossing near Franklin Ave.	27.5	61	63	93	69	40
	16	Grant Ave.	27.9	61	63	93	69	40
Novato	17	Olive Ave.	28.1	61	63	93	69	40
	18	Golden Gate Place	28.4	61	63	93	69	40
	19	Rush Creek Place	28.5	61	63	93	69	40
	20	County Dump Rd.	32	61	63	93	69	40
	21	Caulfield Ln.	38.1	48	58	201	64	75
Petaluma	22	D St.	38.5	48	58	201	64	75
	23	Washington St.	38.6	48	58	201	64	75
	24	Madison St.	38.8	48	58	201	64	75
	25	W. Payran St.	39.2	48	58	201	64	75
	26	South Point Blvd.	40.4	60	63	102	68	43
	27	N. McDowell Blvd.	40.7	60	63	102	68	43
	28	Corona Rd.	41.1	60	63	102	68	43
	29	Ely Rd.	42.2	57	61	129	67	53
	30	Main St.	43.3	57	61	129	67	53
	31	Adobe Rd.	43.6	57	61	129	67	53
	32	E. Railroad Ave.	44.8	50	58	183	65	70
Cotati	33	E. Cotati Ave.	46.1	53	59	155	65	62
	34	Southwest Blvd.	46.8	53	59	170	65	68
	35	Possible crossing near Carlita Cir.	46.9	53	59	170	65	68
	36	Rohnert Park Expy.	47.4	53	59	170	65	68
	37	Golf Course Dr.	48.5	53	59	170	65	68
	38	Scenic Ave.	49.4	57	61	129	67	53
	39	Todd Rd.	50.3	57	61	129	67	53
	40	W. Robles Ave.	50.8	57	61	129	67	53
	41	Bellvue Ave.	51.3	57	61	129	67	53
	42	Hearn Ave.	52.2	63	65	78	70	34
	43	W Barham Ave.	53	63	65	78	70	34
	44	Sebastopol Rd.	53.4	63	65	71	70	31
Santa Rosa	45	3rd St.	53.7	63	65	71	70	31
	46	6th St.	53.8	63	65	71	70	31
	47	7th St.	53.9	63	65	71	70	31
	48	8th St.	54	63	65	71	70	31
	49	9th St.	54.1	63	65	71	70	31
	50	College Ave.	54.4	63	65	71	70	31
	51	Guerneville Rd.	55.3	63	65	78	70	34
	52	W. Steele Ln.	55.6	63	65	78	70	34
	53	Piner Rd.	56.3	53	59	170	65	68
	54	San Miguel Ave.	56.8	53	59	170	65	68

Appendix B
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – No Horn

City		Crossing Street Name	Mile Post	Existing Ambient	FTA Category 3			
					Moderate Impact		Severe Impact	
				L_{eq}	L_{eq}	Contour	L_{eq}	Contour
	55	Fulton Rd.	58.5	53	59	170	65	68
	56	River Rd.	58.8	53	59	170	65	68
	57	Airport Blvd.	59.9	44	57	255	64	89
	58	Aviation Blvd.	60.2	44	57	255	64	89
	59	Shiloh Rd.	61.1	44	57	255	64	89
	60	Mitchell Ln.	61.7	44	57	255	64	89
Windsor	61	Windsor River Rd.	62.9	49	58	211	64	80
	62	Starr Rd.	63.8	49	58	211	64	80
Grant	63	Limerick Ln.	66.2	49	58	211	64	80
	64	Grant Ave.	66.9	49	58	211	64	80
	65	Bailhache Ave.	67.4	49	58	211	64	80
Healdsburg	66	Front St.	67.7	49	58	192	64	73
	67	Mill St.	68.2	49	58	192	64	73
	68	Matheson St.	68.4	49	58	192	64	73
	69	W. North St.	68.5	49	58	192	64	73
	70	Grant St.	68.8	49	58	211	64	80
	71	Dry Creek Rd.	69.5	52	59	181	65	71
	72	Grove St.	70.3	52	59	181	65	71
	73	Parking lot access near Parkland Farms Blvd.	70.5	52	59	181	65	71
	74	Site Access near Passalacqua Rd.	70.9	52	59	181	65	71
	75	Lytton Springs Rd.	71.9	49	58	211	64	80
Geyserville	76	State Highway 128	75.8	53	59	170	65	68
	77	Washington School Rd.	80.9	53	59	170	65	68
	78	Kelly Rd.	83.2	43	57	262	63	103
	79	Asti Rd.	84.5	43	57	262	63	103
	80	Possible crossing near Railroad Ave.	85.3	43	57	457	63	179
Cloverdale	81	E. 1st St.	85.4	43	57	457	63	179
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	43	57	457	63	179
County Line		Not a crossing	89.6	43	57	324	63	127
Hopland	83	State Highway 175	99.9	52	59	315	65	124
	84	Henry Station Rd.	105.8	52	59	315	65	124
	85	Norgard Ln.	111.7	51	59	334	65	130
	86	Commerce Dr.	112.9	51	59	237	65	92
	87	State Highway 222	113	51	59	237	65	92
	88	E. Gobbi St.	113.6	51	59	237	65	92
Ukiah	89	E. Perkins St.	114	51	59	237	65	92
	90	Clara Ave.	114.4	53	59	211	65	84
	91	Ford St.	114.5	53	59	211	65	84
	92	Brush St.	114.6	53	59	211	65	84
	93	Ford Rd.	115.2	53	59	297	65	118
	94	Masonite Truck Rd.	115.7	53	59	297	65	118
	95	Hollow Tree Rd.	115.9	53	59	297	65	118
	96	Lake Mendocino Dr.	117	53	59	297	65	118
	97	Moore St.	119.8	53	59	297	65	118
Redwood Valley	98	E. School Way	122.1	53	59	297	65	118
	99	Laughlin Way	123	53	59	199	65	79
	100	E. Hill Road	123.9	51	59	237	65	92
	101	E. Valley Road	137.8	51	59	237	65	92
Willits	102	E. Commercial St.	139.5	51	59	237	65	92
End of line		Not a crossing	142.5	51	59	237	65	92

City		Crossing Street Name	Mile Post	L_{dn} Contours, Feet		
				60	65	70
Lombard	1	Green Island Rd.	0.8	127	59	27
	2	Milton Rd.	3	155	72	33
	3	Skaggs Island Rd.	6.7	167	78	36
Shellville	4	Cameros Hwy.	10.6	131	61	28
	5	Redding Rd.	13.6	167	78	36
	6	Sears Point Rd.	18.1	167	78	36
	7	Reclamation Rd.	20.1	167	78	36
	8	Private	20.5	167	78	36
	9	Port Sonoma Rd.	21.8	167	78	36
	10	Grandview Ave.	22.9	155	72	33
	11	Parking lot access	23.1	155	72	33
	12	Stone Tree Ln.	23.3	155	72	33
	13	Private	24.5	167	78	36
Ignacio	14	Hanna Ranch Rd.	25.9	109	50	23
	15	Possible crossing near Franklin Ave.	27.5	109	50	23
	16	Grant Ave.	27.9	109	50	23
Novato	17	Olive Ave.	28.1	109	50	23
	18	Golden Gate Place	28.4	109	50	23
	19	Rush Creek Place	28.5	109	50	23
	20	County Dump Rd.	32	109	50	23
	21	Caulfield Ln.	38.1	99	46	21
Petaluma	22	D St.	38.5	99	46	21
	23	Washington St.	38.6	99	46	21
	24	Madison St.	38.8	99	46	21
	25	W. Payran St.	39.2	99	46	21
	26	South Point Blvd.	40.4	109	50	23
	27	N. McDowell Blvd.	40.7	109	50	23
	28	Corona Rd.	41.1	109	50	23
	29	Ely Rd.	42.2	109	50	23
	30	Main St.	43.3	109	50	23
	31	Adobe Rd.	43.6	109	50	23
	32	E. Railroad Ave.	44.8	99	46	21
Cotati	33	E. Cotati Ave.	46.1	99	46	21
	34	Southwest Blvd.	46.8	109	50	23
	35	Possible crossing near Carlita Cir.	46.9	109	50	23
	36	Rohnert Park Expy.	47.4	109	50	23
	37	Golf Course Dr.	48.5	109	50	23
	38	Scenic Ave.	49.4	109	50	23
	39	Todd Rd.	50.3	109	50	23
	40	W. Robles Ave.	50.8	109	50	23
	41	Bellvue Ave.	51.3	109	50	23
	42	Hearn Ave.	52.2	38	18	8
	43	W Barham Ave.	53	38	18	8
	44	Sebastopol Rd.	53.4	35	16	8
Santa Rosa	45	3rd St.	53.7	35	16	8
	46	6th St.	53.8	35	16	8
	47	7th St.	53.9	35	16	8
	48	8th St.	54	35	16	8
	49	9th St.	54.1	35	16	8
	50	College Ave.	54.4	35	16	8
	51	Guerneville Rd.	55.3	38	18	8
	52	W. Steele Ln.	55.6	38	18	8
	53	Piner Rd.	56.3	38	18	8
	54	San Miguel Ave.	56.8	38	18	8
	55	Fulton Rd.	58.5	38	18	8
	56	River Rd.	58.8	38	18	8
	57	Airport Blvd.	59.9	38	18	8
	58	Aviation Blvd.	60.2	38	18	8
	59	Shiloh Rd.	61.1	38	18	8

Appendix B
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – No Horn

City		Crossing Street Name	Mile Post	L_{dn} Contours, Feet 60	65	70
	60	Mitchell Ln.	61.7	38	18	8
Windsor	61	Windsor River Rd.	62.9	38	18	8
	62	Starr Rd.	63.8	38	18	8
Grant	63	Limerick Ln.	66.2	38	18	8
	64	Grant Ave.	66.9	38	18	8
	65	Bailhache Ave.	67.4	38	18	8
Healdsburg	66	Front St.	67.7	35	16	8
	67	Mill St.	68.2	35	16	8
	68	Matheson St.	68.4	35	16	8
	69	W. North St.	68.5	35	16	8
	70	Grant St.	68.8	38	18	8
	71	Dry Creek Rd.	69.5	38	18	8
	72	Grove St.	70.3	38	18	8
	73	Parking lot access near Parkland Farms Blvd.	70.5	38	18	8
	74	Site Access near Passalacqua Rd.	70.9	38	18	8
	75	Lytton Springs Rd.	71.9	38	18	8
Geyserville	76	State Highway 128	75.8	38	18	8
	77	Washington School Rd.	80.9	38	18	8
	78	Kelly Rd.	83.2	38	18	8
	79	Asti Rd.	84.5	38	18	8
	80	Possible crossing near Railroad Ave.	85.3	66	31	14
Cloverdale	81	E. 1st St.	85.4	66	31	14
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	66	31	14
County Line		Not a crossing	89.6	47	22	10
Hopland	83	State Highway 175	99.9	66	31	14
	84	Henry Station Rd.	105.8	66	31	14
	85	Norgard Ln.	111.7	66	31	14
	86	Commerce Dr.	112.9	47	22	10
	87	State Highway 222	113	47	22	10
	88	E. Gobbi St.	113.6	47	22	10
Ukiah	89	E. Perkins St.	114	47	22	10
	90	Clara Ave.	114.4	47	22	10
	91	Ford St.	114.5	47	22	10
	92	Brush St.	114.6	47	22	10
	93	Ford Rd.	115.2	66	31	14
	94	Masonite Truck Rd.	115.7	66	31	14
	95	Hollow Tree Rd.	115.9	66	31	14
	96	Lake Mendocino Dr.	117	66	31	14
	97	Moore St.	119.8	66	31	14
Redwood Valley	98	E. School Way	122.1	60	28	13
	99	Laughlin Way	123	43	20	9
	100	E. Hill Road	123.9	44	21	10
	101	E. Valley Road	137.8	44	21	10
Willits	102	E. Commercial St.	139.5	44	21	10
End of line		Not a crossing	142.5	44	21	10

Appendix C
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – With Horn

					Category 1							
				Existing Ambient	Moderate Impact				Severe Impact			
							Contour				Contour	
City		Crossing Street Name	Mile Post	L_{eq}	L_{eq}	H-Zone	1/2-Zone	X-ing	L_{eq}	H-Zone	1/2-Zone	X-ing
Lombard	1	Green Island Rd.	0.8	52	54	2039	851	1699	60	1603	335	668
	2	Milton Rd.	3	52	54	2421	1232	2615	60	1753	485	1028
	3	Skaggs Island Rd.	6.7	52	54	1874	817	1342	60	1538	321	528
Shellville	4	Cameros Hwy.	10.6	52	54	2172	972	2017	60	1655	382	793
	5	Redding Rd.	13.6	52	54	1874	817	1342	60	1538	321	528
	6	Sears Point Rd.	18.1	53	54	1842	770	1265	60	1528	306	503
	7	Reclamation Rd.	20.1	53	54	1842	770	1265	60	1528	306	503
	8	Private	20.5	53	54	1842	770	1265	60	1528	306	503
	9	Port Sonoma Rd.	21.8	53	54	1842	770	1265	60	1528	306	503
	10	Grandview Ave.	22.9	53	54	2357	1161	2463	60	1733	462	980
	11	Parking lot access	23.1	53	54	2357	1161	2463	60	1733	462	980
	12	Stone Tree Ln.	23.3	53	54	2357	1161	2463	60	1733	462	980
	13	Private	24.5	53	54	1842	770	1265	60	1528	306	503
Ignacio	14	Hanna Ranch Rd.	25.9	61	58	1566	318	583	64	1425	135	248
	15	Possible crossing near Franklin Ave.	27.5	61	58	1566	318	583	64	1425	135	248
	16	Grant Ave.	27.9	61	58	1566	318	583	64	1425	135	248
Novato	17	Olive Ave.	28.1	61	58	1566	318	583	64	1425	135	248
	18	Golden Gate Place	28.4	61	58	1566	318	583	64	1425	135	248
	19	Rush Creek Place	28.5	61	58	1566	318	583	64	1425	135	248
	20	County Dump Rd.	32	61	58	1566	318	583	64	1425	135	248
	21	Caulfield Ln.	38.1	48	53	2068	864	1769	59	1599	323	661
Petaluma	22	D St.	38.5	48	53	2068	864	1769	59	1599	323	661
	23	Washington St.	38.6	48	53	2068	864	1769	59	1599	323	661
	24	Madison St.	38.8	48	53	2068	864	1769	59	1599	323	661
	25	W. Payran St.	39.2	48	53	2068	864	1769	59	1599	323	661
	26	South Point Blvd.	40.4	60	58	1588	346	635	63	1433	147	269
	27	N. McDowell Blvd.	40.7	60	58	1588	346	635	63	1433	147	269
	28	Corona Rd.	41.1	60	58	1588	346	635	63	1433	147	269
	29	Ely Rd.	42.2	57	56	1661	441	808	62	1461	182	334
	30	Main St.	43.3	57	56	1661	441	808	62	1461	182	334
	31	Adobe Rd.	43.6	57	56	1661	441	808	62	1461	182	334
	32	E. Railroad Ave.	44.8	50	53	2001	787	1610	60	1581	302	618
Cotati	33	E. Cotati Ave.	46.1	53	54	1895	665	1361	60	1549	264	541
	34	Southwest Blvd.	46.8	53	54	1768	579	1062	60	1498	230	422
	35	Possible crossing near Carlita Cir.	46.9	53	54	1768	579	1062	60	1498	230	422
	36	Rohnert Park Expy.	47.4	53	54	1768	579	1062	60	1498	230	422
	37	Golf Course Dr.	48.5	53	54	1768	579	1062	60	1498	230	422
	38	Scenic Ave.	49.4	57	56	1661	441	808	62	1461	182	334
	39	Todd Rd.	50.3	57	56	1661	441	808	62	1461	182	334
	40	W. Robles Ave.	50.8	57	56	1661	441	808	62	1461	182	334
	41	Bellvue Ave.	51.3	57	56	1661	441	808	62	1461	182	334
	42	Hearn Ave.	52.2	63	60	1525	264	485	65	1409	114	210
	43	W Barham Ave.	53	63	60	1525	264	485	65	1409	114	210
	44	Sebastopol Rd.	53.4	63	60	1583	304	622	65	1434	131	269
Santa Rosa	45	3rd St.	53.7	63	60	1583	304	622	65	1434	131	269
	46	6th St.	53.8	63	60	1583	304	622	65	1434	131	269
	47	7th St.	53.9	63	60	1583	304	622	65	1434	131	269
	48	8th St.	54	63	60	1583	304	622	65	1434	131	269
	49	9th St.	54.1	63	60	1583	304	622	65	1434	131	269
	50	College Ave.	54.4	63	60	1583	304	622	65	1434	131	269
	51	Guerneville Rd.	55.3	63	60	1525	264	485	65	1409	114	210
	52	W. Steele Ln.	55.6	63	60	1525	264	485	65	1409	114	210
	53	Piner Rd.	56.3	53	54	1768	579	1062	60	1498	230	422

Appendix C
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – With Horn

				Existing Ambient	Category 1 Moderate Impact				Category 1 Severe Impact			
							Contour				Contour	
City		Crossing Street Name	Mile Post	L_{eq}	L_{eq}	H-Zone	1/2-Zone	X-ing	L_{eq}	H-Zone	1/2-Zone	X-ing
	54	San Miguel Ave.	56.8	53	54	1768	579	1062	60	1498	230	422
	55	Fulton Rd.	58.5	53	54	1768	579	1062	60	1498	230	422
	56	River Rd.	58.8	53	54	1768	579	1062	60	1498	230	422
	57	Airport Blvd.	59.9	44	52	1992	867	1591	59	1555	303	556
	58	Aviation Blvd.	60.2	44	52	1992	867	1591	59	1555	303	556
	59	Shiloh Rd.	61.1	44	52	1992	867	1591	59	1555	303	556
	60	Mitchell Ln.	61.7	44	52	1992	867	1591	59	1555	303	556
Windsor	61	Windsor River Rd.	62.9	49	53	1877	719	1319	59	1531	272	500
	62	Starr Rd.	63.8	49	53	1877	719	1319	59	1531	272	500
Grant	63	Limerick Ln.	66.2	49	53	1877	719	1319	59	1531	272	500
	64	Grant Ave.	66.9	49	53	1877	719	1319	59	1531	272	500
	65	Bailhache Ave.	67.4	49	53	1877	719	1319	59	1531	272	500
Healdsburg	66	Front St.	67.7	49	53	2035	826	1691	59	1591	313	641
	67	Mill St.	68.2	49	53	2035	826	1691	59	1591	313	641
	68	Matheson St.	68.4	49	53	2035	826	1691	59	1591	313	641
	69	W. North St.	68.5	49	53	2035	826	1691	59	1591	313	641
	70	Grant St.	68.8	49	53	1877	719	1319	59	1531	272	500
	71	Dry Creek Rd.	69.5	52	54	1796	614	1127	60	1507	242	443
	72	Grove St.	70.3	52	54	1796	614	1127	60	1507	242	443
	73	Parking lot access near Parkland Farms Blvd.	70.5	52	54	1796	614	1127	60	1507	242	443
	74	Site Access near Passalacqua Rd.	70.9	52	54	1796	614	1127	60	1507	242	443
	75	Lytton Springs Rd.	71.9	49	53	1877	719	1319	59	1531	272	500
Geyserville	76	State Highway 128	75.8	53	54	1768	579	1062	60	1498	230	422
	77	Washington School Rd.	80.9	53	54	1768	579	1062	60	1498	230	422
	78	Kelly Rd.	83.2	43	52	2009	890	1633	58	1590	349	640
	79	Asti Rd.	84.5	43	52	2009	890	1633	58	1590	349	640
	80	Possible crossing near Railroad Ave.	85.3	43	52	2087	1248	1911	58	1621	489	749
Cloverdale	81	E. 1st St.	85.4	43	52	2087	1248	1911	58	1621	489	749
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	43	52	2087	1248	1911	58	1621	489	749
County Line		Not a crossing	89.6	43	52	2247	1161	2192	58	1684	455	859
Hopland	83	State Highway 175	99.9	52	54	1849	861	1319	60	1528	339	519
	84	Henry Station Rd.	105.8	52	54	1849	861	1319	60	1528	339	519
	85	Norgard Ln.	111.7	51	54	1880	911	1395	60	1538	354	542
	86	Commerce Dr.	112.9	51	54	1997	847	1600	60	1583	329	622
	87	State Highway 222	113	51	54	1997	847	1600	60	1583	329	622
	88	E. Gobbi St.	113.6	51	54	1997	847	1600	60	1583	329	622
Ukiah	89	E. Perkins St.	114	51	54	1997	847	1600	60	1583	329	622
	90	Clara Ave.	114.4	53	54	1923	755	1425	60	1560	300	567
	91	Ford St.	114.5	53	54	1923	755	1425	60	1560	300	567
	92	Brush St.	114.6	53	54	1923	755	1425	60	1560	300	567
	93	Ford Rd.	115.2	53	54	1819	811	1242	60	1518	323	494
	94	Masonite Truck Rd.	115.7	53	54	1819	811	1242	60	1518	323	494
	95	Hollow Tree Rd.	115.9	53	54	1819	811	1242	60	1518	323	494
	96	Lake Mendocino Dr.	117	53	54	1819	811	1242	60	1518	323	494
	97	Moore St.	119.8	53	54	1819	811	1242	60	1518	323	494
Redwood Valley	98	E. School Way	122.1	53	54	1819	811	1242	60	1518	323	494
	99	Laughlin Way	123	53	54	1998	802	1601	60	1590	319	637
	100	E. Hill Road	123.9	51	54	1997	847	1600	60	1583	329	622
	101	E. Valley Road	137.8	51	54	1997	847	1600	60	1583	329	622
Willits	102	E. Commercial St.	139.5	51	54	1997	847	1600	60	1583	329	622
End of line		Not a crossing	142.5	51	54	1997	847	1600	60	1583	329	622

Appendix C
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – With Horn

					Category 2							
				Existing Ambient	Moderate Impact				Severe Impact			
							Contour				Contour	
City		Crossing Street Name	Mile Post	L_{dn}	L_{dn}	H-Zone	1/2-Zone	X-ing	L_{dn}	H-Zone	1/2-Zone	X-ing
Lombard	1	Green Island Rd.	0.8	61	58	1590	316	638	64	1435	135	272
	2	Milton Rd.	3	61	58	1734	459	984	64	1496	196	419
	3	Skaggs Island Rd.	6.7	61	58	1527	299	500	64	1408	127	213
Shellville	4	Cameros Hwy.	10.6	61	58	1640	362	758	64	1456	154	323
	5	Redding Rd.	13.6	61	58	1527	299	500	64	1408	127	213
	6	Sears Point Rd.	18.1	54	55	1675	512	855	61	1463	206	344
	7	Reclamation Rd.	20.1	54	55	1675	512	855	61	1463	206	344
	8	Private	20.5	54	55	1675	512	855	61	1463	206	344
	9	Port Sonoma Rd.	21.8	54	55	1675	512	855	61	1463	206	344
	10	Grandview Ave.	22.9	54	55	2028	786	1684	61	1605	316	677
	11	Parking lot access	23.1	54	55	2028	786	1684	61	1605	316	677
	12	Stone Tree Ln.	23.3	54	55	2028	786	1684	61	1605	316	677
	13	Private	24.5	54	55	1675	512	855	61	1463	206	344
Ignacio	14	Hanna Ranch Rd.	25.9	64	60	1455	171	319	66	1379	75	139
	15	Possible crossing near Franklin Ave.	27.5	64	60	1455	171	319	66	1379	75	139
	16	Grant Ave.	27.9	64	60	1455	171	319	66	1379	75	139
Novato	17	Olive Ave.	28.1	64	60	1455	171	319	66	1379	75	139
	18	Golden Gate Place	28.4	64	60	1455	171	319	66	1379	75	139
	19	Rush Creek Place	28.5	64	60	1455	171	319	66	1379	75	139
	20	County Dump Rd.	32	64	60	1455	171	319	66	1379	75	139
	21	Caulfield Ln.	38.1	53	54	1738	478	990	60	1486	190	394
Petaluma	22	D St.	38.5	53	54	1738	478	990	60	1486	190	394
	23	Washington St.	38.6	53	54	1738	478	990	60	1486	190	394
	24	Madison St.	38.8	53	54	1738	478	990	60	1486	190	394
	25	W. Payran St.	39.2	53	54	1738	478	990	60	1486	190	394
	26	South Point Blvd.	40.4	66	61	1430	140	261	67	1369	62	115
	27	N. McDowell Blvd.	40.7	66	61	1430	140	261	67	1369	62	115
	28	Corona Rd.	41.1	66	61	1430	140	261	67	1369	62	115
	29	Ely Rd.	42.2	67	62	1419	126	235	67	1364	56	104
	30	Main St.	43.3	67	62	1419	126	235	67	1364	56	104
	31	Adobe Rd.	43.6	67	62	1419	126	235	67	1364	56	104
	32	E. Railroad Ave.	44.8	58	57	1615	337	698	62	1443	140	291
Cotati	33	E. Cotati Ave.	46.1	59	57	1592	311	644	63	1434	131	270
	34	Southwest Blvd.	46.8	58	57	1549	291	542	62	1415	121	226
	35	Possible crossing near Carlita Cir.	46.9	58	57	1549	291	542	62	1415	121	226
	36	Rohnert Park Expy.	47.4	58	57	1549	291	542	62	1415	121	226
	37	Golf Course Dr.	48.5	58	57	1549	291	542	62	1415	121	226
	38	Scenic Ave.	49.4	65	61	1442	155	289	66	1374	68	127
	39	Todd Rd.	50.3	65	61	1442	155	289	66	1374	68	127
	40	W. Robles Ave.	50.8	65	61	1442	155	289	66	1374	68	127
	41	Bellvue Ave.	51.3	65	61	1442	155	289	66	1374	68	127
	42	Hearn Ave.	52.2	71	65	1345	31	60	70	1332	14	28
	43	W Barham Ave.	53	71	65	1345	31	60	70	1332	14	28
	44	Sebastopol Rd.	53.4	67	62	1372	58	123	67	1343	26	55
Santa Rosa	45	3rd St.	53.7	67	62	1372	58	123	67	1343	26	55
	46	6th St.	53.8	67	62	1372	58	123	67	1343	26	55
	47	7th St.	53.9	67	62	1372	58	123	67	1343	26	55
	48	8th St.	54	67	62	1372	58	123	67	1343	26	55
	49	9th St.	54.1	67	62	1372	58	123	67	1343	26	55
	50	College Ave.	54.4	67	62	1372	58	123	67	1343	26	55
	51	Guerneville Rd.	55.3	67	62	1360	48	94	67	1338	22	42
	52	W. Steele Ln.	55.6	67	62	1360	48	94	67	1338	22	42
	53	Piner Rd.	56.3	55	55	1435	139	272	61	1367	57	110

Appendix C
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – With Horn

				Existing Ambient	Category 2 Moderate Impact				Category 2 Severe Impact			
							Contour				Contour	
City		Crossing Street Name	Mile Post	L_{dn}	L_{dn}	H-Zone	1/2-Zone	X-ing	L_{dn}	H-Zone	1/2-Zone	X-ing
	54	San Miguel Ave.	56.8	55	55	1435	139	272	61	1367	57	110
	55	Fulton Rd.	58.5	55	55	1435	139	272	61	1367	57	110
	56	River Rd.	58.8	55	55	1435	139	272	61	1367	57	110
	57	Airport Blvd.	59.9	49	53	1483	197	385	59	1382	75	146
	58	Aviation Blvd.	60.2	49	53	1483	197	385	59	1382	75	146
	59	Shiloh Rd.	61.1	49	53	1483	197	385	59	1382	75	146
	60	Mitchell Ln.	61.7	49	53	1483	197	385	59	1382	75	146
Windsor	61	Windsor River Rd.	62.9	52	54	1459	169	329	60	1375	66	129
	62	Starr Rd.	63.8	52	54	1459	169	329	60	1375	66	129
Grant	63	Limerick Ln.	66.2	51	54	1467	178	348	60	1377	69	135
	64	Grant Ave.	66.9	51	54	1467	178	348	60	1377	69	135
	65	Bailhache Ave.	67.4	51	54	1467	178	348	60	1377	69	135
Healdsburg	66	Front St.	67.7	51	54	1511	212	453	60	1394	82	176
	67	Mill St.	68.2	51	54	1511	212	453	60	1394	82	176
	68	Matheson St.	68.4	51	54	1511	212	453	60	1394	82	176
	69	W. North St.	68.5	51	54	1511	212	453	60	1394	82	176
	70	Grant St.	68.8	51	54	1467	178	348	60	1377	69	135
	71	Dry Creek Rd.	69.5	55	55	1435	139	272	61	1367	57	110
	72	Grove St.	70.3	55	55	1435	139	272	61	1367	57	110
	73	Parking lot access near Parkland Farms Blvd.	70.5	55	55	1435	139	272	61	1367	57	110
	74	Site Access near Passalacqua Rd.	70.9	55	55	1435	139	272	61	1367	57	110
	75	Lytton Springs Rd.	71.9	51	54	1467	178	348	60	1377	69	135
Geyserville	76	State Highway 128	75.8	59	57	1405	103	201	63	1356	43	85
	77	Washington School Rd.	80.9	59	57	1405	103	201	63	1356	43	85
	78	Kelly Rd.	83.2	50	53	1475	188	366	60	1380	72	141
	79	Asti Rd.	84.5	50	53	1475	188	366	60	1380	72	141
	80	Possible crossing near Railroad Ave.	85.3	50	53	1491	251	413	60	1386	96	159
Cloverdale	81	E. 1st St.	85.4	50	53	1491	251	413	60	1386	96	159
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	50	53	1491	251	413	60	1386	96	159
County Line		Not a crossing	89.6	50	53	1529	247	494	60	1400	95	190
Hopland	83	State Highway 175	99.9	55	55	1447	186	307	61	1371	76	125
	84	Henry Station Rd.	105.8	55	55	1447	186	307	61	1371	76	125
	85	Norgard Ln.	111.7	57	56	1430	161	266	62	1365	67	110
	86	Commerce Dr.	112.9	57	56	1454	159	318	62	1376	66	131
	87	State Highway 222	113	57	56	1454	159	318	62	1376	66	131
	88	E. Gobbi St.	113.6	57	56	1454	159	318	62	1376	66	131
Ukiah	89	E. Perkins St.	114	57	56	1454	159	318	62	1376	66	131
	90	Clara Ave.	114.4	57	56	1454	159	318	62	1376	66	131
	91	Ford St.	114.5	57	56	1454	159	318	62	1376	66	131
	92	Brush St.	114.6	57	56	1454	159	318	62	1376	66	131
	93	Ford Rd.	115.2	57	56	1430	161	266	62	1365	67	110
	94	Masonite Truck Rd.	115.7	57	56	1430	161	266	62	1365	67	110
	95	Hollow Tree Rd.	115.9	57	56	1430	161	266	62	1365	67	110
	96	Lake Mendocino Dr.	117	57	56	1430	161	266	62	1365	67	110
	97	Moore St.	119.8	57	56	1430	161	266	62	1365	67	110
Redwood Valley	98	E. School Way	122.1	57	56	1428	151	258	62	1364	63	107
	99	Laughlin Way	123	57	56	1471	170	358	62	1382	70	148
	100	E. Hill Road	123.9	56	56	1463	167	339	62	1379	68	139
	101	E. Valley Road	137.8	56	56	1463	167	339	62	1379	68	139
Willits	102	E. Commercial St.	139.5	56	56	1463	167	339	62	1379	68	139
End of line		Not a crossing	142.5	56	56	1463	167	339	62	1379	68	139

Appendix C
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – With Horn

				Existing Ambient	Category 3 Moderate Impact				Category 3 Severe Impact			
							Contour				Contour	
City		Crossing Street Name	Mile Post	L_{eq}	L_{eq}	H-Zone	1/2-Zone	X-ing	L_{eq}	H-Zone	1/2-Zone	X-ing
Lombard	1	Green Island Rd.	0.8	52	59	1654	395	789	65	1451	155	310
	2	Milton Rd.	3	52	59	1831	572	1214	65	1521	225	477
	3	Skaggs Island Rd.	6.7	52	59	1577	379	623	65	1421	149	245
Shellville	4	Cameros Hwy.	10.6	52	59	1715	451	936	65	1475	177	368
	5	Redding Rd.	13.6	52	59	1577	379	623	65	1421	149	245
	6	Sears Point Rd.	18.1	53	59	1562	357	587	65	1416	142	233
	7	Reclamation Rd.	20.1	53	59	1562	357	587	65	1416	142	233
	8	Private	20.5	53	59	1562	357	587	65	1416	142	233
	9	Port Sonoma Rd.	21.8	53	59	1562	357	587	65	1416	142	233
	10	Grandview Ave.	22.9	53	59	1802	539	1143	65	1511	214	455
	11	Parking lot access	23.1	53	59	1802	539	1143	65	1511	214	455
	12	Stone Tree Ln.	23.3	53	59	1802	539	1143	65	1511	214	455
	13	Private	24.5	53	59	1562	357	587	65	1416	142	233
Ignacio	14	Hanna Ranch Rd.	25.9	61	63	1434	147	270	69	1369	63	115
	15	Possible crossing near Franklin Ave.	27.5	61	63	1434	147	270	69	1369	63	115
	16	Grant Ave.	27.9	61	63	1434	147	270	69	1369	63	115
Novato	17	Olive Ave.	28.1	61	63	1434	147	270	69	1369	63	115
	18	Golden Gate Place	28.4	61	63	1434	147	270	69	1369	63	115
	19	Rush Creek Place	28.5	61	63	1434	147	270	69	1369	63	115
	20	County Dump Rd.	32	61	63	1434	147	270	69	1369	63	115
	21	Caulfield Ln.	38.1	48	58	1667	401	821	64	1450	150	307
Petaluma	22	D St.	38.5	48	58	1667	401	821	64	1450	150	307
	23	Washington St.	38.6	48	58	1667	401	821	64	1450	150	307
	24	Madison St.	38.8	48	58	1667	401	821	64	1450	150	307
	25	W. Payran St.	39.2	48	58	1667	401	821	64	1450	150	307
	26	South Point Blvd.	40.4	60	63	1444	161	295	68	1373	68	125
	27	N. McDowell Blvd.	40.7	60	63	1444	161	295	68	1373	68	125
	28	Corona Rd.	41.1	60	63	1444	161	295	68	1373	68	125
	29	Ely Rd.	42.2	57	61	1478	204	375	67	1385	84	155
	30	Main St.	43.3	57	61	1478	204	375	67	1385	84	155
	31	Adobe Rd.	43.6	57	61	1478	204	375	67	1385	84	155
	32	E. Railroad Ave.	44.8	50	58	1636	365	747	65	1441	140	287
Cotati	33	E. Cotati Ave.	46.1	53	59	1587	309	632	65	1426	123	251
	34	Southwest Blvd.	46.8	53	59	1528	269	493	65	1403	107	196
	35	Possible crossing near Carlita Cir.	46.9	53	59	1528	269	493	65	1403	107	196
	36	Rohnert Park Expy.	47.4	53	59	1528	269	493	65	1403	107	196
	37	Golf Course Dr.	48.5	53	59	1528	269	493	65	1403	107	196
	38	Scenic Ave.	49.4	57	61	1478	204	375	67	1385	84	155
	39	Todd Rd.	50.3	57	61	1478	204	375	67	1385	84	155
	40	W. Robles Ave.	50.8	57	61	1478	204	375	67	1385	84	155
	41	Bellvue Ave.	51.3	57	61	1478	204	375	67	1385	84	155
	42	Hearn Ave.	52.2	63	65	1415	123	225	70	1361	53	97
	43	W Barham Ave.	53	63	65	1415	123	225	70	1361	53	97
	44	Sebastopol Rd.	53.4	63	65	1442	141	289	70	1373	61	125
Santa Rosa	45	3rd St.	53.7	63	65	1442	141	289	70	1373	61	125
	46	6th St.	53.8	63	65	1442	141	289	70	1373	61	125
	47	7th St.	53.9	63	65	1442	141	289	70	1373	61	125
	48	8th St.	54	63	65	1442	141	289	70	1373	61	125
	49	9th St.	54.1	63	65	1442	141	289	70	1373	61	125
	50	College Ave.	54.4	63	65	1442	141	289	70	1373	61	125
	51	Guerneville Rd.	55.3	63	65	1415	123	225	70	1361	53	97
	52	W. Steele Ln.	55.6	63	65	1415	123	225	70	1361	53	97
	53	Piner Rd.	56.3	53	59	1528	269	493	65	1403	107	196

Appendix C
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – With Horn

				Existing Ambient	Category 3 Moderate Impact				Category 3 Severe Impact			
							Contour				Contour	
City		Crossing Street Name	Mile Post	L_{eq}	L_{eq}	H-Zone	1/2-Zone	X-ing	L_{eq}	H-Zone	1/2-Zone	X-ing
	54	San Miguel Ave.	56.8	53	59	1528	269	493	65	1403	107	196
	55	Fulton Rd.	58.5	53	59	1528	269	493	65	1403	107	196
	56	River Rd.	58.8	53	59	1528	269	493	65	1403	107	196
	57	Airport Blvd.	59.9	44	57	1632	403	739	64	1429	141	258
	58	Aviation Blvd.	60.2	44	57	1632	403	739	64	1429	141	258
	59	Shiloh Rd.	61.1	44	57	1632	403	739	64	1429	141	258
	60	Mitchell Ln.	61.7	44	57	1632	403	739	64	1429	141	258
Windsor	61	Windsor River Rd.	62.9	49	58	1578	334	612	64	1418	126	232
	62	Starr Rd.	63.8	49	58	1578	334	612	64	1418	126	232
Grant	63	Limerick Ln.	66.2	49	58	1578	334	612	64	1418	126	232
	64	Grant Ave.	66.9	49	58	1578	334	612	64	1418	126	232
	65	Bailhache Ave.	67.4	49	58	1578	334	612	64	1418	126	232
Healdsburg	66	Front St.	67.7	49	58	1652	383	785	64	1446	145	297
	67	Mill St.	68.2	49	58	1652	383	785	64	1446	145	297
	68	Matheson St.	68.4	49	58	1652	383	785	64	1446	145	297
	69	W. North St.	68.5	49	58	1652	383	785	64	1446	145	297
	70	Grant St.	68.8	49	58	1578	334	612	64	1418	126	232
	71	Dry Creek Rd.	69.5	52	59	1541	285	523	65	1407	112	206
	72	Grove St.	70.3	52	59	1541	285	523	65	1407	112	206
	73	Parking lot access near Parkland Farms Blvd.	70.5	52	59	1541	285	523	65	1407	112	206
	74	Site Access near Passalacqua Rd.	70.9	52	59	1541	285	523	65	1407	112	206
	75	Lytton Springs Rd.	71.9	49	58	1578	334	612	64	1418	126	232
Geyserville	76	State Highway 128	75.8	53	59	1528	269	493	65	1403	107	196
	77	Washington School Rd.	80.9	53	59	1528	269	493	65	1403	107	196
	78	Kelly Rd.	83.2	43	57	1640	413	758	63	1445	162	297
	79	Asti Rd.	84.5	43	57	1640	413	758	63	1445	162	297
	80	Possible crossing near Railroad Ave.	85.3	43	57	1676	579	887	63	1460	227	348
Cloverdale	81	E. 1st St.	85.4	43	57	1676	579	887	63	1460	227	348
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	43	57	1676	579	887	63	1460	227	348
County Line		Not a crossing	89.6	43	57	1750	539	1018	63	1489	211	399
Hopland	83	State Highway 175	99.9	52	59	1566	400	612	65	1417	157	241
	84	Henry Station Rd.	105.8	52	59	1566	400	612	65	1417	157	241
	85	Norgard Ln.	111.7	51	59	1580	423	647	65	1421	164	252
	86	Commerce Dr.	112.9	51	59	1634	393	743	65	1442	153	289
	87	State Highway 222	113	51	59	1634	393	743	65	1442	153	289
	88	E. Gobbi St.	113.6	51	59	1634	393	743	65	1442	153	289
Ukiah	89	E. Perkins St.	114	51	59	1634	393	743	65	1442	153	289
	90	Clara Ave.	114.4	53	59	1600	350	662	65	1431	139	263
	91	Ford St.	114.5	53	59	1600	350	662	65	1431	139	263
	92	Brush St.	114.6	53	59	1600	350	662	65	1431	139	263
	93	Ford Rd.	115.2	53	59	1551	377	577	65	1412	150	229
	94	Masonite Truck Rd.	115.7	53	59	1551	377	577	65	1412	150	229
	95	Hollow Tree Rd.	115.9	53	59	1551	377	577	65	1412	150	229
	96	Lake Mendocino Dr.	117	53	59	1551	377	577	65	1412	150	229
	97	Moore St.	119.8	53	59	1551	377	577	65	1412	150	229
Redwood Valley	98	E. School Way	122.1	53	59	1551	377	577	65	1412	150	229
	99	Laughlin Way	123	53	59	1635	372	743	65	1445	148	296
	100	E. Hill Road	123.9	51	59	1634	393	743	65	1442	153	289
	101	E. Valley Road	137.8	51	59	1634	393	743	65	1442	153	289
Willits	102	E. Commercial St.	139.5	51	59	1634	393	743	65	1442	153	289
End of line		Not a crossing	142.5	51	59	1634	393	743	65	1442	153	289

Appendix C
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – With Horn

				X-ing			1/2-Zone					
				L_{dn} Contours, Feet			L_{dn} Contours, Feet			H-Zone, Feet		
City		Crossing Street Name	Mile Post	60	65	70	60	65	70	60	65	70
Lombard	1	Green Island Rd.	0.8	496	230	107	245	114	53	1530	1417	1365
	2	Milton Rd.	3	765	355	165	357	166	77	1642	1469	1389
	3	Skaggs Island Rd.	6.7	388	180	84	232	108	50	1481	1395	1355
Shellville	4	Cameros Hwy.	10.6	589	274	127	281	130	61	1569	1435	1374
	5	Redding Rd.	13.6	388	180	84	232	108	50	1481	1395	1355
	6	Sears Point Rd.	18.1	388	180	84	232	108	50	1481	1395	1355
	7	Reclamation Rd.	20.1	388	180	84	232	108	50	1481	1395	1355
	8	Private	20.5	388	180	84	232	108	50	1481	1395	1355
	9	Port Sonoma Rd.	21.8	388	180	84	232	108	50	1481	1395	1355
	10	Grandview Ave.	22.9	765	355	165	357	166	77	1642	1469	1389
	11	Parking lot access	23.1	765	355	165	357	166	77	1642	1469	1389
	12	Stone Tree Ln.	23.3	765	355	165	357	166	77	1642	1469	1389
	13	Private	24.5	388	180	84	232	108	50	1481	1395	1355
Ignacio	14	Hanna Ranch Rd.	25.9	328	152	71	176	82	38	1459	1384	1350
	15	Possible crossing near Franklin Ave.	27.5	328	152	71	176	82	38	1459	1384	1350
	16	Grant Ave.	27.9	328	152	71	176	82	38	1459	1384	1350
Novato	17	Olive Ave.	28.1	328	152	71	176	82	38	1459	1384	1350
	18	Golden Gate Place	28.4	328	152	71	176	82	38	1459	1384	1350
	19	Rush Creek Place	28.5	328	152	71	176	82	38	1459	1384	1350
	20	County Dump Rd.	32	328	152	71	176	82	38	1459	1384	1350
	21	Caulfield Ln.	38.1	422	196	91	204	95	44	1498	1403	1358
Petaluma	22	D St.	38.5	422	196	91	204	95	44	1498	1403	1358
	23	Washington St.	38.6	422	196	91	204	95	44	1498	1403	1358
	24	Madison St.	38.8	422	196	91	204	95	44	1498	1403	1358
	25	W. Payran St.	39.2	422	196	91	204	95	44	1498	1403	1358
	26	South Point Blvd.	40.4	328	152	71	176	82	38	1459	1384	1350
	27	N. McDowell Blvd.	40.7	328	152	71	176	82	38	1459	1384	1350
	28	Corona Rd.	41.1	328	152	71	176	82	38	1459	1384	1350
	29	Ely Rd.	42.2	328	152	71	176	82	38	1459	1384	1350
	30	Main St.	43.3	328	152	71	176	82	38	1459	1384	1350
	31	Adobe Rd.	43.6	328	152	71	176	82	38	1459	1384	1350
	32	E. Railroad Ave.	44.8	422	196	91	204	95	44	1498	1403	1358
Cotati	33	E. Cotati Ave.	46.1	422	196	91	204	95	44	1498	1403	1358
	34	Southwest Blvd.	46.8	328	152	71	176	82	38	1459	1384	1350
	35	Possible crossing near Carlita Cir.	46.9	328	152	71	176	82	38	1459	1384	1350
	36	Rohnert Park Expy.	47.4	328	152	71	176	82	38	1459	1384	1350
	37	Golf Course Dr.	48.5	328	152	71	176	82	38	1459	1384	1350
	38	Scenic Ave.	49.4	328	152	71	176	82	38	1459	1384	1350
	39	Todd Rd.	50.3	328	152	71	176	82	38	1459	1384	1350
	40	W. Robles Ave.	50.8	328	152	71	176	82	38	1459	1384	1350
	41	Bellvue Ave.	51.3	328	152	71	176	82	38	1459	1384	1350
	42	Hearn Ave.	52.2	132	61	28	68	31	15	1376	1346	1332
	43	W Barham Ave.	53	132	61	28	68	31	15	1376	1346	1332
	44	Sebastopol Rd.	53.4	172	80	37	80	37	17	1392	1354	1336
Santa Rosa	45	3rd St.	53.7	172	80	37	80	37	17	1392	1354	1336
	46	6th St.	53.8	172	80	37	80	37	17	1392	1354	1336
	47	7th St.	53.9	172	80	37	80	37	17	1392	1354	1336
	48	8th St.	54	172	80	37	80	37	17	1392	1354	1336
	49	9th St.	54.1	172	80	37	80	37	17	1392	1354	1336
	50	College Ave.	54.4	172	80	37	80	37	17	1392	1354	1336
	51	Guerneville Rd.	55.3	132	61	28	68	31	15	1376	1346	1332
	52	W. Steele Ln.	55.6	132	61	28	68	31	15	1376	1346	1332
	53	Piner Rd.	56.3	132	61	28	68	31	15	1376	1346	1332
	54	San Miguel Ave.	56.8	132	61	28	68	31	15	1376	1346	1332
	55	Fulton Rd.	58.5	132	61	28	68	31	15	1376	1346	1332

Appendix C
NCRA RRD Freight Rail Project
Freight Train Noise Modeling (No Track Improvements) – With Horn

City		Crossing Street Name	Mile Post	X-ing L_{dn} Contours, Feet			1/2-Zone L_{dn} Contours, Feet			H-Zone, Feet		
				60	65	70	60	65	70	60	65	70
	56	River Rd.	58.8	132	61	28	68	31	15	1376	1346	1332
	57	Airport Blvd.	59.9	132	61	28	68	31	15	1376	1346	1332
	58	Aviation Blvd.	60.2	132	61	28	68	31	15	1376	1346	1332
	59	Shiloh Rd.	61.1	132	61	28	68	31	15	1376	1346	1332
	60	Mitchell Ln.	61.7	132	61	28	68	31	15	1376	1346	1332
Windsor	61	Windsor River Rd.	62.9	132	61	28	68	31	15	1376	1346	1332
	62	Starr Rd.	63.8	132	61	28	68	31	15	1376	1346	1332
Grant	63	Limerick Ln.	66.2	132	61	28	68	31	15	1376	1346	1332
	64	Grant Ave.	66.9	132	61	28	68	31	15	1376	1346	1332
	65	Bailhache Ave.	67.4	132	61	28	68	31	15	1376	1346	1332
Healdsburg	66	Front St.	67.7	172	80	37	80	37	17	1392	1354	1336
	67	Mill St.	68.2	172	80	37	80	37	17	1392	1354	1336
	68	Matheson St.	68.4	172	80	37	80	37	17	1392	1354	1336
	69	W. North St.	68.5	172	80	37	80	37	17	1392	1354	1336
	70	Grant St.	68.8	132	61	28	68	31	15	1376	1346	1332
	71	Dry Creek Rd.	69.5	132	61	28	68	31	15	1376	1346	1332
	72	Grove St.	70.3	132	61	28	68	31	15	1376	1346	1332
	73	Parking lot access near Parkland Farms Blvd.	70.5	132	61	28	68	31	15	1376	1346	1332
	74	Site Access near Passalacqua Rd.	70.9	132	61	28	68	31	15	1376	1346	1332
	75	Lytton Springs Rd.	71.9	132	61	28	68	31	15	1376	1346	1332
Geyserville	76	State Highway 128	75.8	132	61	28	68	31	15	1376	1346	1332
	77	Washington School Rd.	80.9	132	61	28	68	31	15	1376	1346	1332
	78	Kelly Rd.	83.2	132	61	28	68	31	15	1376	1346	1332
	79	Asti Rd.	84.5	132	61	28	68	31	15	1376	1346	1332
	80	Possible crossing near Railroad Ave.	85.3	149	69	32	90	42	19	1382	1349	1333
Cloverdale	81	E. 1st St.	85.4	149	69	32	90	42	19	1382	1349	1333
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	149	69	32	90	42	19	1382	1349	1333
County Line		Not a crossing	89.6	178	83	38	89	41	19	1395	1355	1336
Hopland	83	State Highway 175	99.9	149	69	32	90	42	19	1382	1349	1333
	84	Henry Station Rd.	105.8	149	69	32	90	42	19	1382	1349	1333
	85	Norgard Ln.	111.7	149	69	32	90	42	19	1382	1349	1333
	86	Commerce Dr.	112.9	178	83	38	89	41	19	1395	1355	1336
	87	State Highway 222	113	178	83	38	89	41	19	1395	1355	1336
	88	E. Gobbi St.	113.6	178	83	38	89	41	19	1395	1355	1336
Ukiah	89	E. Perkins St.	114	178	83	38	89	41	19	1395	1355	1336
	90	Clara Ave.	114.4	178	83	38	89	41	19	1395	1355	1336
	91	Ford St.	114.5	178	83	38	89	41	19	1395	1355	1336
	92	Brush St.	114.6	178	83	38	89	41	19	1395	1355	1336
	93	Ford Rd.	115.2	149	69	32	90	42	19	1382	1349	1333
	94	Masonite Truck Rd.	115.7	149	69	32	90	42	19	1382	1349	1333
	95	Hollow Tree Rd.	115.9	149	69	32	90	42	19	1382	1349	1333
	96	Lake Mendocino Dr.	117	149	69	32	90	42	19	1382	1349	1333
	97	Moore St.	119.8	149	69	32	90	42	19	1382	1349	1333
Redwood Valley	98	E. School Way	122.1	145	67	31	85	39	18	1380	1348	1333
	99	Laughlin Way	123	201	93	43	95	44	20	1405	1359	1338
	100	E. Hill Road	123.9	177	82	38	87	40	19	1395	1355	1336
	101	E. Valley Road	137.8	177	82	38	87	40	19	1395	1355	1336
Willits	102	E. Commercial St.	139.5	177	82	38	87	40	19	1395	1355	1336
End of line		Not a crossing	142.5	177	82	38	87	40	19	1395	1355	1336

Appendix D
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – No Horn

City		Crossing Street Name	Mile Post	Existing Ambient	FTA Category 1			
					Moderate Impact		Severe Impact	
				L_{eq}	L_{eq}	Contour	L_{eq}	Contour
Lombard	1	Green Island Rd.	0.8	52	54	455	60	179
	2	Milton Rd.	3	52	54	553	60	218
	3	Skaggs Island Rd.	6.7	52	54	600	60	236
Shellville	4	Cameros Hwy.	10.6	52	54	468	60	184
	5	Redding Rd.	13.6	52	54	600	60	236
	6	Sears Point Rd.	18.1	53	54	565	60	225
	7	Reclamation Rd.	20.1	53	54	565	60	225
	8	Private	20.5	53	54	565	60	225
	9	Port Sonoma Rd.	21.8	53	54	565	60	225
	10	Grandview Ave.	22.9	53	54	521	60	207
	11	Parking lot access	23.1	53	54	521	60	207
	12	Stone Tree Ln.	23.3	53	54	521	60	207
	13	Private	24.5	53	54	565	60	225
Ignacio	14	Hanna Ranch Rd.	25.9	61	58	249	64	106
	15	Possible crossing near Franklin Ave.	27.5	61	58	249	64	106
	16	Grant Ave.	27.9	61	58	249	64	106
Novato	17	Olive Ave.	28.1	61	58	249	64	106
	18	Golden Gate Place	28.4	61	58	249	64	106
	19	Rush Creek Place	28.5	61	58	244	64	104
	20	County Dump Rd.	32	61	58	244	64	104
	21	Caulfield Ln.	38.1	48	53	458	59	171
Petaluma	22	D St.	38.5	48	53	481	59	180
	23	Washington St.	38.6	48	53	481	59	180
	24	Madison St.	38.8	48	53	481	59	180
	25	W. Payran St.	39.2	48	53	481	59	180
	26	South Point Blvd.	40.4	60	58	276	63	117
	27	N. McDowell Blvd.	40.7	60	58	276	63	117
	28	Corona Rd.	41.1	60	58	268	63	113
	29	Ely Rd.	42.2	57	56	341	62	141
	30	Main St.	43.3	57	56	341	62	141
	31	Adobe Rd.	43.6	57	56	341	62	141
	32	E. Railroad Ave.	44.8	50	53	421	60	161
Cotati	33	E. Cotati Ave.	46.1	53	54	358	60	142
	34	Southwest Blvd.	46.8	53	54	450	60	179
	35	Possible crossing near Carlita Cir.	46.9	53	54	450	60	179
	36	Rohnert Park Expy.	47.4	53	54	450	60	179
	37	Golf Course Dr.	48.5	53	54	451	60	179
	38	Scenic Ave.	49.4	57	56	343	62	142
	39	Todd Rd.	50.3	57	56	343	62	142
	40	W. Robles Ave.	50.8	57	56	343	62	142
	41	Bellvue Ave.	51.3	57	56	343	62	142
	42	Hearn Ave.	52.2	63	60	206	65	89
	43	W Barham Ave.	53	63	60	206	65	89
	44	Sebastopol Rd.	53.4	63	60	164	65	71
Santa Rosa	45	3rd St.	53.7	63	60	164	65	71
	46	6th St.	53.8	63	60	167	65	72
	47	7th St.	53.9	63	60	167	65	72
	48	8th St.	54	63	60	167	65	72
	49	9th St.	54.1	63	60	167	65	72
	50	College Ave.	54.4	63	60	167	65	72
	51	Guerneville Rd.	55.3	63	60	204	65	88
	52	W. Steele Ln.	55.6	63	60	204	65	88
	53	Piner Rd.	56.3	53	54	446	60	177
	54	San Miguel Ave.	56.8	53	54	446	60	177

Appendix D
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – No Horn

City		Crossing Street Name	Mile Post	Existing Ambient	FTA Category 1			
					Moderate Impact		Severe Impact	
				L_{eq}	L_{eq}	Contour	L_{eq}	Contour
	55	Fulton Rd.	58.5	53	54	446	60	177
	56	River Rd.	58.8	53	54	446	60	177
	57	Airport Blvd.	59.9	44	52	668	59	233
	58	Aviation Blvd.	60.2	44	52	668	59	233
	59	Shiloh Rd.	61.1	44	52	668	59	233
	60	Mitchell Ln.	61.7	44	52	668	59	233
Windsor	61	Windsor River Rd.	62.9	49	53	557	59	211
	62	Starr Rd.	63.8	49	53	557	59	211
Grant	63	Limerick Ln.	66.2	49	53	557	59	211
	64	Grant Ave.	66.9	49	53	557	59	211
	65	Bailhache Ave.	67.4	49	53	557	59	211
Healdsburg	66	Front St.	67.7	49	53	443	59	168
	67	Mill St.	68.2	49	53	420	59	159
	68	Matheson St.	68.4	49	53	420	59	159
	69	W. North St.	68.5	49	53	420	59	159
	70	Grant St.	68.8	49	53	536	59	203
	71	Dry Creek Rd.	69.5	52	54	458	60	180
	72	Grove St.	70.3	52	54	458	60	180
	73	Parking lot access near Parkland Farms Blvd.	70.5	52	54	458	60	180
	74	Site Access near Passalacqua Rd.	70.9	52	54	394	60	155
	75	Lytton Springs Rd.	71.9	49	53	536	59	203
Geyserville	76	State Highway 128	75.8	53	54	432	60	172
	77	Washington School Rd.	80.9	53	54	432	60	172
	78	Kelly Rd.	83.2	43	52	664	58	260
	79	Asti Rd.	84.5	43	52	664	58	260
	80	Possible crossing near Railroad Ave.	85.3	43	52	1251	58	490
Cloverdale	81	E. 1st St.	85.4	43	52	1251	58	490
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	43	52	1251	58	490
County Line		Not a crossing	89.6	43	52	698	58	274
Hopland	83	State Highway 175	99.9	52	54	680	60	267
	84	Henry Station Rd.	105.8	52	54	680	60	267
	85	Norgard Ln.	111.7	51	54	719	60	279
	86	Commerce Dr.	112.9	51	54	510	60	198
	87	State Highway 222	113	51	54	510	60	198
	88	E. Gobbi St.	113.6	51	54	510	60	198
Ukiah	89	E. Perkins St.	114	51	54	510	60	198
	90	Clara Ave.	114.4	53	54	454	60	181
	91	Ford St.	114.5	53	54	454	60	181
	92	Brush St.	114.6	53	54	454	60	181
	93	Ford Rd.	115.2	53	54	640	60	255
	94	Masonite Truck Rd.	115.7	53	54	640	60	255
	95	Hollow Tree Rd.	115.9	53	54	640	60	255
	96	Lake Mendocino Dr.	117	53	54	640	60	255
	97	Moore St.	119.8	53	54	640	60	255
Redwood Valley	98	E. School Way	122.1	53	54	640	60	255
	99	Laughlin Way	123	53	54	429	60	171
	100	E. Hill Road	123.9	51	54	510	60	198
	101	E. Valley Road	137.8	51	54	510	60	198
Willits	102	E. Commercial St.	139.5	51	54	510	60	198
End of line		Not a crossing	142.5	51	54	510	60	198

Appendix D
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – No Horn

City		Crossing Street Name	Mile Post	Existing Ambient	FTA Category 2			
					Moderate Impact		Severe Impact	
				L_{dn}	L_{dn}	Contour	L_{dn}	Contour
Lombard	1	Green Island Rd.	0.8	61	58	164	64	70
	2	Milton Rd.	3	61	58	200	64	85
	3	Skaggs Island Rd.	6.7	61	58	215	64	92
Shellville	4	Cameros Hwy.	10.6	61	58	169	64	72
	5	Redding Rd.	13.6	61	58	215	64	92
	6	Sears Point Rd.	18.1	54	55	368	61	148
	7	Reclamation Rd.	20.1	54	55	368	61	148
	8	Private	20.5	54	55	368	61	148
	9	Port Sonoma Rd.	21.8	54	55	368	61	148
	10	Grandview Ave.	22.9	54	55	342	61	137
	11	Parking lot access	23.1	54	55	342	61	137
	12	Stone Tree Ln.	23.3	54	55	342	61	137
	13	Private	24.5	54	55	368	61	148
Ignacio	14	Hanna Ranch Rd.	25.9	64	60	132	66	58
	15	Possible crossing near Franklin Ave.	27.5	64	60	132	66	58
	16	Grant Ave.	27.9	64	60	132	66	58
Novato	17	Olive Ave.	28.1	64	60	132	66	58
	18	Golden Gate Place	28.4	64	60	132	66	58
	19	Rush Creek Place	28.5	64	60	129	66	56
	20	County Dump Rd.	32	64	60	129	66	56
	21	Caulfield Ln.	38.1	53	54	249	60	99
Petaluma	22	D St.	38.5	53	54	274	60	109
	23	Washington St.	38.6	53	54	274	60	109
	24	Madison St.	38.8	53	54	274	60	109
	25	W. Payran St.	39.2	53	54	274	60	109
	26	South Point Blvd.	40.4	66	61	113	67	50
	27	N. McDowell Blvd.	40.7	66	61	113	67	50
	28	Corona Rd.	41.1	66	61	104	67	46
	29	Ely Rd.	42.2	67	62	94	67	42
	30	Main St.	43.3	67	62	94	67	42
	31	Adobe Rd.	43.6	67	62	94	67	42
	32	E. Railroad Ave.	44.8	58	57	172	62	72
Cotati	33	E. Cotati Ave.	46.1	59	57	161	63	68
	34	Southwest Blvd.	46.8	58	57	219	62	91
	35	Possible crossing near Carlita Cir.	46.9	58	57	219	62	91
	36	Rohnert Park Expy.	47.4	58	57	219	62	91
	37	Golf Course Dr.	48.5	58	57	220	62	92
	38	Scenic Ave.	49.4	65	61	117	66	51
	39	Todd Rd.	50.3	65	61	117	66	51
	40	W. Robles Ave.	50.8	65	61	117	66	51
	41	Bellvue Ave.	51.3	65	61	117	66	51
	42	Hearn Ave.	52.2	71	65	25	70	11
	43	W Barham Ave.	53	71	65	25	70	11
	44	Sebastopol Rd.	53.4	67	62	33	67	15
Santa Rosa	45	3rd St.	53.7	67	62	33	67	15
	46	6th St.	53.8	67	62	35	67	16
	47	7th St.	53.9	67	62	35	67	16
	48	8th St.	54	67	62	35	67	16
	49	9th St.	54.1	67	62	35	67	16
	50	College Ave.	54.4	67	62	35	67	16
	51	Guerneville Rd.	55.3	67	62	37	67	17
	52	W. Steele Ln.	55.6	67	62	37	67	17
	53	Piner Rd.	56.3	55	55	108	61	44
	54	San Miguel Ave.	56.8	55	55	108	61	44

Appendix D
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – No Horn

City		Crossing Street Name	Mile Post	Existing Ambient	FTA Category 2			
					Moderate Impact		Severe Impact	
				L_{dn}	L_{dn}	Contour	L_{dn}	Contour
	55	Fulton Rd.	58.5	55	55	108	61	44
	56	River Rd.	58.8	55	55	108	61	44
	57	Airport Blvd.	59.9	49	53	152	59	58
	58	Aviation Blvd.	60.2	49	53	152	59	58
	59	Shiloh Rd.	61.1	49	53	152	59	58
	60	Mitchell Ln.	61.7	49	53	152	59	58
Windsor	61	Windsor River Rd.	62.9	52	54	133	60	52
	62	Starr Rd.	63.8	52	54	122	60	48
Grant	63	Limerick Ln.	66.2	51	54	129	60	50
	64	Grant Ave.	66.9	51	54	129	60	50
	65	Bailhache Ave.	67.4	51	54	129	60	50
Healdsburg	66	Front St.	67.7	51	54	106	60	41
	67	Mill St.	68.2	51	54	100	60	39
	68	Matheson St.	68.4	51	54	100	60	39
	69	W. North St.	68.5	51	54	100	60	39
	70	Grant St.	68.8	51	54	123	60	48
	71	Dry Creek Rd.	69.5	55	55	96	61	39
	72	Grove St.	70.3	55	55	96	61	39
	73	Parking lot access near Parkland Farms Blvd.	70.5	55	55	96	61	39
	74	Site Access near Passalacqua Rd.	70.9	55	55	84	61	34
	75	Lytton Springs Rd.	71.9	51	54	123	60	48
Geyserville	76	State Highway 128	75.8	59	57	71	63	30
	77	Washington School Rd.	80.9	59	57	71	63	30
	78	Kelly Rd.	83.2	50	53	130	60	50
	79	Asti Rd.	84.5	50	53	130	60	50
	80	Possible crossing near Railroad Ave.	85.3	50	53	233	60	89
Cloverdale	81	E. 1st St.	85.4	50	53	233	60	89
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	50	53	233	60	89
County Line		Not a crossing	89.6	50	53	132	60	51
Hopland	83	State Highway 175	99.9	55	55	136	61	55
	84	Henry Station Rd.	105.8	55	55	136	61	55
	85	Norgard Ln.	111.7	57	56	118	62	49
	86	Commerce Dr.	112.9	57	56	85	62	35
	87	State Highway 222	113	57	56	85	62	35
	88	E. Gobbi St.	113.6	57	56	85	62	35
Ukiah	89	E. Perkins St.	114	57	56	85	62	35
	90	Clara Ave.	114.4	57	56	85	62	35
	91	Ford St.	114.5	57	56	85	62	35
	92	Brush St.	114.6	57	56	85	62	35
	93	Ford Rd.	115.2	57	56	118	62	49
	94	Masonite Truck Rd.	115.7	57	56	118	62	49
	95	Hollow Tree Rd.	115.9	57	56	118	62	49
	96	Lake Mendocino Dr.	117	57	56	118	62	49
	97	Moore St.	119.8	57	56	118	62	49
Redwood Valley	98	E. School Way	122.1	57	56	106	62	44
	99	Laughlin Way	123	57	56	77	62	32
	100	E. Hill Road	123.9	56	56	85	62	35
	101	E. Valley Road	137.8	56	56	85	62	35
Willits	102	E. Commercial St.	139.5	56	56	85	62	35
End of line		Not a crossing	142.5	56	56	85	62	35

Appendix D
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – No Horn

City		Crossing Street Name	Mile Post	Existing Ambient	FTA Category 3			
					Moderate Impact		Severe Impact	
				L_{eq}	L_{eq}	Contour	L_{eq}	Contour
Lombard	1	Green Island Rd.	0.8	52	59	211	65	83
	2	Milton Rd.	3	52	59	257	65	101
	3	Skaggs Island Rd.	6.7	52	59	279	65	110
Shellville	4	Cameros Hwy.	10.6	52	59	217	65	85
	5	Redding Rd.	13.6	52	59	279	65	110
	6	Sears Point Rd.	18.1	53	59	262	65	104
	7	Reclamation Rd.	20.1	53	59	262	65	104
	8	Private	20.5	53	59	262	65	104
	9	Port Sonoma Rd.	21.8	53	59	262	65	104
	10	Grandview Ave.	22.9	53	59	242	65	96
	11	Parking lot access	23.1	53	59	242	65	96
	12	Stone Tree Ln.	23.3	53	59	242	65	96
	13	Private	24.5	53	59	262	65	104
Ignacio	14	Hanna Ranch Rd.	25.9	61	63	115	69	49
	15	Possible crossing near Franklin Ave.	27.5	61	63	115	69	49
	16	Grant Ave.	27.9	61	63	115	69	49
Novato	17	Olive Ave.	28.1	61	63	115	69	49
	18	Golden Gate Place	28.4	61	63	115	69	49
	19	Rush Creek Place	28.5	61	63	113	69	48
	20	County Dump Rd.	32	61	63	113	69	48
	21	Caulfield Ln.	38.1	48	58	212	64	79
Petaluma	22	D St.	38.5	48	58	223	64	83
	23	Washington St.	38.6	48	58	223	64	83
	24	Madison St.	38.8	48	58	223	64	83
	25	W. Payran St.	39.2	48	58	223	64	83
	26	South Point Blvd.	40.4	60	63	128	68	54
	27	N. McDowell Blvd.	40.7	60	63	128	68	54
	28	Corona Rd.	41.1	60	63	124	68	53
	29	Ely Rd.	42.2	57	61	158	67	65
	30	Main St.	43.3	57	61	158	67	65
	31	Adobe Rd.	43.6	57	61	158	67	65
	32	E. Railroad Ave.	44.8	50	58	195	65	75
Cotati	33	E. Cotati Ave.	46.1	53	59	166	65	66
	34	Southwest Blvd.	46.8	53	59	209	65	83
	35	Possible crossing near Carlita Cir.	46.9	53	59	209	65	83
	36	Rohnert Park Expy.	47.4	53	59	209	65	83
	37	Golf Course Dr.	48.5	53	59	209	65	83
	38	Scenic Ave.	49.4	57	61	159	67	66
	39	Todd Rd.	50.3	57	61	159	67	66
	40	W. Robles Ave.	50.8	57	61	159	67	66
	41	Bellvue Ave.	51.3	57	61	159	67	66
	42	Hearn Ave.	52.2	63	65	96	70	41
	43	W Barham Ave.	53	63	65	96	70	41
	44	Sebastopol Rd.	53.4	63	65	76	70	33
Santa Rosa	45	3rd St.	53.7	63	65	76	70	33
	46	6th St.	53.8	63	65	78	70	34
	47	7th St.	53.9	63	65	78	70	34
	48	8th St.	54	63	65	78	70	34
	49	9th St.	54.1	63	65	78	70	34
	50	College Ave.	54.4	63	65	78	70	34
	51	Guerneville Rd.	55.3	63	65	94	70	41
	52	W. Steele Ln.	55.6	63	65	94	70	41
	53	Piner Rd.	56.3	53	59	207	65	82
	54	San Miguel Ave.	56.8	53	59	207	65	82

Appendix D
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – No Horn

City		Crossing Street Name	Mile Post	Existing Ambient	FTA Category 3			
					Moderate Impact		Severe Impact	
				L_{eq}	L_{eq}	Contour	L_{eq}	Contour
	55	Fulton Rd.	58.5	53	59	207	65	82
	56	River Rd.	58.8	53	59	207	65	82
	57	Airport Blvd.	59.9	44	57	310	64	108
	58	Aviation Blvd.	60.2	44	57	310	64	108
	59	Shiloh Rd.	61.1	44	57	310	64	108
	60	Mitchell Ln.	61.7	44	57	310	64	108
Windsor	61	Windsor River Rd.	62.9	49	58	259	64	98
	62	Starr Rd.	63.8	49	58	259	64	98
Grant	63	Limerick Ln.	66.2	49	58	259	64	98
	64	Grant Ave.	66.9	49	58	259	64	98
	65	Bailhache Ave.	67.4	49	58	259	64	98
Healdsburg	66	Front St.	67.7	49	58	206	64	78
	67	Mill St.	68.2	49	58	195	64	74
	68	Matheson St.	68.4	49	58	195	64	74
	69	W. North St.	68.5	49	58	195	64	74
	70	Grant St.	68.8	49	58	249	64	94
	71	Dry Creek Rd.	69.5	52	59	213	65	84
	72	Grove St.	70.3	52	59	213	65	84
	73	Parking lot access near Parkland Farms Blvd.	70.5	52	59	213	65	84
	74	Site Access near Passalacqua Rd.	70.9	52	59	183	65	72
	75	Lytton Springs Rd.	71.9	49	58	249	64	94
Geyserville	76	State Highway 128	75.8	53	59	200	65	80
	77	Washington School Rd.	80.9	53	59	200	65	80
	78	Kelly Rd.	83.2	43	57	308	63	121
	79	Asti Rd.	84.5	43	57	308	63	121
	80	Possible crossing near Railroad Ave.	85.3	43	57	581	63	228
Cloverdale	81	E. 1st St.	85.4	43	57	581	63	228
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	43	57	581	63	228
County Line		Not a crossing	89.6	43	57	324	63	127
Hopland	83	State Highway 175	99.9	52	59	315	65	124
	84	Henry Station Rd.	105.8	52	59	315	65	124
	85	Norgard Ln.	111.7	51	59	334	65	130
	86	Commerce Dr.	112.9	51	59	237	65	92
	87	State Highway 222	113	51	59	237	65	92
	88	E. Gobbi St.	113.6	51	59	237	65	92
Ukiah	89	E. Perkins St.	114	51	59	237	65	92
	90	Clara Ave.	114.4	53	59	211	65	84
	91	Ford St.	114.5	53	59	211	65	84
	92	Brush St.	114.6	53	59	211	65	84
	93	Ford Rd.	115.2	53	59	297	65	118
	94	Masonite Truck Rd.	115.7	53	59	297	65	118
	95	Hollow Tree Rd.	115.9	53	59	297	65	118
	96	Lake Mendocino Dr.	117	53	59	297	65	118
	97	Moore St.	119.8	53	59	297	65	118
Redwood Valley	98	E. School Way	122.1	53	59	297	65	118
	99	Laughlin Way	123	53	59	199	65	79
	100	E. Hill Road	123.9	51	59	237	65	92
	101	E. Valley Road	137.8	51	59	237	65	92
Willits	102	E. Commercial St.	139.5	51	59	237	65	92
End of line		Not a crossing	142.5	51	59	237	65	92

City		Crossing Street Name	Mile Post	L_{dn} Contours, Feet		
				60	65	70
Lombard	1	Green Island Rd.	0.8	127	59	27
	2	Milton Rd.	3	155	72	33
	3	Skaggs Island Rd.	6.7	167	78	36
Shellville	4	Cameros Hwy.	10.6	131	61	28
	5	Redding Rd.	13.6	167	78	36
	6	Sears Point Rd.	18.1	167	78	36
	7	Reclamation Rd.	20.1	167	78	36
	8	Private	20.5	167	78	36
	9	Port Sonoma Rd.	21.8	167	78	36
	10	Grandview Ave.	22.9	155	72	33
	11	Parking lot access	23.1	155	72	33
	12	Stone Tree Ln.	23.3	155	72	33
	13	Private	24.5	167	78	36
Ignacio	14	Hanna Ranch Rd.	25.9	136	63	29
	15	Possible crossing near Franklin Ave.	27.5	136	63	29
	16	Grant Ave.	27.9	136	63	29
Novato	17	Olive Ave.	28.1	136	63	29
	18	Golden Gate Place	28.4	136	63	29
	19	Rush Creek Place	28.5	133	62	29
	20	County Dump Rd.	32	133	62	29
	21	Caulfield Ln.	38.1	106	49	23
Petaluma	22	D St.	38.5	117	54	25
	23	Washington St.	38.6	117	54	25
	24	Madison St.	38.8	117	54	25
	25	W. Payran St.	39.2	117	54	25
	26	South Point Blvd.	40.4	143	66	31
	27	N. McDowell Blvd.	40.7	143	66	31
	28	Corona Rd.	41.1	131	61	28
	29	Ely Rd.	42.2	131	61	28
	30	Main St.	43.3	131	61	28
	31	Adobe Rd.	43.6	131	61	28
	32	E. Railroad Ave.	44.8	104	48	22
Cotati	33	E. Cotati Ave.	46.1	106	49	23
	34	Southwest Blvd.	46.8	133	62	29
	35	Possible crossing near Carlita Cir.	46.9	133	62	29
	36	Rohnert Park Expy.	47.4	133	62	29
	37	Golf Course Dr.	48.5	133	62	29
	38	Scenic Ave.	49.4	133	62	29
	39	Todd Rd.	50.3	133	62	29
	40	W. Robles Ave.	50.8	133	62	29
	41	Bellvue Ave.	51.3	133	62	29
	42	Hearn Ave.	52.2	55	25	12
	43	W Barham Ave.	53	55	25	12
	44	Sebastopol Rd.	53.4	47	22	10
Santa Rosa	45	3rd St.	53.7	47	22	10
	46	6th St.	53.8	49	23	11
	47	7th St.	53.9	49	23	11
	48	8th St.	54	49	23	11
	49	9th St.	54.1	49	23	11
	50	College Ave.	54.4	49	23	11
	51	Guerneville Rd.	55.3	52	24	11
	52	W. Steele Ln.	55.6	52	24	11
	53	Piner Rd.	56.3	52	24	11
	54	San Miguel Ave.	56.8	52	24	11
	55	Fulton Rd.	58.5	52	24	11
	56	River Rd.	58.8	52	24	11
	57	Airport Blvd.	59.9	52	24	11
	58	Aviation Blvd.	60.2	52	24	11
	59	Shiloh Rd.	61.1	52	24	11

Appendix D
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – No Horn

City		Crossing Street Name	Mile Post	L_{dn} Contours, Feet 60	65	70
	60	Mitchell Ln.	61.7	52	24	11
Windsor	61	Windsor River Rd.	62.9	53	25	12
	62	Starr Rd.	63.8	49	23	11
Grant	63	Limerick Ln.	66.2	49	23	11
	64	Grant Ave.	66.9	49	23	11
	65	Bailhache Ave.	67.4	49	23	11
Healdsburg	66	Front St.	67.7	40	19	9
	67	Mill St.	68.2	38	18	8
	68	Matheson St.	68.4	38	18	8
	69	W. North St.	68.5	38	18	8
	70	Grant St.	68.8	47	22	10
	71	Dry Creek Rd.	69.5	47	22	10
	72	Grove St.	70.3	47	22	10
	73	Parking lot access near Parkland Farms Blvd.	70.5	47	22	10
	74	Site Access near Passalacqua Rd.	70.9	41	19	9
	75	Lytton Springs Rd.	71.9	47	22	10
Geyserville	76	State Highway 128	75.8	47	22	10
	77	Washington School Rd.	80.9	47	22	10
	78	Kelly Rd.	83.2	47	22	10
	79	Asti Rd.	84.5	47	22	10
	80	Possible crossing near Railroad Ave.	85.3	84	39	18
Cloverdale	81	E. 1st St.	85.4	84	39	18
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	84	39	18
County Line		Not a crossing	89.6	47	22	10
Hopland	83	State Highway 175	99.9	66	31	14
	84	Henry Station Rd.	105.8	66	31	14
	85	Norgard Ln.	111.7	66	31	14
	86	Commerce Dr.	112.9	47	22	10
	87	State Highway 222	113	47	22	10
	88	E. Gobbi St.	113.6	47	22	10
Ukiah	89	E. Perkins St.	114	47	22	10
	90	Clara Ave.	114.4	47	22	10
	91	Ford St.	114.5	47	22	10
	92	Brush St.	114.6	47	22	10
	93	Ford Rd.	115.2	66	31	14
	94	Masonite Truck Rd.	115.7	66	31	14
	95	Hollow Tree Rd.	115.9	66	31	14
	96	Lake Mendocino Dr.	117	66	31	14
	97	Moore St.	119.8	66	31	14
Redwood Valley	98	E. School Way	122.1	60	28	13
	99	Laughlin Way	123	43	20	9
	100	E. Hill Road	123.9	44	21	10
	101	E. Valley Road	137.8	44	21	10
Willits	102	E. Commercial St.	139.5	44	21	10
End of line		Not a crossing	142.5	44	21	10

Appendix E
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – With Horn

					Category 1							
				Existing Ambient	Moderate Impact				Severe Impact			
							Contour				Contour	
City		Crossing Street Name	Mile Post	L_{eq}	L_{eq}	H-Zone	1/2-Zone	X-ing	L_{eq}	H-Zone	1/2-Zone	X-ing
Lombard	1	Green Island Rd.	0.8	52	54	2039	851	1699	60	1603	335	668
	2	Milton Rd.	3	52	54	2421	1232	2615	60	1753	485	1028
	3	Skaggs Island Rd.	6.7	52	54	1874	817	1342	60	1538	321	528
Shellville	4	Cameros Hwy.	10.6	52	54	2172	972	2017	60	1655	382	793
	5	Redding Rd.	13.6	52	54	1874	817	1342	60	1538	321	528
	6	Sears Point Rd.	18.1	53	54	1842	770	1265	60	1528	306	503
	7	Reclamation Rd.	20.1	53	54	1842	770	1265	60	1528	306	503
	8	Private	20.5	53	54	1842	770	1265	60	1528	306	503
	9	Port Sonoma Rd.	21.8	53	54	1842	770	1265	60	1528	306	503
	10	Grandview Ave.	22.9	53	54	2357	1161	2463	60	1733	462	980
	11	Parking lot access	23.1	53	54	2357	1161	2463	60	1733	462	980
	12	Stone Tree Ln.	23.3	53	54	2357	1161	2463	60	1733	462	980
	13	Private	24.5	53	54	1842	770	1265	60	1528	306	503
Ignacio	14	Hanna Ranch Rd.	25.9	61	58	1988	712	1602	64	1604	304	683
	15	Possible crossing near Franklin Ave.	27.5	61	58	1988	712	1602	64	1604	304	683
	16	Grant Ave.	27.9	61	58	1988	712	1602	64	1604	304	683
Novato	17	Olive Ave.	28.1	61	58	1988	712	1602	64	1604	304	683
	18	Golden Gate Place	28.4	61	58	1988	712	1602	64	1604	304	683
	19	Rush Creek Place	28.5	61	58	1863	596	1295	64	1552	254	552
	20	County Dump Rd.	32	61	58	1863	596	1295	64	1552	254	552
	21	Caulfield Ln.	38.1	48	53	2730	1482	3403	59	1847	554	1271
Petaluma	22	D St.	38.5	48	53	3245	1984	4689	59	2039	741	1752
	23	Washington St.	38.6	48	53	3245	1984	4689	59	2039	741	1752
	24	Madison St.	38.8	48	53	3245	1984	4689	59	2039	741	1752
	25	W. Payran St.	39.2	48	53	3245	1984	4689	59	2039	741	1752
	26	South Point Blvd.	40.4	60	58	2161	885	2029	63	1676	375	858
	27	N. McDowell Blvd.	40.7	60	58	2161	885	2029	63	1676	375	858
	28	Corona Rd.	41.1	60	58	1961	695	1533	63	1591	294	648
	29	Ely Rd.	42.2	57	56	2136	884	1949	62	1657	365	805
	30	Main St.	43.3	57	56	2136	884	1949	62	1657	365	805
	31	Adobe Rd.	43.6	57	56	2136	884	1949	62	1657	365	805
	32	E. Railroad Ave.	44.8	50	53	2694	1437	3324	60	1848	552	1276
Cotati	33	E. Cotati Ave.	46.1	53	54	2530	1262	2930	60	1801	502	1165
	34	Southwest Blvd.	46.8	53	54	2442	1209	2687	60	1766	481	1069
	35	Possible crossing near Carlita Cir.	46.9	53	54	2442	1209	2687	60	1766	481	1069
	36	Rohnert Park Expy.	47.4	53	54	2442	1209	2687	60	1766	481	1069
	37	Golf Course Dr.	48.5	53	54	2486	1251	2796	60	1784	497	1112
	38	Scenic Ave.	49.4	57	56	2208	952	2128	62	1687	393	879
	39	Todd Rd.	50.3	57	56	2208	952	2128	62	1687	393	879
	40	W. Robles Ave.	50.8	57	56	2208	952	2128	62	1687	393	879
	41	Bellvue Ave.	51.3	57	56	2208	952	2128	62	1687	393	879
	42	Hearn Ave.	52.2	63	60	1853	571	1277	65	1550	247	552
	43	W Barham Ave.	53	63	60	1853	571	1277	65	1550	247	552
	44	Sebastopol Rd.	53.4	63	60	1892	595	1386	65	1567	257	599
Santa Rosa	45	3rd St.	53.7	63	60	1892	595	1386	65	1567	257	599
	46	6th St.	53.8	63	60	1959	660	1553	65	1596	285	672
	47	7th St.	53.9	63	60	1959	660	1553	65	1596	285	672
	48	8th St.	54	63	60	1959	660	1553	65	1596	285	672
	49	9th St.	54.1	63	60	1959	660	1553	65	1596	285	672
	50	College Ave.	54.4	63	60	1959	660	1553	65	1596	285	672
	51	Guerneville Rd.	55.3	63	60	1785	508	1110	65	1521	220	480
	52	W. Steele Ln.	55.6	63	60	1785	508	1110	65	1521	220	480
	53	Piner Rd.	56.3	53	54	2338	1112	2430	60	1725	442	966

Appendix E
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – With Horn

					Category 1							
				Existing Ambient	Moderate Impact				Severe Impact			
							Contour				Contour	
City		Crossing Street Name	Mile Post	L_{eq}	L_{eq}	H-Zone	1/2-Zone	X-ing	L_{eq}	H-Zone	1/2-Zone	X-ing
	54	San Miguel Ave.	56.8	53	54	2338	1112	2430	60	1725	442	966
	55	Fulton Rd.	58.5	53	54	2338	1112	2430	60	1725	442	966
	56	River Rd.	58.8	53	54	2338	1112	2430	60	1725	442	966
	57	Airport Blvd.	59.9	44	52	2846	1666	3641	59	1853	582	1273
	58	Aviation Blvd.	60.2	44	52	2846	1666	3641	59	1853	582	1273
	59	Shiloh Rd.	61.1	44	52	2846	1666	3641	59	1853	582	1273
	60	Mitchell Ln.	61.7	44	52	2846	1666	3641	59	1853	582	1273
Windsor	61	Windsor River Rd.	62.9	49	53	2681	1471	3256	59	1836	557	1234
	62	Starr Rd.	63.8	49	53	2681	1471	3256	59	1836	557	1234
Grant	63	Limerick Ln.	66.2	49	53	2681	1471	3256	59	1836	557	1234
	64	Grant Ave.	66.9	49	53	2681	1471	3256	59	1836	557	1234
	65	Bailhache Ave.	67.4	49	53	2681	1471	3256	59	1836	557	1234
Healdsburg	66	Front St.	67.7	49	53	2791	1537	3561	59	1878	582	1349
	67	Mill St.	68.2	49	53	2210	984	2118	59	1657	373	803
	68	Matheson St.	68.4	49	53	2210	984	2118	59	1657	373	803
	69	W. North St.	68.5	49	53	2210	984	2118	59	1657	373	803
	70	Grant St.	68.8	49	53	2044	901	1711	59	1594	341	648
	71	Dry Creek Rd.	69.5	52	54	1939	770	1462	60	1563	303	575
	72	Grove St.	70.3	52	54	1939	770	1462	60	1563	303	575
	73	Parking lot access near Parkland Farms Blvd.	70.5	52	54	1939	770	1462	60	1563	303	575
	74	Site Access near Passalacqua Rd.	70.9	52	54	1968	758	1531	60	1575	298	602
	75	Lytton Springs Rd.	71.9	49	53	2044	901	1711	59	1594	341	648
Geyserville	76	State Highway 128	75.8	53	54	1903	725	1377	60	1552	288	548
	77	Washington School Rd.	80.9	53	54	1903	725	1377	60	1552	288	548
	78	Kelly Rd.	83.2	43	52	2216	1116	2118	58	1671	437	830
	79	Asti Rd.	84.5	43	52	2216	1116	2118	58	1671	437	830
	80	Possible crossing near Railroad Ave.	85.3	43	52	2039	1443	1954	58	1602	566	766
Cloverdale	81	E. 1st St.	85.4	43	52	2039	1443	1954	58	1602	566	766
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	43	52	2039	1443	1954	58	1602	566	766
County Line		Not a crossing	89.6	43	52	2247	1161	2192	58	1684	455	859
Hopland	83	State Highway 175	99.9	52	54	1849	861	1319	60	1528	339	519
	84	Henry Station Rd.	105.8	52	54	1849	861	1319	60	1528	339	519
	85	Norgard Ln.	111.7	51	54	1880	911	1395	60	1538	354	542
	86	Commerce Dr.	112.9	51	54	1997	847	1600	60	1583	329	622
	87	State Highway 222	113	51	54	1997	847	1600	60	1583	329	622
	88	E. Gobbi St.	113.6	51	54	1997	847	1600	60	1583	329	622
Ukiah	89	E. Perkins St.	114	51	54	1997	847	1600	60	1583	329	622
	90	Clara Ave.	114.4	53	54	1923	755	1425	60	1560	300	567
	91	Ford St.	114.5	53	54	1923	755	1425	60	1560	300	567
	92	Brush St.	114.6	53	54	1923	755	1425	60	1560	300	567
	93	Ford Rd.	115.2	53	54	1819	811	1242	60	1518	323	494
	94	Masonite Truck Rd.	115.7	53	54	1819	811	1242	60	1518	323	494
	95	Hollow Tree Rd.	115.9	53	54	1819	811	1242	60	1518	323	494
	96	Lake Mendocino Dr.	117	53	54	1819	811	1242	60	1518	323	494
	97	Moore St.	119.8	53	54	1819	811	1242	60	1518	323	494
Redwood Valley	98	E. School Way	122.1	53	54	1819	811	1242	60	1518	323	494
	99	Laughlin Way	123	53	54	1998	802	1601	60	1590	319	637
	100	E. Hill Road	123.9	51	54	1997	847	1600	60	1583	329	622
	101	E. Valley Road	137.8	51	54	1997	847	1600	60	1583	329	622
Willits	102	E. Commercial St.	139.5	51	54	1997	847	1600	60	1583	329	622
End of line		Not a crossing	142.5	51	54	1997	847	1600	60	1583	329	622

Appendix E
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – With Horn

					Category 2							
				Existing Ambient	Moderate Impact				Severe Impact			
							Contour				Contour	
City		Crossing Street Name	Mile Post	L_{dn}	L_{dn}	H-Zone	1/2-Zone	X-ing	L_{dn}	H-Zone	1/2-Zone	X-ing
Lombard	1	Green Island Rd.	0.8	61	58	1590	316	638	64	1435	135	272
	2	Milton Rd.	3	61	58	1734	459	984	64	1496	196	419
	3	Skaggs Island Rd.	6.7	61	58	1527	299	500	64	1408	127	213
Shellville	4	Cameros Hwy.	10.6	61	58	1640	362	758	64	1456	154	323
	5	Redding Rd.	13.6	61	58	1527	299	500	64	1408	127	213
	6	Sears Point Rd.	18.1	54	55	1675	512	855	61	1463	206	344
	7	Reclamation Rd.	20.1	54	55	1675	512	855	61	1463	206	344
	8	Private	20.5	54	55	1675	512	855	61	1463	206	344
	9	Port Sonoma Rd.	21.8	54	55	1675	512	855	61	1463	206	344
	10	Grandview Ave.	22.9	54	55	2028	786	1684	61	1605	316	677
	11	Parking lot access	23.1	54	55	2028	786	1684	61	1605	316	677
	12	Stone Tree Ln.	23.3	54	55	2028	786	1684	61	1605	316	677
	13	Private	24.5	54	55	1675	512	855	61	1463	206	344
Ignacio	14	Hanna Ranch Rd.	25.9	64	60	1716	417	954	66	1492	182	415
	15	Possible crossing near Franklin Ave.	27.5	64	60	1716	417	954	66	1492	182	415
	16	Grant Ave.	27.9	64	60	1716	417	954	66	1492	182	415
Novato	17	Olive Ave.	28.1	64	60	1716	417	954	66	1492	182	415
	18	Golden Gate Place	28.4	64	60	1716	417	954	66	1492	182	415
	19	Rush Creek Place	28.5	64	60	1640	345	765	66	1459	150	333
	20	County Dump Rd.	32	64	60	1640	345	765	66	1459	150	333
	21	Caulfield Ln.	38.1	53	54	2158	874	2029	60	1653	348	807
Petaluma	22	D St.	38.5	53	54	2672	1380	3315	60	1858	549	1318
	23	Washington St.	38.6	53	54	2672	1380	3315	60	1858	549	1318
	24	Madison St.	38.8	53	54	2672	1380	3315	60	1858	549	1318
	25	W. Payran St.	39.2	53	54	2672	1380	3315	60	1858	549	1318
	26	South Point Blvd.	40.4	66	61	1762	456	1075	67	1515	201	475
	27	N. McDowell Blvd.	40.7	66	61	1762	456	1075	67	1515	201	475
	28	Corona Rd.	41.1	66	61	1543	247	532	67	1419	109	235
	29	Ely Rd.	42.2	67	62	1521	222	479	67	1409	99	213
	30	Main St.	43.3	67	62	1521	222	479	67	1409	99	213
	31	Adobe Rd.	43.6	67	62	1521	222	479	67	1409	99	213
	32	E. Railroad Ave.	44.8	58	57	1837	545	1246	62	1535	227	519
Cotati	33	E. Cotati Ave.	46.1	59	57	1855	558	1294	63	1544	234	543
	34	Southwest Blvd.	46.8	58	57	1851	575	1270	62	1541	239	529
	35	Possible crossing near Carlita Cir.	46.9	58	57	1851	575	1270	62	1541	239	529
	36	Rohnert Park Expy.	47.4	58	57	1851	575	1270	62	1541	239	529
	37	Golf Course Dr.	48.5	58	57	1871	594	1320	62	1550	247	550
	38	Scenic Ave.	49.4	65	61	1614	316	703	66	1449	139	308
	39	Todd Rd.	50.3	65	61	1614	316	703	66	1449	139	308
	40	W. Robles Ave.	50.8	65	61	1614	316	703	66	1449	139	308
	41	Bellvue Ave.	51.3	65	61	1614	316	703	66	1449	139	308
	42	Hearn Ave.	52.2	71	65	1450	133	320	70	1380	61	147
	43	W Barham Ave.	53	71	65	1450	133	320	70	1380	61	147
	44	Sebastopol Rd.	53.4	67	62	1530	213	519	67	1414	95	231
Santa Rosa	45	3rd St.	53.7	67	62	1530	213	519	67	1414	95	231
	46	6th St.	53.8	67	62	1562	244	598	67	1428	109	266
	47	7th St.	53.9	67	62	1562	244	598	67	1428	109	266
	48	8th St.	54	67	62	1562	244	598	67	1428	109	266
	49	9th St.	54.1	67	62	1562	244	598	67	1428	109	266
	50	College Ave.	54.4	67	62	1562	244	598	67	1428	109	266
	51	Guerneville Rd.	55.3	67	62	1494	178	425	67	1397	79	189
	52	W. Steele Ln.	55.6	67	62	1494	178	425	67	1397	79	189
	53	Piner Rd.	56.3	55	55	1820	511	1223	61	1523	207	496

Appendix E
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – With Horn

				Existing Ambient	Category 2 Moderate Impact				Category 2 Severe Impact			
							Contour				Contour	
City		Crossing Street Name	Mile Post	L_{dn}	L_{dn}	H-Zone	1/2-Zone	X-ing	L_{dn}	H-Zone	1/2-Zone	X-ing
	54	San Miguel Ave.	56.8	55	55	1820	511	1223	61	1523	207	496
	55	Fulton Rd.	58.5	55	55	1820	511	1223	61	1523	207	496
	56	River Rd.	58.8	55	55	1820	511	1223	61	1523	207	496
	57	Airport Blvd.	59.9	49	53	2027	723	1729	59	1588	274	655
	58	Aviation Blvd.	60.2	49	53	2027	723	1729	59	1588	274	655
	59	Shiloh Rd.	61.1	49	53	2027	723	1729	59	1588	274	655
	60	Mitchell Ln.	61.7	49	53	2027	723	1729	59	1588	274	655
Windsor	61	Windsor River Rd.	62.9	52	54	1981	674	1620	60	1580	265	637
	62	Starr Rd.	63.8	52	54	1758	454	1062	60	1492	179	418
Grant	63	Limerick Ln.	66.2	51	54	1783	480	1123	60	1500	187	437
	64	Grant Ave.	66.9	51	54	1783	480	1123	60	1500	187	437
	65	Bailhache Ave.	67.4	51	54	1783	480	1123	60	1500	187	437
Healdsburg	66	Front St.	67.7	51	54	1811	502	1202	60	1511	195	467
	67	Mill St.	68.2	51	54	1687	381	893	60	1463	148	347
	68	Matheson St.	68.4	51	54	1687	381	893	60	1463	148	347
	69	W. North St.	68.5	51	54	1687	381	893	60	1463	148	347
	70	Grant St.	68.8	51	54	1653	356	801	60	1450	138	311
	71	Dry Creek Rd.	69.5	55	55	1581	278	627	61	1426	113	254
	72	Grove St.	70.3	55	55	1581	278	627	61	1426	113	254
	73	Parking lot access near Parkland Farms Blvd.	70.5	55	55	1581	278	627	61	1426	113	254
	74	Site Access near Passalacqua Rd.	70.9	55	55	1586	279	642	61	1428	113	260
	75	Lytton Springs Rd.	71.9	51	54	1653	356	801	60	1450	138	311
Geyserville	76	State Highway 128	75.8	59	57	1513	206	464	63	1401	86	195
	77	Washington School Rd.	80.9	59	57	1513	206	464	63	1401	86	195
	78	Kelly Rd.	83.2	50	53	1671	375	844	60	1455	144	324
	79	Asti Rd.	84.5	50	53	1671	375	844	60	1455	144	324
	80	Possible crossing near Railroad Ave.	85.3	50	53	1479	282	409	60	1381	108	157
Cloverdale	81	E. 1st St.	85.4	50	53	1479	282	409	60	1381	108	157
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	50	53	1479	282	409	60	1381	108	157
County Line		Not a crossing	89.6	50	53	1529	247	494	60	1400	95	190
Hopland	83	State Highway 175	99.9	55	55	1447	186	307	61	1371	76	125
	84	Henry Station Rd.	105.8	55	55	1447	186	307	61	1371	76	125
	85	Norgard Ln.	111.7	57	56	1430	161	266	62	1365	67	110
	86	Commerce Dr.	112.9	57	56	1454	159	318	62	1376	66	131
	87	State Highway 222	113	57	56	1454	159	318	62	1376	66	131
	88	E. Gobbi St.	113.6	57	56	1454	159	318	62	1376	66	131
Ukiah	89	E. Perkins St.	114	57	56	1454	159	318	62	1376	66	131
	90	Clara Ave.	114.4	57	56	1454	159	318	62	1376	66	131
	91	Ford St.	114.5	57	56	1454	159	318	62	1376	66	131
	92	Brush St.	114.6	57	56	1454	159	318	62	1376	66	131
	93	Ford Rd.	115.2	57	56	1430	161	266	62	1365	67	110
	94	Masonite Truck Rd.	115.7	57	56	1430	161	266	62	1365	67	110
	95	Hollow Tree Rd.	115.9	57	56	1430	161	266	62	1365	67	110
	96	Lake Mendocino Dr.	117	57	56	1430	161	266	62	1365	67	110
	97	Moore St.	119.8	57	56	1430	161	266	62	1365	67	110
Redwood Valley	98	E. School Way	122.1	57	56	1428	151	258	62	1364	63	107
	99	Laughlin Way	123	57	56	1471	170	358	62	1382	70	148
	100	E. Hill Road	123.9	56	56	1463	167	339	62	1379	68	139
	101	E. Valley Road	137.8	56	56	1463	167	339	62	1379	68	139
Willits	102	E. Commercial St.	139.5	56	56	1463	167	339	62	1379	68	139
End of line		Not a crossing	142.5	56	56	1463	167	339	62	1379	68	139

Appendix E
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – With Horn

					Category 3							
				Existing Ambient	Moderate Impact				Severe Impact			
							Contour				Contour	
City		Crossing Street Name	Mile Post	L_{eq}	L_{eq}	H-Zone	1/2-Zone	X-ing	L_{eq}	H-Zone	1/2-Zone	X-ing
Lombard	1	Green Island Rd.	0.8	52	59	1654	395	789	65	1451	155	310
	2	Milton Rd.	3	52	59	1831	572	1214	65	1521	225	477
	3	Skaggs Island Rd.	6.7	52	59	1577	379	623	65	1421	149	245
Shellville	4	Cameros Hwy.	10.6	52	59	1715	451	936	65	1475	177	368
	5	Redding Rd.	13.6	52	59	1577	379	623	65	1421	149	245
	6	Sears Point Rd.	18.1	53	59	1562	357	587	65	1416	142	233
	7	Reclamation Rd.	20.1	53	59	1562	357	587	65	1416	142	233
	8	Private	20.5	53	59	1562	357	587	65	1416	142	233
	9	Port Sonoma Rd.	21.8	53	59	1562	357	587	65	1416	142	233
	10	Grandview Ave.	22.9	53	59	1802	539	1143	65	1511	214	455
	11	Parking lot access	23.1	53	59	1802	539	1143	65	1511	214	455
	12	Stone Tree Ln.	23.3	53	59	1802	539	1143	65	1511	214	455
	13	Private	24.5	53	59	1562	357	587	65	1416	142	233
Ignacio	14	Hanna Ranch Rd.	25.9	61	63	1630	331	744	69	1452	141	317
	15	Possible crossing near Franklin Ave.	27.5	61	63	1630	331	744	69	1452	141	317
	16	Grant Ave.	27.9	61	63	1630	331	744	69	1452	141	317
Novato	17	Olive Ave.	28.1	61	63	1630	331	744	69	1452	141	317
	18	Golden Gate Place	28.4	61	63	1630	331	744	69	1452	141	317
	19	Rush Creek Place	28.5	61	63	1572	277	601	69	1428	118	256
	20	County Dump Rd.	32	61	63	1572	277	601	69	1428	118	256
	21	Caulfield Ln.	38.1	48	58	1975	688	1579	64	1565	257	590
Petaluma	22	D St.	38.5	48	58	2213	921	2176	64	1654	344	813
	23	Washington St.	38.6	48	58	2213	921	2176	64	1654	344	813
	24	Madison St.	38.8	48	58	2213	921	2176	64	1654	344	813
	25	W. Payran St.	39.2	48	58	2213	921	2176	64	1654	344	813
	26	South Point Blvd.	40.4	60	63	1710	411	942	68	1485	174	398
	27	N. McDowell Blvd.	40.7	60	63	1710	411	942	68	1485	174	398
	28	Corona Rd.	41.1	60	63	1618	323	711	68	1446	136	301
	29	Ely Rd.	42.2	57	61	1699	410	905	67	1476	169	374
	30	Main St.	43.3	57	61	1699	410	905	67	1476	169	374
	31	Adobe Rd.	43.6	57	61	1699	410	905	67	1476	169	374
	32	E. Railroad Ave.	44.8	50	58	1958	667	1543	65	1565	256	592
Cotati	33	E. Cotati Ave.	46.1	53	59	1882	586	1360	65	1543	233	541
	34	Southwest Blvd.	46.8	53	59	1841	561	1247	65	1527	223	496
	35	Possible crossing near Carlita Cir.	46.9	53	59	1841	561	1247	65	1527	223	496
	36	Rohnert Park Expy.	47.4	53	59	1841	561	1247	65	1527	223	496
	37	Golf Course Dr.	48.5	53	59	1861	581	1298	65	1535	231	516
	38	Scenic Ave.	49.4	57	61	1732	442	988	67	1490	182	408
	39	Todd Rd.	50.3	57	61	1732	442	988	67	1490	182	408
	40	W. Robles Ave.	50.8	57	61	1732	442	988	67	1490	182	408
	41	Bellvue Ave.	51.3	57	61	1732	442	988	67	1490	182	408
	42	Hearn Ave.	52.2	63	65	1567	265	593	70	1427	115	256
	43	W Barham Ave.	53	63	65	1567	265	593	70	1427	115	256
	44	Sebastopol Rd.	53.4	63	65	1585	276	643	70	1435	119	278
Santa Rosa	45	3rd St.	53.7	63	65	1585	276	643	70	1435	119	278
	46	6th St.	53.8	63	65	1616	306	721	70	1448	132	312
	47	7th St.	53.9	63	65	1616	306	721	70	1448	132	312
	48	8th St.	54	63	65	1616	306	721	70	1448	132	312
	49	9th St.	54.1	63	65	1616	306	721	70	1448	132	312
	50	College Ave.	54.4	63	65	1616	306	721	70	1448	132	312
	51	Guerneville Rd.	55.3	63	65	1536	236	515	70	1413	102	223
	52	W. Steele Ln.	55.6	63	65	1536	236	515	70	1413	102	223
	53	Piner Rd.	56.3	53	59	1793	516	1128	65	1508	205	449

Appendix E
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – With Horn

				Existing Ambient	Category 3							
					Moderate Impact				Severe Impact			
							Contour				Contour	
City		Crossing Street Name	Mile Post	L_{eq}	L_{eq}	H-Zone	1/2-Zone	X-ing	L_{eq}	H-Zone	1/2-Zone	X-ing
	54	San Miguel Ave.	56.8	53	59	1793	516	1128	65	1508	205	449
	55	Fulton Rd.	58.5	53	59	1793	516	1128	65	1508	205	449
	56	River Rd.	58.8	53	59	1793	516	1128	65	1508	205	449
	57	Airport Blvd.	59.9	44	57	2028	773	1690	64	1568	270	591
	58	Aviation Blvd.	60.2	44	57	2028	773	1690	64	1568	270	591
	59	Shiloh Rd.	61.1	44	57	2028	773	1690	64	1568	270	591
	60	Mitchell Ln.	61.7	44	57	2028	773	1690	64	1568	270	591
Windsor	61	Windsor River Rd.	62.9	49	58	1952	683	1511	64	1559	259	573
	62	Starr Rd.	63.8	49	58	1952	683	1511	64	1559	259	573
Grant	63	Limerick Ln.	66.2	49	58	1952	683	1511	64	1559	259	573
	64	Grant Ave.	66.9	49	58	1952	683	1511	64	1559	259	573
	65	Bailhache Ave.	67.4	49	58	1952	683	1511	64	1559	259	573
Healdsburg	66	Front St.	67.7	49	58	2003	713	1653	64	1579	270	626
	67	Mill St.	68.2	49	58	1733	457	983	64	1477	173	372
	68	Matheson St.	68.4	49	58	1733	457	983	64	1477	173	372
	69	W. North St.	68.5	49	58	1733	457	983	64	1477	173	372
	70	Grant St.	68.8	49	58	1656	418	794	64	1447	158	301
	71	Dry Creek Rd.	69.5	52	59	1607	357	679	65	1433	141	267
	72	Grove St.	70.3	52	59	1607	357	679	65	1433	141	267
	73	Parking lot access near Parkland Farms Blvd.	70.5	52	59	1607	357	679	65	1433	141	267
	74	Site Access near Passalacqua Rd.	70.9	52	59	1621	352	711	65	1438	138	280
	75	Lytton Springs Rd.	71.9	49	58	1656	418	794	64	1447	158	301
Geyserville	76	State Highway 128	75.8	53	59	1590	337	639	65	1428	134	254
	77	Washington School Rd.	80.9	53	59	1590	337	639	65	1428	134	254
	78	Kelly Rd.	83.2	43	57	1736	518	983	63	1483	203	385
	79	Asti Rd.	84.5	43	57	1736	518	983	63	1483	203	385
	80	Possible crossing near Railroad Ave.	85.3	43	57	1654	670	907	63	1451	263	355
Cloverdale	81	E. 1st St.	85.4	43	57	1654	670	907	63	1451	263	355
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	43	57	1654	670	907	63	1451	263	355
County Line		Not a crossing	89.6	43	57	1750	539	1018	63	1489	211	399
Hopland	83	State Highway 175	99.9	52	59	1566	400	612	65	1417	157	241
	84	Henry Station Rd.	105.8	52	59	1566	400	612	65	1417	157	241
	85	Norgard Ln.	111.7	51	59	1580	423	647	65	1421	164	252
	86	Commerce Dr.	112.9	51	59	1634	393	743	65	1442	153	289
	87	State Highway 222	113	51	59	1634	393	743	65	1442	153	289
	88	E. Gobbi St.	113.6	51	59	1634	393	743	65	1442	153	289
Ukiah	89	E. Perkins St.	114	51	59	1634	393	743	65	1442	153	289
	90	Clara Ave.	114.4	53	59	1600	350	662	65	1431	139	263
	91	Ford St.	114.5	53	59	1600	350	662	65	1431	139	263
	92	Brush St.	114.6	53	59	1600	350	662	65	1431	139	263
	93	Ford Rd.	115.2	53	59	1551	377	577	65	1412	150	229
	94	Masonite Truck Rd.	115.7	53	59	1551	377	577	65	1412	150	229
	95	Hollow Tree Rd.	115.9	53	59	1551	377	577	65	1412	150	229
	96	Lake Mendocino Dr.	117	53	59	1551	377	577	65	1412	150	229
	97	Moore St.	119.8	53	59	1551	377	577	65	1412	150	229
Redwood Valley	98	E. School Way	122.1	53	59	1551	377	577	65	1412	150	229
	99	Laughlin Way	123	53	59	1635	372	743	65	1445	148	296
	100	E. Hill Road	123.9	51	59	1634	393	743	65	1442	153	289
	101	E. Valley Road	137.8	51	59	1634	393	743	65	1442	153	289
Willits	102	E. Commercial St.	139.5	51	59	1634	393	743	65	1442	153	289
End of line		Not a crossing	142.5	51	59	1634	393	743	65	1442	153	289

Appendix E
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – With Horn

				X-ing			1/2-Zone					
				L_{dn} Contours, Feet			L_{dn} Contours, Feet			H-Zone, Feet		
City		Crossing Street Name	Mile Post	60	65	70	60	65	70	60	65	70
Lombard	1	Green Island Rd.	0.8	496	230	107	245	114	53	1530	1417	1365
	2	Milton Rd.	3	765	355	165	357	166	77	1642	1469	1389
	3	Skaggs Island Rd.	6.7	388	180	84	232	108	50	1481	1395	1355
Shellville	4	Cameros Hwy.	10.6	589	274	127	281	130	61	1569	1435	1374
	5	Redding Rd.	13.6	388	180	84	232	108	50	1481	1395	1355
	6	Sears Point Rd.	18.1	388	180	84	232	108	50	1481	1395	1355
	7	Reclamation Rd.	20.1	388	180	84	232	108	50	1481	1395	1355
	8	Private	20.5	388	180	84	232	108	50	1481	1395	1355
	9	Port Sonoma Rd.	21.8	388	180	84	232	108	50	1481	1395	1355
	10	Grandview Ave.	22.9	765	355	165	357	166	77	1642	1469	1389
	11	Parking lot access	23.1	765	355	165	357	166	77	1642	1469	1389
	12	Stone Tree Ln.	23.3	765	355	165	357	166	77	1642	1469	1389
	13	Private	24.5	388	180	84	232	108	50	1481	1395	1355
Ignacio	14	Hanna Ranch Rd.	25.9	980	455	211	429	199	92	1727	1509	1408
	15	Possible crossing near Franklin Ave.	27.5	980	455	211	429	199	92	1727	1509	1408
	16	Grant Ave.	27.9	980	455	211	429	199	92	1727	1509	1408
Novato	17	Olive Ave.	28.1	980	455	211	429	199	92	1727	1509	1408
	18	Golden Gate Place	28.4	980	455	211	429	199	92	1727	1509	1408
	19	Rush Creek Place	28.5	786	365	169	354	164	76	1649	1473	1391
	20	County Dump Rd.	32	786	365	169	354	164	76	1649	1473	1391
	21	Caulfield Ln.	38.1	865	402	186	373	173	80	1677	1486	1397
Petaluma	22	D St.	38.5	1413	656	304	588	273	127	1896	1588	1444
	23	Washington St.	38.6	1413	656	304	588	273	127	1896	1588	1444
	24	Madison St.	38.8	1413	656	304	588	273	127	1896	1588	1444
	25	W. Payran St.	39.2	1413	656	304	588	273	127	1896	1588	1444
	26	South Point Blvd.	40.4	1352	628	291	574	266	124	1876	1578	1440
	27	N. McDowell Blvd.	40.7	1352	628	291	574	266	124	1876	1578	1440
	28	Corona Rd.	41.1	669	310	144	310	144	67	1601	1450	1381
	29	Ely Rd.	42.2	669	310	144	310	144	67	1601	1450	1381
	30	Main St.	43.3	669	310	144	310	144	67	1601	1450	1381
	31	Adobe Rd.	43.6	669	310	144	310	144	67	1601	1450	1381
	32	E. Railroad Ave.	44.8	754	350	162	330	153	71	1633	1465	1387
Cotati	33	E. Cotati Ave.	46.1	848	394	183	366	170	79	1670	1483	1396
	34	Southwest Blvd.	46.8	768	357	166	348	161	75	1641	1469	1389
	35	Possible crossing near Carlita Cir.	46.9	768	357	166	348	161	75	1641	1469	1389
	36	Rohnert Park Expy.	47.4	768	357	166	348	161	75	1641	1469	1389
	37	Golf Course Dr.	48.5	798	371	172	359	167	77	1654	1475	1392
	38	Scenic Ave.	49.4	798	371	172	359	167	77	1654	1475	1392
	39	Todd Rd.	50.3	798	371	172	359	167	77	1654	1475	1392
	40	W. Robles Ave.	50.8	798	371	172	359	167	77	1654	1475	1392
	41	Bellvue Ave.	51.3	798	371	172	359	167	77	1654	1475	1392
	42	Hearn Ave.	52.2	702	326	151	291	135	63	1606	1453	1382
	43	W Barham Ave.	53	702	326	151	291	135	63	1606	1453	1382
	44	Sebastopol Rd.	53.4	726	337	156	298	138	64	1614	1457	1383
Santa Rosa	45	3rd St.	53.7	726	337	156	298	138	64	1614	1457	1383
	46	6th St.	53.8	836	388	180	342	159	74	1658	1477	1393
	47	7th St.	53.9	836	388	180	342	159	74	1658	1477	1393
	48	8th St.	54	836	388	180	342	159	74	1658	1477	1393
	49	9th St.	54.1	836	388	180	342	159	74	1658	1477	1393
	50	College Ave.	54.4	836	388	180	342	159	74	1658	1477	1393
	51	Guerneville Rd.	55.3	594	276	128	248	115	53	1563	1433	1372
	52	W. Steele Ln.	55.6	594	276	128	248	115	53	1563	1433	1372
	53	Piner Rd.	56.3	594	276	128	248	115	53	1563	1433	1372
	54	San Miguel Ave.	56.8	594	276	128	248	115	53	1563	1433	1372
	55	Fulton Rd.	58.5	594	276	128	248	115	53	1563	1433	1372

Appendix E
NCRA RRD Freight Rail Project
Cumulative Train Noise Modeling – With Horn

City		Crossing Street Name	Mile Post	X-ing L_{dn} Contours, Feet			1/2-Zone L_{dn} Contours, Feet			H-Zone, Feet		
				60	65	70	60	65	70	60	65	70
	56	River Rd.	58.8	594	276	128	248	115	53	1563	1433	1372
	57	Airport Blvd.	59.9	594	276	128	248	115	53	1563	1433	1372
	58	Aviation Blvd.	60.2	594	276	128	248	115	53	1563	1433	1372
	59	Shiloh Rd.	61.1	594	276	128	248	115	53	1563	1433	1372
	60	Mitchell Ln.	61.7	594	276	128	248	115	53	1563	1433	1372
Windsor	61	Windsor River Rd.	62.9	651	302	140	271	126	58	1585	1443	1377
	62	Starr Rd.	63.8	427	198	92	182	85	39	1496	1402	1358
Grant	63	Limerick Ln.	66.2	427	198	92	182	85	39	1496	1402	1358
	64	Grant Ave.	66.9	427	198	92	182	85	39	1496	1402	1358
	65	Bailhache Ave.	67.4	427	198	92	182	85	39	1496	1402	1358
Healdsburg	66	Front St.	67.7	456	212	98	191	89	41	1506	1407	1360
	67	Mill St.	68.2	339	157	73	145	67	31	1460	1385	1350
	68	Matheson St.	68.4	339	157	73	145	67	31	1460	1385	1350
	69	W. North St.	68.5	339	157	73	145	67	31	1460	1385	1350
	70	Grant St.	68.8	304	141	66	135	63	29	1447	1379	1347
	71	Dry Creek Rd.	69.5	304	141	66	135	63	29	1447	1379	1347
	72	Grove St.	70.3	304	141	66	135	63	29	1447	1379	1347
	73	Parking lot access near Parkland Farms Blvd.	70.5	304	141	66	135	63	29	1447	1379	1347
	74	Site Access near Passalacqua Rd.	70.9	312	145	67	135	63	29	1449	1380	1348
	75	Lytton Springs Rd.	71.9	304	141	66	135	63	29	1447	1379	1347
Geyserville	76	State Highway 128	75.8	304	141	66	135	63	29	1447	1379	1347
	77	Washington School Rd.	80.9	304	141	66	135	63	29	1447	1379	1347
	78	Kelly Rd.	83.2	304	141	66	135	63	29	1447	1379	1347
	79	Asti Rd.	84.5	304	141	66	135	63	29	1447	1379	1347
	80	Possible crossing near Railroad Ave.	85.3	148	68	32	102	47	22	1377	1347	1332
Cloverdale	81	E. 1st St.	85.4	148	68	32	102	47	22	1377	1347	1332
	82	Possible crossing south of N. Cloverdale Blvd.	86.5	148	68	32	102	47	22	1377	1347	1332
County Line		Not a crossing	89.6	178	83	38	89	41	19	1395	1355	1336
Hopland	83	State Highway 175	99.9	149	69	32	90	42	19	1382	1349	1333
	84	Henry Station Rd.	105.8	149	69	32	90	42	19	1382	1349	1333
	85	Norgard Ln.	111.7	149	69	32	90	42	19	1382	1349	1333
	86	Commerce Dr.	112.9	178	83	38	89	41	19	1395	1355	1336
	87	State Highway 222	113	178	83	38	89	41	19	1395	1355	1336
	88	E. Gobbi St.	113.6	178	83	38	89	41	19	1395	1355	1336
Ukiah	89	E. Perkins St.	114	178	83	38	89	41	19	1395	1355	1336
	90	Clara Ave.	114.4	178	83	38	89	41	19	1395	1355	1336
	91	Ford St.	114.5	178	83	38	89	41	19	1395	1355	1336
	92	Brush St.	114.6	178	83	38	89	41	19	1395	1355	1336
	93	Ford Rd.	115.2	149	69	32	90	42	19	1382	1349	1333
	94	Masonite Truck Rd.	115.7	149	69	32	90	42	19	1382	1349	1333
	95	Hollow Tree Rd.	115.9	149	69	32	90	42	19	1382	1349	1333
	96	Lake Mendocino Dr.	117	149	69	32	90	42	19	1382	1349	1333
	97	Moore St.	119.8	149	69	32	90	42	19	1382	1349	1333
Redwood Valley	98	E. School Way	122.1	145	67	31	85	39	18	1380	1348	1333
	99	Laughlin Way	123	201	93	43	95	44	20	1405	1359	1338
	100	E. Hill Road	123.9	177	82	38	87	40	19	1395	1355	1336
	101	E. Valley Road	137.8	177	82	38	87	40	19	1395	1355	1336
Willits	102	E. Commercial St.	139.5	177	82	38	87	40	19	1395	1355	1336
End of line		Not a crossing	142.5	177	82	38	87	40	19	1395	1355	1336