APPENDIX D

HEALTH RISK ASSESSMENT

July 2016 | Health Risk Assessment

CALIBER CHARTER SCHOOL

Pacific Charter School Development

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1. Introduction

Pacific Charter School Development (PCSD) is proposing demolition of existing structures and construction of a two-story transitional kindergarten through eighth (TK-8) grade charter school (Caliber Charter School), as well as other site improvements, such as play areas and an on-site surface parking lot, at 500 Oregon Street in the City of Vallejo.

Regulations pertaining to the siting of new schools or the modernization of existing schools in California require compliance with the California Code of Regulations (CCR) Title 5 standards. For new schools, Title 5 studies must demonstrate that facilities with the potential to emit hazardous air pollutants within a quarter-mile radius of the school site will not constitute an actual or potential public health risk to students and staff that would attend and work at the school. This health risk assessment (HRA) involved conducting the following tasks:

- Mobile emission sources associated with vehicles and trucks traveling on highways and high volume roadways with annual average daily traffic volumes exceeding 10,000 vehicles per day were evaluated. Identified highways and high volume roadways within a quarter-mile radius of the site include Highway 29 – Sonoma Boulevard, Lincoln Highway/Broadway, and Redwood Street. A screening level health risk analysis was conducted for the highway and high volume roadways using Bay Area Air Quality Management District's (BAAQMD's) screening criteria.

- Facilities within a quarter-mile (1,320-foot) radius of the project site that might reasonably emit hazardous or acutely hazardous air emissions were identified and evaluated. A screening level health risk analysis was conducted for the stationary sources identified using BAAQMD's screening criteria.

- Emissions from California Northern Railroad (CFNR) diesel locomotives along the active railroad right-of-way that is located approximately 280 feet east of the site were evaluated.

- For the CFNR locomotives and stationary sources which exceeded BAAQMD's screening criteria, air dispersion modeling was conducted using the AERMOD computer model to quantify maximum pollutant concentrations for receptors at the proposed school site. Meteorological data from the nearest BAAQMD monitoring station with similar meteorological conditions were used to represent local weather conditions and prevailing winds.

- Cancer and non-cancer risks to students and staff attending and working at the project site were determined, based on the results of the air dispersion modeling. The assessment considered exposure through the inhalation pathway. Unit Risk Factors (URFs) and Cancer Potency Factors (CPFs) were used to determine carcinogenic risk and Recommended Exposure Limits (RELs) were used to determine non-carcinogenic risk.

1. Introduction

- A health risk assessment report has been prepared that compares the calculated risks with thresholds established by the BAAQMD and Office of Environmental Health Hazard Assessment (OEHHA).

The assessment and dispersion modeling methodologies used in the preparation of this report included all relevant and appropriate procedures developed by the US Environmental Protection Agency (USEPA) and the latest guidance on conducting health risk assessments from OEHHA (2015). These methodologies and assumptions were used to ensure that the assessment effectively quantified school-based impacts associated with emission sources.

It should be noted that these health impacts were based on conservative (i.e., health protective) assumptions. The USEPA (2005) and OEHHA (2015) documents note that conservative assumptions used in a risk assessment ensure that the estimated risks do not underestimate the actual risks. Therefore, the estimated risks do not necessarily represent actual risks experienced by populations at or near a site. The use of conservative assumptions tends to produce upper-bound estimates of risk and usually overestimate exposure and thus risk. For this school-based risk assessment, the following conservative assumptions were used:

- It was assumed that the maximum exposed child and adult stood outside at the school site for 8 hours per day. The exposure duration for TK-8th grade students was assumed to be 180 days per year for 10 years and the exposure duration for staff was 250 days per year for 25 years. In reality, students and staff are exposed to outdoor pollutant concentrations only during nutrition, lunch, and PE classes and are indoors with reduced exposure for the remaining school hours. This would result in lower estimated risk values.

- The calculated risk for children from 2-16 years is multiplied by a factor of 3 to account for early life exposure and uncertainty in child versus adult exposure impacts.

Thus, the estimated risks provided in this HRA are conservative.

2. Project Description

Pacific Charter School Development proposes to construct a new charter school for transitional kindergarten through 8th grade on an approximately 5.4-acre site that is located at 500 Oregon Street in the City of Vallejo, Solano County, California 94590. The project includes demolition of existing structures and construction of a two-story charter school (Caliber Charter School), as well as other site improvements, such as play areas and an on-site surface parking lot.

The project site is bounded by Valle Vista Avenue to the north, residential and office uses to the east, Oregon Street to the south, and Napa Street to the west. The project site is about 300 feet west of a California Northern Railroad (CFNR) rail line and easement along Lincoln Highway/Broadway, and approximately 525 feet east of an abandoned CFNR right-of-way. The Vallejo City Unified School District (VCUSD) Transportation Department is located to the south across Oregon Street.

The project site and vicinity are depicted in Figure 1.

2. Project Description

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Project Boundary

Base Map Source: Google Earth Pro, 2016

0 1,000 Feet

Figure 1
Site Location

2. Project Description

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3. Source Identification

BAAQMD has developed screening analysis tools for identifying stationary and mobile sources within the vicinity of a proposed project. One highway and two high volume roadways (i.e., average annual daily traffic in excess of 10,000 vehicles per day) were identified. In addition, 13 stationary sources were identified within a quarter-mile of the site and are listed in Table 1. Also, emissions generated by diesel locomotives from CFNR freight trains to the east of the site were included in the assessment. Based on information obtained from the Federal Railroad Administration (FRA) Office of Safety Analysis (FRA, 2008) and correspondence with the California Northern Railroad Company, the CFNR rail line approximately 525 feet west of the project site (i.e. Mare Island Line) has been abandoned and will not be brought back into operation (CFNR, 2016). Therefore, this rail line was not included in the evaluation.

A summary of the emissions sources evaluated for this assessment is provided below in Table 1. The project site and emission sources are depicted in Figure 2.

Table 1 Emission Sources

Source	Address
1 Highway 29 – Sonoma Boulevard	1,130 feet west of the project
2 Lincoln Highway/Broadway	200 feet east of the project
3 Redwood Street	920 feet north of the project
4 Klimisch's Inc.	285 Couch Street, Vallejo, CA 94590
5 E Auto Body	185 Couch Street, Vallejo, CA 94590
6 Rose's Collision Repair Center	187 Couch Street, Vallejo, CA 94590
7 Earl Scheib of California	115 Couch Street, Vallejo, CA 94590
8 Sonoma Auto Collision	3330 Sonoma Boulevard, Vallejo, CA 94590
9 Foster Lumber	3280 Sonoma Boulevard, Vallejo, CA 94590
10 Solano Collision Inc.	3267 Sonoma Boulevard, Vallejo, CA 94590
11 Vallejo Sanitation & Flood Control	3239 Sonoma Boulevard, Vallejo, CA 94590
12 D&F Autoshine	426 Mississippi Street, Vallejo, CA 94590
13 Vallejo One Hour Cleaners	989 Broadway, Vallejo, CA 94590
14 A1 Collision Repair	970 Broadway, Vallejo, CA 94590
15 Road Runner Gas	990 Redwood Street, Vallejo, CA 94590
16 California Northern Railroad	Approximate 3,000-foot long stretch of track within ¼-mile radius; 280 feet east of site
17 VCUSD Transportation Department	501 Oregon Street, Vallejo, CA 94590

3. Source Identification

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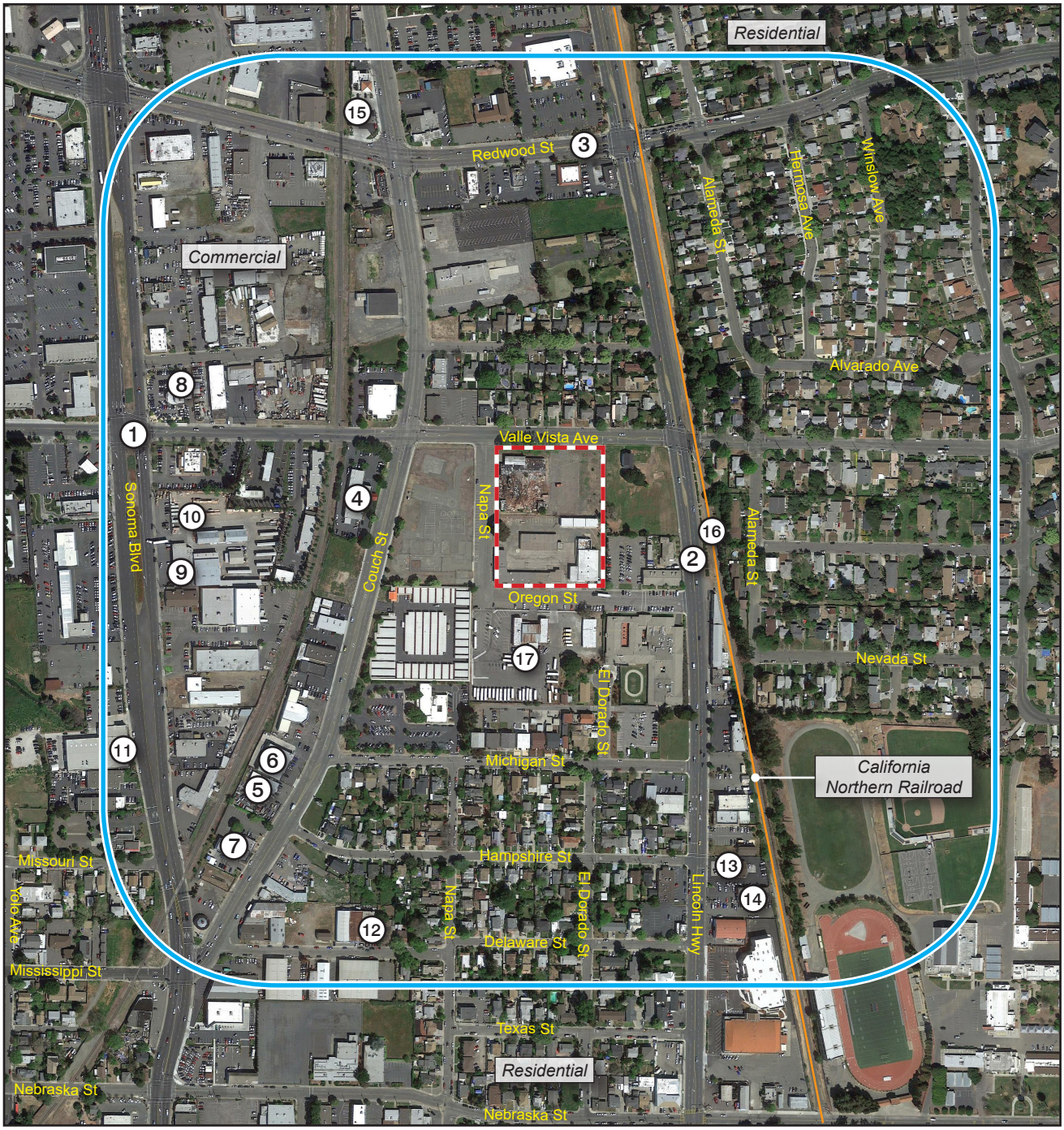

Project Boundary

1/4-Mile Radius

1. Highway 29 – Sonoma Boulevard
2. Lincoln Highway/Broadway
3. Redwood Street
4. Klimisch's Inc.
5. E Auto Body
6. Rose's Collision Repair Center
7. Earl Scheib of California
8. Sonoma Auto Collision
9. Foster Lumber
10. Solano Collision Inc.
11. Vallejo Sanitation & Flood Control District
12. D&F Autoshine
13. Vallejo One Hour Cleaners
14. A1 Collision Repair
15. Road Runner Gas
16. California Northern Railroad
17. VCUSD Transportation Department

0 500 Feet

Basemap Source: Google Earth Pro, 2016

Figure 2
Emission Sources

3. Source Identification

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4. Source Characterization

4.1 MOBILE SOURCES

Mobile sources within a quarter-mile of the project site were identified using BAAQMD's Highway Screening Analysis Tools (BAAQMD, 2011) and roadway traffic counts provided by the City of Vallejo (City of Vallejo, 2007-2008). One highway and two high volume roadways, which are defined as having annual average daily trips (AADT) exceeding 10,000 vehicles per day, were identified (Highway 29 – Sonoma Boulevard, Lincoln Highway/Broadway, and Redwood Street). The BAAQMD Highway Screening Analysis Tool (2011) and BAAQMD Roadway Screening Analysis Calculator (2015) were used to determine screening level health risk and hazard values, based on the distance of the project site from the roadway segment. The screening health risk values for each high volume roadway considered in the assessment are summarized in Table 2. The calculations and screening health risk values are also provided in Appendix A.

Table 2 Mobile Source Screening Health Risk Values

Source	Annual Average Daily Trips (AADT)	Cancer Risk (per million)	Chronic Hazard Index	Acute Hazard Index	$PM_{2.5}$ ($\mu g/m^3$)
Highway 29 – Sonoma Boulevard	(Link 1021)	0.94	0.001	0.001	0.010
Lincoln Highway/Broadway	14,393	2.48	<0.02	<0.02	0.037
Redwood Street	19,710	1.10	<0.02	<0.02	0.013
BAAQMD Significance Threshold		10	1.0	1.0	0.30
Exceeds Threshold?		No	No	No	No

Source: BAAQMD Highway Screening Analysis Tool (2011), Roadway Screening Analysis Calculator (2015), County Surface Street Screening Tables - Solano County (2011), and City of Vallejo Traffic Counts (2007-2008).
Backup documentation provided in Appendix A.

The highway and roadway screening health risk values, are all below the BAAQMD significance thresholds for individual health risks (10 in a million excess cancer risk, 1.0 chronic and acute hazard indices, and $PM_{2.5}$ concentration greater than 0.3 $\mu g/m^3$), and therefore a more detailed analysis was not required.

4.2 STATIONARY SOURCES

Stationary sources within a quarter-mile of the project site were identified using BAAQMD's Stationary Source Screening Analysis Tools (BAAQMD, 2012). Twelve permitted stationary sources were identified. The screening level health risk values associated with the sources are summarized in Table 3, and are below the significance thresholds. Therefore, a more detailed analysis was not required. The calculations and screening health risk values are also provided in Appendix A.

4. Source Characterization

Table 3 Stationary Source Screening Health Risk Values

Source	Cancer Risk (per million)	Chronic Hazard Index	Acute Hazard Index	$PM_{2.5}$ ($\mu g/m^3$)
Klimisch's Inc.	0.00	0.000	0.000	0.001
E Auto Body	0.00	0.001	0.001	0.000
Rose's Collision Repair Center	0.00	0.000	0.000	0.000
Earl Scheib of California	0.00	0.000	0.000	0.000
Sonoma Auto Collision	0.00	0.000	0.000	0.000
Foster Lumber	n/a	n/a	n/a	n/a
Solano Collision Inc.	0.00	0.002	0.002	0.000
Vallejo Sanitation & Flood Control District	0.37	<0.001	0.003	0.002
D&F Autoshine	0.15	0.001	0.001	0.000
Vallejo One Hour Cleaners	0.00	0.000	0.000	0.000
A1 Collision Repair	0.00	0.003	0.003	0.000
Road Runner Gas	0.40	<0.001	0.029	n/a
BAAQMD Significance Threshold	10	1.0	1.0	0.30
Exceeds Threshold?	No	No	No	No

Sources: BAAQMD Stationary Source Screening Analysis Tool for Napa and Solano Counties (2012), with distance multipliers for gasoline stations and diesel engines. Backup documentation and calculations for the distance multipliers are provided in Appendix A.

In addition to the permitted stationary sources listed above, one non-permitted stationary source was identified. The VCUSD Transportation Department is located across the street from the project site. Emissions from diesel-fueled and compressed natural gas (CNG) fueled buses traveling and idling on-site were included for further evaluation. Appendix B contains a graphical representation of this source and Appendix C contains the emission rate calculations for this source.

4.3 LOCOMOTIVE EMISSIONS

Locomotive engines generate pollutants, which can impact local air quality. Although locomotive engines produced today meet stringent USEPA emission requirements and use cleaner burning fuels, they still emit significant amounts of diesel particulate matter (DPM), which contributes to public health impacts.

Fleet distribution profiles for locomotives traversing the railroad easement east of the site are based upon freight train information obtained from the FRA Office of Safety Analysis (FRA, 2011) and correspondence with the California Northern Railroad Company (2016). Although there currently is no freight traffic on the track 300 feet east of the site, it is possible that the track will be active in the future (CFNR, 2016). Therefore, it was conservatively assumed that four freight trains could travel along the approximately 3,000-foot long stretch of track within a quarter-mile of the site during school hours, based on the FRA crossing data at Valle

4. Source Characterization

Vista Avenue. Conservatively, two locomotives per train were assumed in the HRA. Locomotive emission factors used in this evaluation were obtained from the San Joaquin Valley Air Pollution Control District's locomotive emission factor methodology, based on the USEPA's Emission Factors for Locomotives Technical Report (USEPA, 2009). The emission factor for the locomotives was based on a representative engine in the CFNR locomotive fleet (EMD GP15-1) operating at a throttle notch of 2 for a speed of 15 mph (Starcrest, 2012), which was the average speed reported by the FRA (2011).

EPA's *Clean Air Nonroad Diesel Rule* (2004) requires that locomotive and marine diesel fuels meet the ultra-low sulfur classification of 15 parts per million by 2012. Characterizations of diesel particulate emissions from locomotive activity were updated to account for the use of ultra-low sulfur diesel fuel, based on the California Air Resources Board (CARB) *OFFROAD Modeling Change Technical Memo, Changes to the Locomotive Inventory* (2006).

Appendix B contains a graphical representation of this emitting source. Appendix C presents the emission rate calculations for this source.

4. Source Characterization

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5. Air Dispersion Modeling

To assess the impact of emitted compounds on individuals who may work and/or attend classes at the proposed school facility, air quality modeling using the AERMOD atmospheric dispersion model was performed for the buses at the VCUSD Transportation Department and locomotive mobile sources traveling along the single track to the east. The model is a steady state Gaussian plume model and is recommended by BAAQMD for estimating ground level or flagpole-level impacts from point and fugitive sources in simple and complex terrain.

The model requires additional input parameters, including chemical emission data and local meteorology. Inputs for each emitting source were based on the characterizations referenced in Section 4. Meteorological data provided by CARB for the Napa County Airport meteorological station (2009-2013) were used to represent local weather conditions and prevailing winds. According to the data from the Napa County Airport meteorological station, as presented in Appendix C, the prevailing wind direction in the area of the project site is to the north-northeast (NNE), which is away from the school site.

The modeling analysis also considered the spatial distribution of each emitting source in relation to the project site. To accommodate the model's Cartesian grid format, direction-dependent calculations were obtained by identifying the Universal Transverse Mercator (UTM) coordinates for each source. In addition, digital elevation model (DEM) data for the area were obtained and included in the model runs to account for complex terrain.

For all modeling runs, a unit emission rate of 1 gram per second (g/s) was used. The unit emission rates were proportioned among the volume sources for mobile sources (e.g. CFNR Railroad) and poly-area sources (e.g. VCUSD bus yard). The maximum exposed receptor (MER) concentrations from the model output files were then multiplied by the emission rates calculated in Appendix C to obtain the maximum flagpole-level concentrations at the school site. The model output for the emission sources is presented in Appendix D. The flagpole-level concentrations used in the risk calculation spreadsheets are provided in Table E1 of Appendix E.

5. Air Dispersion Modeling

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6. Risk Characterizations

6.1 CARCINOGENIC CHEMICAL RISK

Carcinogenic compounds are not considered to have "threshold" levels (i.e., dose levels below which there are no risks). Any exposure, therefore, will have some associated risk. The BAAQMD has established a maximum incremental cancer risk of 10 in a million (1.0E-05) for CEQA projects and the Office of Environmental Health Hazard Assessment (OEHHA) also set a typical risk management level as 10 in a million (OEHHA, 2015). Therefore, a maximum incremental cancer risk of 10 in a million is used as a "threshold" for the purposes of HRA evaluations.

Under CEQA guidance, BAAQMD has developed thresholds of significance for air pollutants emitted from individual sources and for cumulative exposures of multiple sources. Although BAAQMD is currently not implementing the use of these significance thresholds pending the resolution of ongoing litigation, lead agencies may continue to rely on the use of these thresholds to determine the significance of a project's air quality impacts. For this assessment, the 2011 BAAQMD significance thresholds were used to determine potential health impacts.

Project-level emissions of TACs or $PM_{2.5}$ from individual sources within a quarter-mile of the site that exceed any of the thresholds listed below are considered a potentially significant community health risk:

a) An excess cancer risk level of more than 10 in one million, or a non-cancer (i.e., chronic or acute) hazard index greater than 1.0 would be a significant considerable contribution.

b) An incremental increase of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$ from a single source would be a significant considerable contribution.

Cumulative sources represent the combined total risk values of each of the individual sources within the quarter-mile evaluation zone. A project would have a cumulatively considerable impact if the aggregate total of all past, present, and foreseeable future sources within a quarter-mile radius from the fence line of a source or location of a receptor, exceeds the following:

c) An excess cancer risk level of more than 100 in one million, or a non-cancer (i.e., chronic or acute) hazard index (from all local sources) greater than 10.0; or

d) 0.8 $\mu g/m^3$ annual average $PM_{2.5}$.

Health risks associated with exposure to carcinogenic compounds at the proposed project site can be defined in terms of the probability of developing cancer as a result of exposure to a chemical at a given concentration. Under a deterministic approach (i.e., point estimate methodology), the cancer risk probability is determined by multiplying the chemical's annual concentration by its unit risk factor (URF), a measure of

6. Risk Characterizations

the carcinogenic potential of a chemical when a dose is received through the inhalation pathway. It is an upper-limit estimate of the probability of contracting cancer as a result of continuous exposure to an ambient concentration of one microgram per cubic meter ($\mu g/m^3$) over a lifetime of 70 years.

Recent guidance from OEHHA recommends a refinement to the standard point estimate approach with the use of age-specific breathing rates and age sensitivity factors (ASFs) to assess risk for susceptible subpopulations such as children. For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose for each age group. Once determined, contaminant dose is multiplied by the cancer potency factor in units of inverse dose expressed in milligrams per kilogram per day $(mg/kg/day)^{-1}$ to derive the cancer risk estimate. Therefore, to accommodate the unique exposures associated with the proposed school population, the following dose algorithm was used.

$$\text{Dose}_{\text{AIR,per age group}} = (C_{air} \times EF \times [\frac{BR}{BW}] \times A \times CF)$$

Where:

Dose_{AIR}	=	dose by inhalation (mg/kg-day), per age group
C_{air}	=	concentration of contaminant in air ($\mu g/m^3$)
EF	=	exposure frequency (number of days/365 days)
BR/BW	=	daily breathing rate normalized to body weight (L/kg-day)
A	=	inhalation absorption factor (default = 1)
CF	=	conversion factor ($1x10^{-6}$, µg to mg, L to m^3)

The inhalation absorption factor (A) is a unitless factor that is only used if the cancer potency factor included a correction for absorption across the lung. For this assessment, the default value of 1 was used. To represent the unique characteristics of the school population, the assessment employed the USEPA's guidance to develop viable dose estimates based on reasonable maximum exposure, defined as the "highest exposure that is reasonably expected to occur" for a given receptor population. Lifetime risk values for the student population were adjusted to account for an exposure of 180 days per year for 10 years (TK through 8th grade). In addition, the calculated risk for students is multiplied by an ASF weighting factor of 3 (for children ages 5 to 14 years) to account for early life sensitivity to pollutant exposures (OEHHA, 2015). To assess staff-related risk, exposures were adjusted to account for an employment period of 250 days per year for 25 years. This timeline is considered appropriate for potential workplace exposures established by OEHHA (2015).

To calculate the overall cancer risk, the risk for each appropriate age group is calculated per the following equation:

$$\text{Cancer Risk}_{\text{AIR}} = \text{Dose}_{\text{AIR}} \times CPF \times ASF \times \frac{ED}{AT}$$

Where:

Dose_{AIR}	=	dose by inhalation (mg/kg-day), per age group
CPF	=	cancer potency factor, chemical-specific $(mg/kg-day)^{-1}$
ASF	=	age sensitivity factor, per age group

ED = exposure duration (years)
AT = averaging time period over which exposure duration is averaged (always 70 years)

The CPFs used in the assessment were obtained from OEHHA guidance. The cancer risk is calculated separately for the students and staff, because of age differences in sensitivity to carcinogens and age differences in intake rates. The final step converts the cancer risk in scientific notation to a whole number that expresses the cancer risk in "chances per million" by multiplying the cancer risk by a factor of $1x10^6$ (i.e. 1 million).

CARB's Hotspots Analysis and Reporting Program (HARP2), Risk Assessment Standalone Tool was used to calculate the cancer risk values (CARB, 2016). The determined cancer risks attributed to each chemical exposure and summation of those risks are presented in Appendix E, Table E2.

6.2 NON-CARCINOGENIC HAZARDS

An evaluation of the potential non-cancer effects of chronic and acute chemical exposures was also conducted. Under the point estimate approach, adverse health effects are evaluated by comparing the annual ground level concentration of each chemical compound with the appropriate Reference Exposure Level (REL). Available RELs promulgated by OEHHA were considered in the assessment.

To quantify non-carcinogenic impacts, the hazard index approach was used. The hazard index assumes that chronic or acute sub-threshold exposures adversely affect a specific organ or organ system (toxicological endpoint). For each discrete chemical exposure, target organs presented in regulatory guidance were used. To calculate the hazard index, each chemical concentration or dose is divided by the appropriate toxicity value. For compounds affecting the same toxicological endpoint, this ratio is summed. Where the total equals or exceeds one, a health hazard is presumed to exist.

CARB's HARP2, Risk Assessment Standalone Tool was used to calculate the chronic and acute health risk values (CARB, 2016). The determined non-cancer hazard quotient for identified compounds generated from each source and a summation for each toxicological endpoint are presented in Appendix E, Tables E2 and E3.

6.3 CRITERIA AIR POLLUTANTS

The BAAQMD has recently incorporated $PM_{2.5}$ into the District's CEQA significance thresholds due to recent studies that show adverse health impacts from exposure to this pollutant. An incremental increase for the annual average $PM_{2.5}$ concentration of more than 0.3 $\mu g/m^3$ is considered to be a significant impact. Appendix E, Table E3 presents the screening level $PM_{2.5}$ annual concentrations for each emission source.

6.4 ACCIDENTAL RELEASES

Under the auspices of the California Accidental Release Prevention (CalARP) Program, should a stationary source use more than a threshold quantity of a regulated hazardous substance, a Risk Management Plan (RMP) which includes a risk assessment of accidental releases is required to be conducted pursuant to the

6. Risk Characterizations

provisions of the federal Accidental Release Prevention program (Title 40, Code of Federal Regulations, Part 68) Article 2, Chapter 6.95 of the Health and Safety Code.

A review of the available information collected during the source identification process (e.g., regulatory records review and interviews with business owner/operators) did not reveal the presence of any CalARP program facilities within a quarter-mile of the proposed site (Center of Effective Government, 2014). Therefore, no further evaluation was necessary for this HRA.

7. Conclusions

The results of the health risk assessment from individual and cumulative emission sources, provided in Table 4, indicate that the excess cancer risk from each individual stationary and mobile source within a quarter-mile from the site is less than the BAAQMD threshold of 10 in a million for a lifetime cancer risk and less than the non-carcinogenic chronic hazard index of 1.0. The $PM_{2.5}$ concentrations for all individual emission sources are below the BAAQMD significance threshold of 0.3 $\mu g/m^3$. In addition, the cumulative health risks from all evaluated emission sources are below BAAQMD's cumulative significance thresholds.

Table 4 Health Risk Assessment Results

Source	Cancer Risk (per million)		Chronic Hazard Index	Acute Hazard Index	$PM_{2.5}$ (µg/m3)
	Staff Exposure	Student Exposure			
SCREENING VALUES					
Highway 29 – Sonoma Boulevard	0.94	0.94	0.001	0.001	0.010
Lincoln Highway/Broadway	2.48	2.48	0.020	0.020	0.037
Redwood Street	1.10	1.10	0.020	0.020	0.013
Klimisch's Inc.	0.00	0.00	0.000	0.000	0.001
E Auto Body	0.00	0.00	0.001	0.001	0.000
Rose's Collision Repair Center	0.00	0.00	0.000	0.000	0.000
Earl Scheib of California	0.00	0.00	0.000	0.000	0.000
Sonoma Auto Collision	0.00	0.00	0.000	0.000	0.000
Foster Lumber	n/a	n/a	n/a	n/a	n/a
Solano Collision Inc.	0.00	0.00	0.002	0.002	0.000
Vallejo Sanitation & Flood Control District	0.37	0.37	<0.001	0.003	0.002
D&F Autoshine	0.15	0.15	0.001	0.001	0.000
Vallejo One Hour Cleaners	0.00	0.00	0.000	0.000	0.000
A1 Collision Repair	0.00	0.00	0.003	0.003	0.000
Road Runner Gas	0.40	0.40	<0.001	0.029	n/a
REFINED MODELING VALUES					
California Northern Railroad	0.01	0.02	<0.001	n/a	n/a
VCUSD Transportation Dept.	0.13	0.52	0.001	0.003	n/a
BAAQMD Threshold	10	10	1.0	1.0	0.30
Exceeds Threshold?	No	No	No	No	No
Cumulative Total	5.58	5.98	0.050	0.083	0.063
BAAQMD Threshold	100	100	10.0	10.0	0.80
Exceeds Threshold?	No	No	No	No	No

Source: Lakes AERMOD View, 9.1.0, 2015 and CARB HARP2 (2016) for refined modeling; BAAQMD screening tools for screening analysis.

7. Conclusions

Based on a comparison to the carcinogenic and non-carcinogenic thresholds established by OEHHA and BAAQMD, hazardous air emissions generated from the stationary and mobile sources within a quarter-mile radius are not anticipated to pose an actual or potential endangerment to students and staff occupying the project site and no mitigation measures are required.

8. References

Bay Area Air Quality Management District (BAAQMD). 2015. Roadway Screening Analysis Calculator. Website accessed on June 30, 2015 at http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools.

———. 2012a. Stationary Source Screening Analysis Tool for Napa and Solano Counties.

———. 2012b. *Recommended Methods for Screening and Modeling Local Risks and Hazards.* Version 3.0. Dated May 2012.

———. 2011a. Highway Screening Analysis Tool. Solano County 6-foot elevation. Link 1021.

———. 2011b. *Solano County Surface Street Screening Table.*

———. 2009-2013. *Meteorological Data Set for Napa County Airport Meteorological Station.*

California Air Resources Board (CARB). 2016. Hotspots Analysis and Report Program (HARP2), Risk Assessment Standalone Tool (RAST), Version 2.

———. 2006. *OFFROAD Modeling Change Technical Memo, Changes to the Locomotive Inventory.*

California Northern Railroad Company (CFNR). 2016. Telephone correspondence with representative from CFNR on July 5, 2016.

Center of Effective Government. 2014. The Right-to-Know Network. Website accessed on June 30, 2016 at http://www.rtknet.org/db/rmp.

City of Vallejo. 2007-2008. Traffic Counts. Website accessed on June 30, 2016 at http://www.ci.vallejo.ca.us/cms/one.aspx?pageId=26053.

Federal Railroad Administration (FRA) Office of Safety Analysis. 2011. Crossing Inventory for crossing 751467X at Valle Vista Avenue.
Website accessed on June 30, 2016 at http://safetydata.fra.dot.gov/OfficeofSafety/default.aspx.

_____. 2008. Crossing Inventory for crossing 928446Y at Valle Vista Avenue.
Website accessed on June 30, 2016 at http://safetydata.fra.dot.gov/OfficeofSafety/default.aspx.

Office of Environmental Health Hazard Assessment (OEHHA). 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments.* Dated February, 2015.

Starcrest Consulting Group, LLC (Starcrest). 2012. *Port of LA Emissions Inventory.*

8. References

United States Environmental Protection Agency (USEPA). 2009. *Emission Factors for Locomotives*.

———. 2005. *Guideline on Air Quality Models* (Revised). EPA-450/2-78-027R.

———. 2004. *Regulatory Announcement: Clean Air Nonroad Diesel Rule.*

Appendix A. Screening Analysis

Appendix

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Table A - On-site HRA
Screening Evaluation

Mobile Source - Screening Evaluation

Residential Exposure Scenario

Source No.	Source	Roadway Orientation	Annual Average Daily Trips	Distance (feet)	Cancer Risk (per million)	Chronic HI	Acute HI	PM2.5 ($\mu g/m^3$)	Comments
1	Highway 29 - Sonoma Boulevard	North-South	Link 1021	1,130	0.94	0.001	0.001	0.010	Highway Screening Values
2	Lincoln Highway/Broadway	North-South	14,393	200	2.48	0.020	0.020	0.037	Roadway Screening Analysis Calculator
3	Redwood Street	East-West	19,710	920	1.10	0.020	0.020	0.013	Roadway Screening Analysis Calculator
BAAQMD Significance Threshold					10.0	1.0	1.0	0.30	For each individual source
Exceeds Threshold?					**No**	**No**	**No**	**No**	

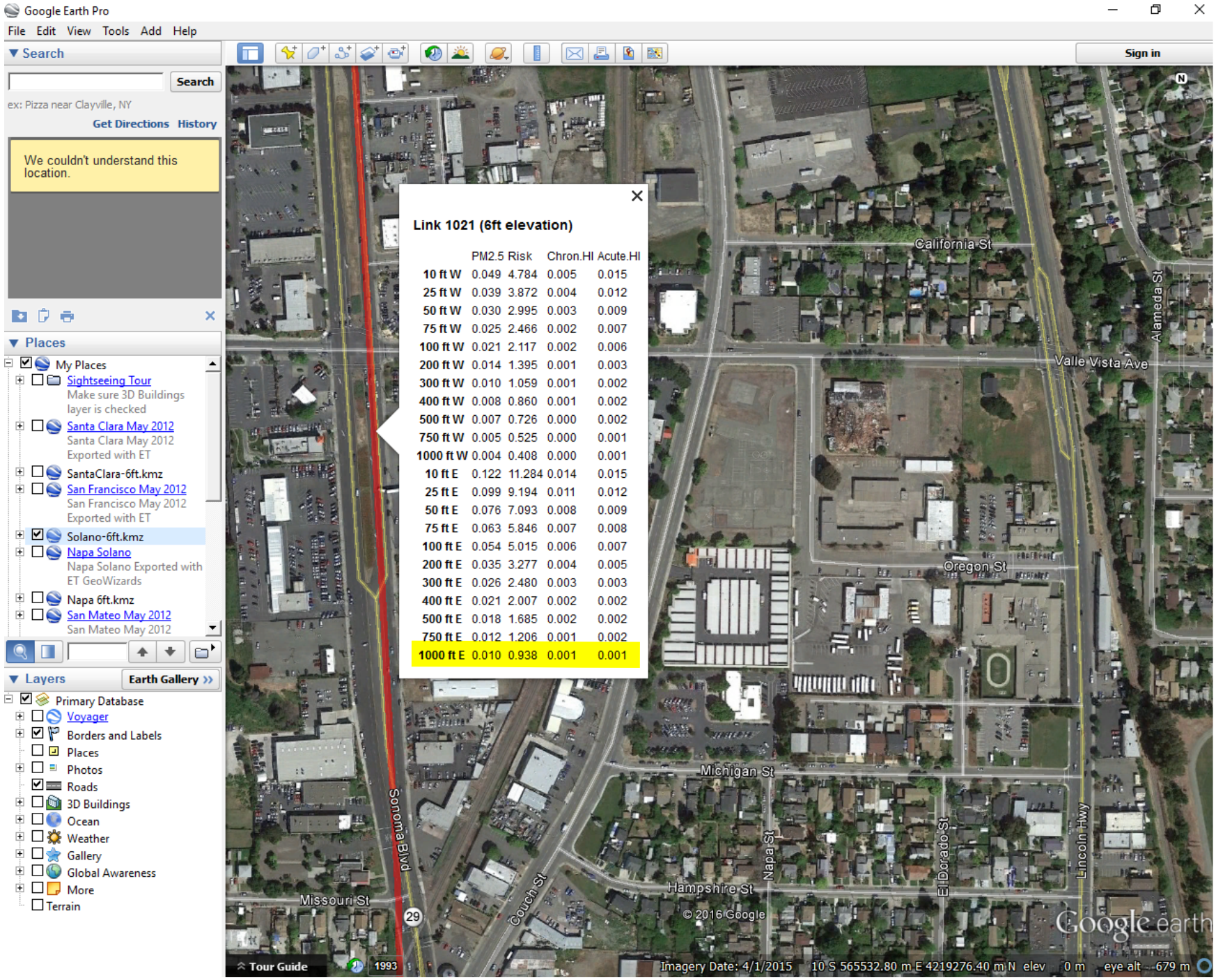
Sources: BAAQMD Highway Screening Analysis Tool (2011), Roadway Screening Analysis Calculator (2015), County Surface Street Screening Tables - Solano County (2011), and City of Vallejo Traffic Counts (2007-2008).

Stationary Source - Screening Evaluation

Residential Exposure Scenario

Source No.	Source	BAAQMD Facility ID	Distance (feet)	Distance Multiplier	Cancer Risk (per million)	Chronic HI	Acute HI	PM2.5 ($\mu g/m^3$)	Comments
4	Klimisch's Inc	4615	380	n/a	0.00	0.000	0.000	0.001	Screening values
5	E Auto Body	11913	870	n/a	0.00	0.001	0.001	0.000	Screening values
6	Rose's Collision Repair Center	18467	950	n/a	0.00	0.000	0.000	0.000	Screening values
7	Earl Scheib of California	12448	1,180	n/a	0.00	0.000	0.000	0.000	Screening values
8	Sonoma Auto Collision	16416	960	n/a	0.00	0.000	0.000	0.000	Screening values
9	Foster Lumber	G6876	700	n/a	n/a	n/a	n/a	n/a	Screening values
10	Solano Collision Inc.	15963	1,000	n/a	0.00	0.002	0.002	0.000	Screening values
11	Vallejo Sanitation & Flood Control District	13107	890		7.46	0.003	0.003	0.002	Screening values
				0.05	0.37	0.000	0.003	0.002	Values w/ distance multiplier
12	D&F Autoshine	11263	1,125	n/a	0.15	0.001	0.001	0.000	Screening values
13	Vallejo One Hour	4673	970	n/a	0.00	0.000	0.000	0.000	Screening values
14	A1 Collision Repair	8667	1080	n/a	0.00	0.003	0.003	0.000	Screening values
15	Road Runner Gas	G10628	1,080		26.8	0.029	0.029	n/a	Screening values
				0.015	0.40	0.000	0.029	n/a	Values w/ distance multiplier
BAAQMD Significance Threshold					10.0	1.0	1.0	0.30	For each individual source
Exceeds Threshold?					**No**	**No**	**No**	**No**	

Sources: BAAQMD Stationary Source Screening Analysis Tool for Napa and Solano Counties (2012), with distance multipliers for gasoline stations and diesel engines.


Google Earth Pro
File Edit View Tools Add Help
Search
Search
ex: Pizza near Clayville, NY
Get Directions History
We couldn't understand this location.
Places
My Places
Sightseeing Tour
Make sure 3D Buildings layer is checked
Santa Clara May 2012
Santa Clara May 2012 Exported with ET
SantaClara-6ft.kmz
San Francisco May 2012
San Francisco May 2012 Exported with ET
Solano-6ft.kmz
Napa Solano
Napa Solano Exported with ET GeoWizards
Napa 6ft.kmz
San Mateo May 2012
San Mateo May 2012
Layers
Earth Gallery
Primary Database
Voyager
Borders and Labels
Places
Photos
Roads
3D Buildings
Ocean
Weather
Gallery
Global Awareness
More
Terrain
Sign in
Link 1021 (6ft elevation)
PM2.5 Risk Chron.HI Acute.HI
10 ft W 0.049 4.784 0.005 0.015
25 ft W 0.039 3.872 0.004 0.012
50 ft W 0.030 2.995 0.003 0.009
75 ft W 0.025 2.466 0.002 0.007
100 ft W 0.021 2.117 0.002 0.006
200 ft W 0.014 1.395 0.001 0.003
300 ft W 0.010 1.059 0.001 0.002
400 ft W 0.008 0.860 0.001 0.002
500 ft W 0.007 0.726 0.000 0.002
750 ft W 0.005 0.525 0.000 0.001
1000 ft W 0.004 0.408 0.000 0.001
10 ft E 0.122 11.284 0.014 0.015
25 ft E 0.099 9.194 0.011 0.012
50 ft E 0.076 7.093 0.008 0.009
75 ft E 0.063 5.846 0.007 0.008
100 ft E 0.054 5.015 0.006 0.007
200 ft E 0.035 3.277 0.004 0.005
300 ft E 0.026 2.480 0.003 0.003
400 ft E 0.021 2.007 0.002 0.002
500 ft E 0.018 1.685 0.002 0.002
750 ft E 0.012 1.206 0.001 0.002
1000 ft E 0.010 0.938 0.001 0.001
California St
Alameda St
Valle Vista Ave
Oregon St
Michigan St
Sonoma Blvd
Napa St
El Dorado St
Lincoln Hwy
Hampshire St
Couch St
Missouri St
29
© 2016 Google
Google earth
Tour Guide
1993
Imagery Date: 4/1/2015 10 S 565532.80 m E 4219276.40 m N elev 0 m eye alt 679 m

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the “Search Parameter” box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

• County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.

• Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.

• Side of the Roadway: Identify on which side of the roadway the project is located.

• Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.

• Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters

County	Solano
Roadway Direction	North-South
Side of the Roadway	West
Distance from Roadway	200 feet
Annual Average Daily Traffic (ADT)	14,393

Results

Solano County

NORTH-SOUTH DIRECTIONAL ROADWAY

PM2.5 annual average

0.037 ($\mu g/m^3$)

Cancer Risk

2.48 (per million)

Data for Solano County based on meteorological data collected from Suisun Sewage Treatment Plant in 2005

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using CALINE4 air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the “Results” box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the “Search Parameter” box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

• County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.

• Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.

• Side of the Roadway: Identify on which side of the roadway the project is located.

• Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.

• Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters

County	Solano
Roadway Direction	East-West
Side of the Roadway	South
Distance from Roadway	920 feet
Annual Average Daily Traffic (ADT)	19,710

Results

Solano County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

0.013 ($\mu g/m^3$)

Cancer Risk

1.10 (per million)

Data for Solano County based on meteorological data collected from Suisun Sewage Treatment Plant in 2005

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using CALINE4 air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the “Results” box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

Solano County

PM2.5 Concentrations and Cancer Risks Generated from Surface Streets

How to use the screening tables:

- Distance is from the edge of the nearest travel lane of a street to the facility or development
- When two or more streets are within the influence area, sum the contribution from each street

$PM_{2.5}$ CONCENTRATIONS (UG/M^3)

NORTH-SOUTH DIRECTIONAL ROADWAY

Annual Average Daily Traffic	Distance East or West of Surface Street - PM2.5 Concentration (ug/m^3)						
	10 feet	50 feet	100 feet	200 feet	500 feet	700 feet	1,000 feet
1,000	No analysis required						
5,000							
10,000	0.096	0.074	0.057	0.030	0.011	0.010	0.008
20,000	0.120	0.136	0.120	0.088	0.034	0.022	0.015
30,000	0.200	0.192	0.176	0.128	0.048	0.034	0.026
40,000	0.248	0.240	0.224	0.160	0.064	0.047	0.034
50,000	0.352	0.344	0.296	0.208	0.080	0.062	0.042
60,000	0.467	0.459	0.388	0.260	0.092	0.075	0.051
70,000	0.583	0.575	0.479	0.312	0.104	0.088	0.061
80,000	0.667	0.657	0.548	0.356	0.119	0.100	0.069
90,000	0.750	0.740	0.616	0.401	0.134	0.113	0.078
100,000	0.833	0.822	0.685	0.445	0.148	0.126	0.087

EAST-WEST DIRECTIONAL ROADWAY

Annual Average Daily Traffic	Distance North or South of Surface Street - PM2.5 Concentration (ug/m^3)						
	10 feet	50 feet	100 feet	200 feet	500 feet	700 feet	1,000 feet
1,000	No analysis required						
5,000							
10,000	0.072	0.064	0.048	0.040	0.015	0.012	0.008
20,000	0.160	0.136	0.096	0.074	0.031	0.021	0.014
30,000	0.208	0.200	0.192	0.112	0.041	0.027	0.015
40,000	0.232	0.216	0.208	0.152	0.062	0.038	0.025
50,000	0.479	0.415	0.328	0.184	0.077	0.051	0.033
60,000	0.483	0.431	0.348	0.216	0.094	0.062	0.036
70,000	0.487	0.447	0.368	0.248	0.112	0.072	0.040
80,000	0.557	0.511	0.420	0.283	0.128	0.082	0.046
90,000	0.627	0.575	0.473	0.318	0.144	0.092	0.051
100,000	0.696	0.639	0.525	0.354	0.160	0.103	0.057

LIFETIME CANCER RISK

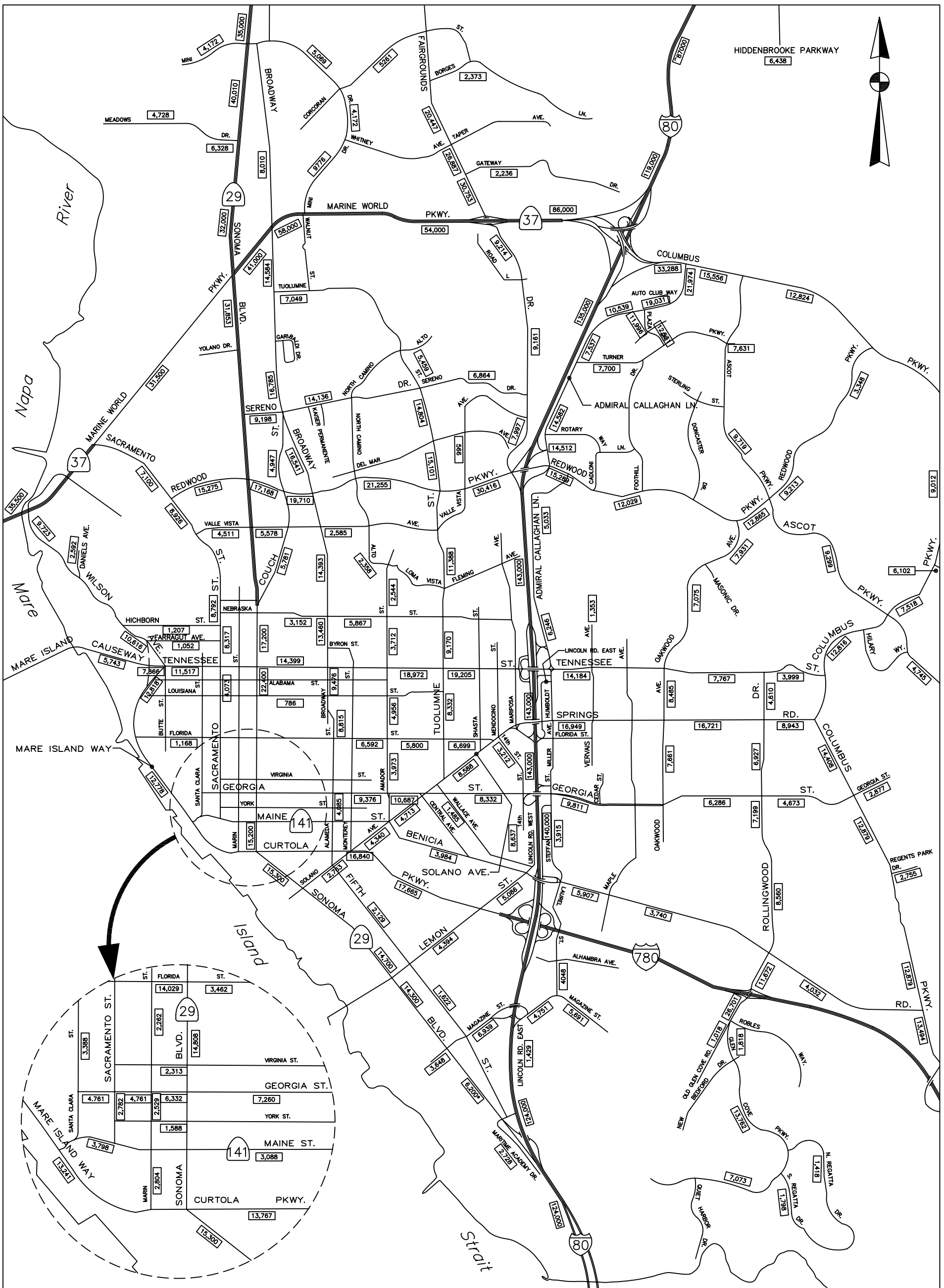
NORTH-SOUTH DIRECTIONAL ROADWAY

Annual Average Daily Traffic	Distance East or West of Surface Street - Cancer Risk (per million)						
	10 feet	50 feet	100 feet	200 feet	500 feet	700 feet	1,000 feet
1,000	No analysis required						
5,000							
10,000	2.42	2.01	1.53	0.80	0.43	0.34	0.26
20,000	3.04	3.02	2.65	1.85	0.81	0.62	0.47
30,000	4.35	4.31	3.87	2.77	1.17	0.91	0.66
40,000	5.52	5.48	5.15	3.68	1.61	1.24	0.95
50,000	7.74	7.69	6.80	4.95	2.08	1.57	1.17
60,000	10.14	10.06	8.57	6.06	2.45	1.85	1.37
70,000	12.54	12.43	10.33	7.17	2.81	2.13	1.57
80,000	14.34	14.21	11.80	8.19	3.21	2.43	1.80
90,000	16.13	15.98	13.28	9.22	3.61	2.73	2.02
100,000	17.92	17.76	14.76	10.24	4.01	3.04	2.25

EAST-WEST DIRECTIONAL ROADWAY

Annual Average Daily Traffic	Distance North or South of Surface Street - Cancer Risk (per million)						
	10 feet	50 feet	100 feet	200 feet	500 feet	700 feet	1,000 feet
1,000	No analysis required						
5,000							
10,000	1.76	1.47	1.17	0.88	0.44	0.35	0.25
20,000	3.68	3.58	2.38	1.73	0.80	0.58	0.40
30,000	4.25	4.21	3.71	2.40	1.02	0.66	0.44
40,000	5.58	5.31	4.29	3.14	1.40	0.99	0.62
50,000	10.92	8.86	7.01	3.77	1.73	1.21	0.81
60,000	11.10	9.40	7.56	4.65	2.03	1.42	0.90
70,000	11.28	9.94	8.11	5.52	2.33	1.62	0.99
80,000	12.89	11.36	9.26	6.31	2.66	1.85	1.13
90,000	14.51	12.79	10.42	7.10	2.99	2.08	1.27
100,000	16.12	14.21	11.58	7.89	3.33	2.31	1.41

- Screening tables based on meteorological data collected from Suisun Sewage Treatment Plant in 2005.
- The maximum acute and chronic hazard index for the distances and AADT shown in the table will be less than 0.02.
- Cancer risk were estimated based on exposure from 2014 through 2084. PM2.5 concentrations were based on emissions in 2014.



CITY OF VALLEJO, CA
TRAFFIC COUNTS – UPDATED 2007/2008
AVERAGE DAILY TRAFFIC VOLUMES

H: \ENG\Traffic\Traffic Counts\Traffic Volumes – 2008.dwg

7/24/08

Appendix B. Graphical Representations of Emitting Sources

Appendix

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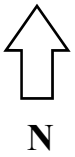
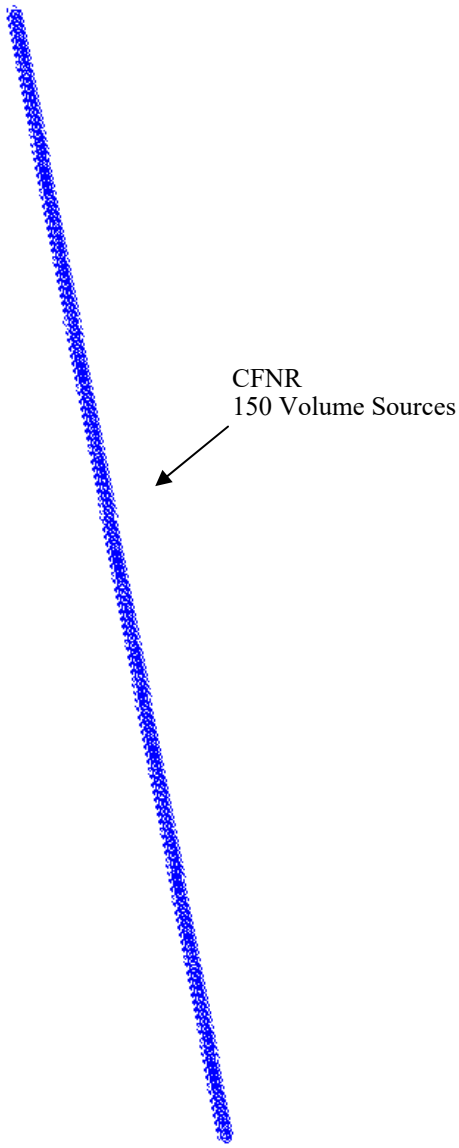
Source 16
California Northern Railroad (CFNR) Single Track
Sources L0000001 through L0000150
3,000-foot stretch of railroad within 1,320 feet of site



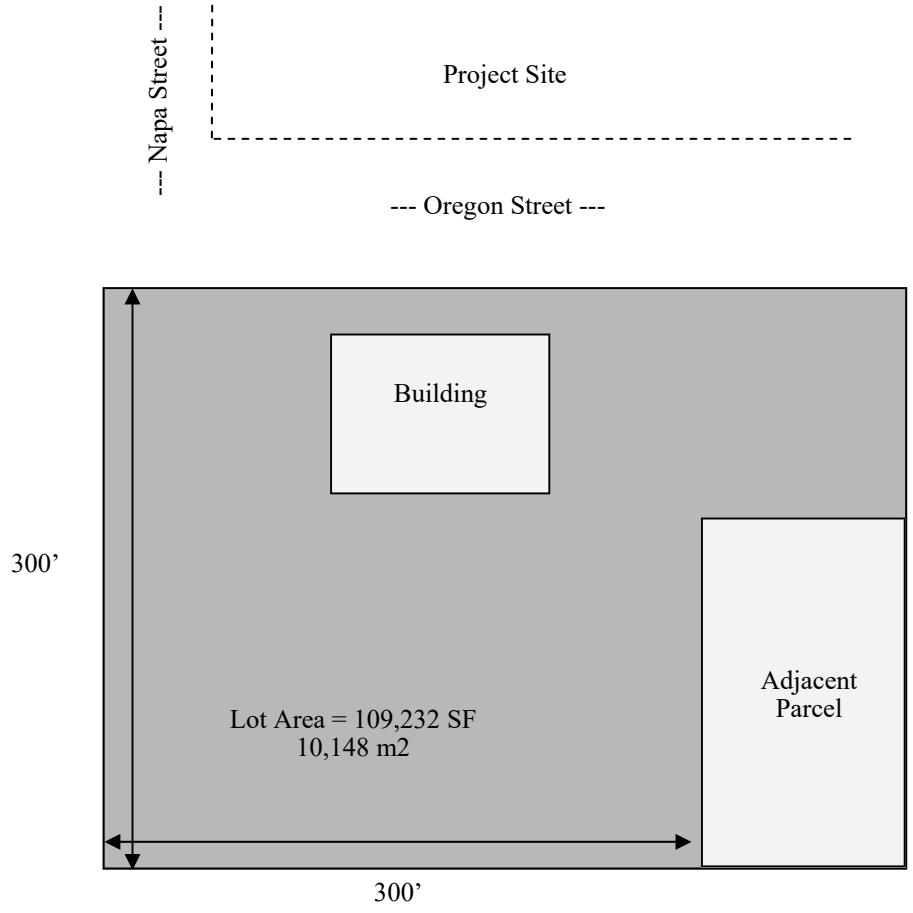


Release heights of 5 m used for daytime hours, based upon *Toxic Air Contaminant Emissions Inventory and Dispersion Modeling Report for the City of Industry Rail Yard*, City of Industry, CA (Sierra Research, Inc., 2007).

Source 17
VCUSD Transportation Department
501 Oregon Street
Vallejo, CA 94590
Monday - Friday: 6:30 AM - 5:30 PM

N

Chemical and Use Rate
Diesel Buses: 40 buses, 2 round-trips each per day
CNG Buses: 10 buses, 2 round-trips each per day



- Lot area is based upon Google Earth, Version 7.1.5.
- Release height of 0.6 m and initial vertical dimension (δy) of 0.28 m for school buses is based upon California Air Resources Board's "Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles" (2000).

Appendix C. Emission Rate Calculations

Appendix

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Source 16
California Northern Railroad (CFNR) Single Track

Operation: Locomotive emissions

Link Length (feet)	2,992	ft
	912	m
	0.57	mi

Trains per day during school hours[1]	4
School hours	8
Trains per hour	0.5
Locomotives per train[1]	2
Train speed (mph)[1]	15
Throttle notch	2
Travel time (hr)[2]	0.038
Load factor[3]	0.11
Locomotive horsepower[4]	1,500
Correction factor for low sulfur fuel[5]	0.72

	Staff	Student	
DPM Emission Rate per Locomotive (g/hp-hr) [6]	0.0638	0.1024	
Emission Rate per Locomotive (g/hr)	7.81	12.5	
Emission Rate Along Rail Line Near Project Site (g/hr)	0.29	0.47	g/hr
	8.19E-05	1.31E-04	g/sec

(1) Based on crossing data from Federal Railroad Administration (FRA) for Crossing 751467X at Valle Vista Ave (2011).

(2) Calculated by dividing distance in miles by a speed of train.

(3) Based on a throttle notch of 2 for a speed of 15 mph, *Port of LA Emissions Inventory* (Starcrest, 2012).

(4) Horsepower of EMD GP15-1 locomotives used by the CFNR/UP company.

(5) Correction factor for freight trains in South Coast Air Basin after 2011, Changes to Locomotive Inventory (CARB, 2006).

(6) Emission rate is from San Joaquin Valley Air Pollution Control District's Trains Emission Factor worksheets for large line haul locomotives for analysis years 2017-2041. Emission factors based on USEPA's Emission Factors for Locomotives Technical Report (2009) (see Average Emission Factors worksheet).

Release Height[7] (m) 5

(7) Release height for daytime hours, based upon *Toxic Air Contaminant Emissions Inventory and Dispersion Modeling Report for the City of Industry Rail Yard* , City of Industry, CA (Sierra Research, Inc., 2007).

Sigma Values for Railroad

Initial Horizontal Dispersion Parameter (Sigma Y)
SY = (source separation distance)/2.15

Initial Vertical Dispersion Parameter (Sigma Z)
$SZ = (1.8 + 0.11(TR)) \times (60/30)^{0.2}$
TR = W2/U

Where:
W2 = traveled way half width (m)
U = average wind speed (m/s)

Width of Traveled Way (m)	6.10
Average Wind Speed (m/s)	4.06
Source Separation Distance (m)	6.10

SY =	**2.84**
SZ =	**2.16**

Source 17a
VCUSD Transporation Department
501 Oregon Street
Vallejo, CA 94590

Operation: Diesel Buses

	hours	days	weeks
Temporal Profile:	11	5	52
	0	0	0

Truck Activity:

Diesel Buses/Day	40
Round-Trips/Bus	2
Miles Traveled/Trip (Ingress/Egress)	0.23
Idling Duration (min)	15

Running Emissions:

School Buses	Staff	Student
Emission Factor (g/mi) [(1)]	0.0615	0.1255
Running Emissions (g/sec)	2.82E-05	5.76E-05

Idling Emissions:

School Buses	Staff	Student
Emission Factor (g/hr) [(2)]	0.0439	0.0921
Idling Emissions (g/sec)	2.22E-05	4.65E-05

Combined Emissions (g/sec)	5.04E-05	1.04E-04

(1) For DPM, average PM10 running emission factors for school buses obtained from CARB (EMFAC2014) for analysis years 2017-2041. Based upon an average lot travel speed of 5 mph (see Average Emission Factors worksheet).

(2) For DPM, average PM10 idling emission factors for school buses obtained from CARB (EMFAC2014) for analysis years 2017-2041 (see Average Emission Factors worksheet).

Source 17b
VCUSD Transporation Department
501 Oregon Street
Vallejo, CA 94590

Operation: CNG Buses

	hours	days	weeks
Temporal Profile:	11	5	52
	0	0	0

Truck Activity:

CNG Buses/Day	10
Round-Trips/Bus	2
Miles Traveled/Trip (Ingress/Egress)	0.23
Idling Duration (min)	15

Running Emission:	Emission Factor (g/mi) [1]	Compound Emissions (g/s)		Hydrocarbon Wt Fractions [2]
Acetaldehyde	9.50E-02	1.09E-05		7.11E-05
Benzene	3.00E-03	3.44E-07		8.06E-05
1,3-Butadiene	1.80E-03	2.07E-07		6.63E-07
Formaldehyde	7.82E-01	8.98E-05		2.12E-02
Total	0.882	1.01E-04	g/s	

Idling Emissions:	Emission Factor (g/hr)	Compound Emissions (g/s)		Compound Wt Fractions
Total Hydrocarbons [3]	21.8			
Acetaldehyde	1.55E-03	1.95E-07		6.94E-02
Benzene	1.75E-03	2.22E-07		3.54E-03
1,3-Butadiene	1.44E-05	1.82E-09		1.30E-03
Formaldehyde	4.62E-01	5.83E-05		9.26E-01
Total		5.87E-05	g/s	

Combined Emissions [4]	1.60E-04	g/s

(1) Running emission factors from CARB's *Study of CNG and Diesel Transit Bus Emissions* (2004).

(2) Speciation from *Evaluation of Exhaust After-Treatment Device Effectiveness in Reducing Regulated and Unregulated Emissions from Natural Gas Fueled Heavy Duty Transit Bus (Padmavathy, University of West Virginia, 2008).*

(3) Idling emission factor from The Center of Alternative Fuels, Engines, and Emissions (CAFEE) study reported to CARB Testing of Volatile and Nonvolatile Emissions from Advanced Technology Natural Gas Vehicles (2011).

(4) Because there are no EMFAC emission factors for CNG buses and therefore reductions in emissions over time could not be determined, it was conservatively assumed that emission rates were constant and emission exposures were the same for students and staff.

Average Emission Factors
School Exposure Durations
School Bus

Average Emission Factors

Adjusting the EMFAC2014 emission factors to account for reductions over the exposure duration.

Risk Year	Modeling Year	Emission Factors (g/bhp-hr)	Running Emission Factors (g/mi)	Idling Emission Factors (g/hr)
		PM10 Diesel Fueled	PM10 Diesel Fueled - 5 mph	PM10 Diesel Fueled
		Locomotive - Large Line Haul	School Bus (SBUS)	School Bus (SBUS)
1	2017	0.1394	0.2597	0.2130
2	2018	0.1298	0.1578	0.1192
3	2019	0.1202	0.1454	0.1061
4	2020	0.1106	0.1336	0.0955
5	2021	0.1058	0.1220	0.0858
6	2022	0.0962	0.1102	0.0766
7	2023	0.0913	0.0984	0.0680
8	2024	0.0817	0.0870	0.0599
9	2025	0.0769	0.0759	0.0522
10	2026	0.0721	0.0651	0.0447
11	2027	0.0673	0.0549	0.0378
12	2028	0.0625	0.0454	0.0313
13	2029	0.0529	0.0368	0.0256
14	2030	0.0481	0.0294	0.0206
15	2031	0.0481	0.0231	0.0162
16	2032	0.0433	0.0180	0.0125
17	2033	0.0385	0.0141	0.0093
18	2034	0.0337	0.0113	0.0068
19	2035	0.0337	0.0096	0.0048
20	2036	0.0288	0.0084	0.0034
21	2037	0.0288	0.0075	0.0025
22	2038	0.0240	0.0067	0.0019
23	2039	0.0240	0.0061	0.0016
24	2040	0.0192	0.0056	0.0014
25	2041	0.0192	0.0054	0.0014
10-year average [1]		0.1024	0.1255	0.0921
25-year average [2]		**0.0638**	**0.0615**	**0.0439**

[1] Represent the 10-year average emission factors (2017-2026) for the student scenario (grades TK-8).
[2] Represent the 25-year average emission factors (2017-2041) for the staff/worker scenario.

U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date (MM/DD/YYYY)	B. Reporting Agency	C. Reason for Update (Select only one)	D. DOT Crossing Inventory Number
09 / 12 / 2011	☒ Railroad ☐ Transit ☐ State ☐ Other	☒ Change in Data ☐ New Crossing ☐ Closed ☐ No Train Traffic ☐ Quiet Zone Update ☐ Re-Open ☐ Date Change Only ☐ Change in Primary Operating RR ☐ Admin. Correction	751467X

Part I: Location and Classification Information

1. Primary Operating Railroad	2. State	3. County
California Northern Railroad Company [CFNR]	CALIFORNIA	SOLANO

4. City / Municipality	5. Street/Road Name & Block Number	6. Highway Type & No.
☒ In ☐ Near VALLEJO	VALLE VISTA AVE (Street/Road Name) | * (Block Number)	CITY

7. Do Other Railroads Operate a Separate Track at Crossing?	8. Do Other Railroads Operate Over Your Track at Crossing?
☐ Yes ☒ No If Yes, Specify RR	☐ Yes ☒ No If Yes, Specify RR

9. Railroad Division or Region	10. Railroad Subdivision or District	11. Branch or Line Name	12. RR Milepost
☐ None WESTERN	☐ None MARTINEZ	☐ None BR-VALLEJO	(prefix) | 0066.32 (nnnn.nnn) | (suffix)

13. Line Segment *	14. Nearest RR Timetable Station *	15. Parent RR (if applicable)	16. Crossing Owner (if applicable)
AAB-66.3-	FLOSDEN	☐ N/A	☐ N/A

17. Crossing Type	18. Crossing Purpose	19. Crossing Position	20. Public Access (if Private Crossing)	21. Type of Train	22. Average Passenger Train Count Per Day
☒ Public ☐ Private	☒ Highway ☐ Pathway, Ped. ☐ Station, Ped.	☒ At Grade ☐ RR Under ☐ RR Over	☐ Yes ☐ No	☐ Freight ☐ Intercity Passenger ☐ Commuter ☐ Transit ☐ Shared Use Transit ☐ Tourist/Other	☐ Less Than One Per Day ☐ Number Per Day 0

23. Type of Land Use
☐ Open Space ☐ Farm ☒ Residential ☐ Commercial ☐ Industrial ☐ Institutional ☐ Recreational ☐ RR Yard

24. Is there an Adjacent Crossing with a Separate Number?	25. Quiet Zone (FRA provided)
☐ Yes ☐ No If Yes, Provide Crossing Number	☒ No ☐ 24 Hr ☐ Partial ☐ Chicago Excused Date Established

26. HSR Corridor ID	27. Latitude in decimal degrees	28. Longitude in decimal degrees	29. Lat/Long Source
☐ N/A	(WGS84 std: nn.nnnnnnn) 38.1197010	(WGS84 std: -nnn.nnnnnnn) -122.2472000	☐ Actual ☐ Estimated

30.A. Railroad Use *	31.A. State Use *
30.B. Railroad Use *	31.B. State Use *
30.C. Railroad Use *	31.C. State Use *
30.D. Railroad Use *	31.D. State Use *
32.A. Narrative (Railroad Use) *	32.B. Narrative (State Use) *

33. Emergency Notification Telephone No. (posted)	34. Railroad Contact (Telephone No.)	35. State Contact (Telephone No.)
800-800-3490	800-800-3490	415-703-3722

Part II: Railroad Information

1. Estimated Number of Daily Train Movements

1.A. Total Day Thru Trains (6 AM to 6 PM)	1.B. Total Night Thru Trains (6 PM to 6 AM)	1.C. Total Switching Trains	1.D. Total Transit Trains	1.E. Check if Less Than One Movement Per Day ☐ How many trains per week?
4	2	2		

2. Year of Train Count Data (YYYY)	3. Speed of Train at Crossing
	3.A. Maximum Timetable Speed (mph) 20 3.B. Typical Speed Range Over Crossing (mph) From 10 to 20

4. Type and Count of Tracks
Main 1 Siding ____ Yard ____ Transit ____ Industry ____

5. Train Detection (Main Track only)
☐ Constant Warning Time ☐ Motion Detection ☐ AFO ☐ PTC ☒ DC ☐ Other ☐ None

6. Is Track Signaled?	7.A. Event Recorder	7.B. Remote Health Monitoring
☐ Yes ☒ No	☐ Yes ☐ No	☐ Yes ☐ No

U. S. DOT CROSSING INVENTORY FORM

A. Revision Date *(MM/DD/YYYY)*	PAGE 2	D. Crossing Inventory Number *(7 char.)*
09/12/2011		751467X

Part III: Highway or Pathway Traffic Control Device Information

1. Are there Signs or Signals? ☒ Yes ☐ No

2. Types of Passive Traffic Control Devices associated with the Crossing

2.A. Crossbuck Assemblies *(count)*	2.B. STOP Signs *(R1-1)* *(count)*	2.C. YIELD Signs *(R1-2)* *(count)*	2.D. Advance Warning Signs *(Check all that apply; include count)* ☐ None
0	0		☒ W10-1 _____ ☐ W10-3 _____ ☐ W10-11 _____ ☐ W10-2 _____ ☐ W10-4 _____ ☐ W10-12 _____

2.E. Low Ground Clearance Sign *(W10-5)*	2.F. Pavement Markings	2.G. Channelization Devices/Medians	2.H. EXEMPT Sign *(R15-3)*	2.I. ENS Sign *(I-13)* Displayed
☐ Yes *(count_____)* ☐ No	☒ Stop Lines ☐ Dynamic Envelope ☒ RR Xing Symbols ☐ None	☐ All Approaches ☐ Median ☐ One Approach ☐ None	☐ Yes ☐ No	☐ Yes ☐ No

2.J. Other MUTCD Signs ☐ Yes ☒ No	2.K. Private Crossing Signs *(if private)*	2.L. LED Enhanced Signs *(List types)*
Specify Type _____ Count _____ Specify Type _____ Count _____ Specify Type _____ Count _____	☐ Yes ☐ No	

3. Types of Train Activated Warning Devices at the Grade Crossing *(specify count of each device for all that apply)*

3.A. Gate Arms *(count)*	3.B. Gate Configuration	3.C. Cantilevered *(or Bridged)* Flashing Light Structures *(count)*	3.D. Mast Mounted Flashing Lights *(count of masts)* 2	3.E. Total Count of Flashing Light Pairs
Roadway 0 Pedestrian _____	☐ 2 Quad ☐ 3 Quad ☐ 4 Quad ☐ Full *(Barrier)* Resistance ☐ Median Gates	Over Traffic Lane 0 ☐ Incandescent Not Over Traffic Lane 0 ☐ LED	☐ Incandescent ☐ LED ☐ Back Lights Included ☐ Side Lights Included	0

3.F. Installation Date of Current Active Warning Devices: *(MM/YYYY)*	3.G. Wayside Horn	3.H. Highway Traffic Signals Controlling Crossing	3.I. Bells *(count)*
_____/_____ ☐ Not Required	☐ Yes Installed on *(MM/YYYY)* _____/_____ ☐ No	☐ Yes ☒ No	2

3.J. Non-Train Active Warning	3.K. Other Flashing Lights or Warning Devices
☐ Flagging/Flagman ☐ Manually Operated Signals ☐ Watchman ☐ Floodlighting ☐ None	Count 0 Specify type _____

4.A. Does nearby Hwy Intersection have Traffic Signals?	4.B. Hwy Traffic Signal Interconnection	4.C. Hwy Traffic Signal Preemption	5. Highway Traffic Pre-Signals	6. Highway Monitoring Devices *(Check all that apply)*
☐ Yes ☐ No	☐ Not Interconnected ☒ For Traffic Signals ☐ For Warning Signs	☒ Simultaneous ☐ Advance	☐ Yes ☐ No Storage Distance * _____ Stop Line Distance * _____	☐ Yes - Photo/Video Recording ☐ Yes – Vehicle Presence Detection ☐ None

Part IV: Physical Characteristics

1. Traffic Lanes Crossing Railroad	2. Is Roadway/Pathway Paved?	3. Does Track Run Down a Street?	4. Is Crossing Illuminated? *(Street lights within approx. 50 feet from nearest rail)*
☐ One-way Traffic ☐ Two-way Traffic Number of Lanes 2 ☐ Divided Traffic	☒ Yes ☐ No	☐ Yes ☒ No	☐ Yes ☐ No

5. Crossing Surface *(on Main Track, multiple types allowed)* Installation Date * *(MM/YYYY)* _____/_____ Width * _____ Length * _____

☐ 1 Timber ☒ 2 Asphalt ☐ 3 Asphalt and Timber ☐ 4 Concrete ☐ 5 Concrete and Rubber ☐ 6 Rubber ☐ 7 Metal ☐ 8 Unconsolidated ☐ 9 Composite ☐ 10 Other *(specify)* _____

6. Intersecting Roadway within 500 feet?	7. Smallest Crossing Angle	8. Is Commercial Power Available? *
☒ Yes ☐ No If Yes, Approximate Distance *(feet)* -75	☐ 0° – 29° ☐ 30° – 59° ☒ 60° - 90°	☒ Yes ☐ No

Part V: Public Highway Information

1. Highway System	2. Functional Classification of Road at Crossing	3. Is Crossing on State Highway System?	4. Highway Speed Limit
☐ (01) Interstate Highway System ☒ (02) Other Nat Hwy System (NHS) ☐ (03) Federal AID, Not NHS ☐ (08) Non-Federal Aid	☐ (0) Rural ☒ (1) Urban ☐ (1) Interstate ☒ (5) Major Collector ☐ (2) Other Freeways and Expressways ☐ (3) Other Principal Arterial ☐ (6) Minor Collector ☐ (4) Minor Arterial ☐ (7) Local	☐ Yes ☒ No	_____ MPH ☐ Posted ☐ Statutory
		5. Linear Referencing System *(LRS Route ID)* *	
		6. LRS Milepost *	

7. Annual Average Daily Traffic *(AADT)*	8. Estimated Percent Trucks	9. Regularly Used by School Buses?	10. Emergency Services Route
Year 1995 AADT 006000	10 %	☐ Yes ☒ No Average Number per Day 0	☐ Yes ☐ No

Submission Information - *This information is used for administrative purposes and is not available on the public website.*

Submitted by _____ Organization _____ Phone _____ Date _____

CONTACT REPORT FORM

DATE:	7/5/2016	JOB No.:	VALL-02.0
CONTACT:	Javier Arias	Phone No.:	904-228-8740
AGENCY/CO.:	California Northern Railroad	CONTACT BY:	Steve Bush
SUBJECT:	Health Risk Assessment for Caliber Vallejo School		

KEY POINTS DISCUSSED: Over the phone, Javier Arias from the California Northern Railroad Company informed me that the Vallejo Branch of the Western-Martinez Subdivision is not currently active on the rail lines east of the site. However, the line is not abandoned and could be brought back into use in the future.

REQUIRED ACTION: No further action required. Evaluate rail traffic based on 2011 Federal Railroad Administration crossing data to be conservative.

CC:

U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date *(MM/DD/YYYY)*: 04 / 01 / 2008

B. Reporting Agency: ☒ Railroad ☐ Transit ☐ State ☐ Other

C. Reason for Update *(Select only one)*: ☐ Change in Data ☐ New Crossing ☒ Closed ☐ No Train Traffic ☐ Quiet Zone Update ☐ Re-Open ☐ Date Change Only ☐ Change in Primary Operating RR ☐ Admin. Correction

D. DOT Crossing Inventory Number: 928446Y

Part I: Location and Classification Information

1. Primary Operating Railroad: California Northern Railroad Company [CFNR]

2. State: CALIFORNIA

3. County: SOLANO

4. City / Municipality: ☒ In ☐ Near VALLEJO

5. Street/Road Name & Block Number: VALLE VISTA AVE | *(Street/Road Name)* | * *(Block Number)*

6. Highway Type & No.:

7. Do Other Railroads Operate a Separate Track at Crossing? ☐ Yes ☒ No
If Yes, Specify RR

8. Do Other Railroads Operate Over Your Track at Crossing? ☐ Yes ☒ No
If Yes, Specify RR

9. Railroad Division or Region: ☐ None

10. Railroad Subdivision or District: ☐ None

11. Branch or Line Name: ☐ None MARE ISLAND

12. RR Milepost: | 0000.00 | *(prefix)* | *(nnnn.nnn)* | *(suffix)*

13. Line Segment *

14. Nearest RR Timetable Station *: FLOSDEN

15. Parent RR *(if applicable)*: ☐ N/A

16. Crossing Owner *(if applicable)*: ☐ N/A

17. Crossing Type: ☒ Public ☐ Private

18. Crossing Purpose: ☒ Highway ☐ Pathway, Ped. ☐ Station, Ped.

19. Crossing Position: ☒ At Grade ☐ RR Under ☐ RR Over

20. Public Access *(if Private Crossing)*: ☐ Yes ☐ No

21. Type of Train: ☐ Freight ☐ Transit ☐ Intercity Passenger ☐ Shared Use Transit ☐ Commuter ☐ Tourist/Other

22. Average Passenger Train Count Per Day: ☐ Less Than One Per Day ☐ Number Per Day 0

23. Type of Land Use: ☐ Open Space ☐ Farm ☐ Residential ☒ Commercial ☐ Industrial ☐ Institutional ☐ Recreational ☐ RR Yard

24. Is there an Adjacent Crossing with a Separate Number?: ☒ Yes ☐ No If Yes, Provide Crossing Number 751467X

25. Quiet Zone *(FRA provided)*: ☒ No ☐ 24 Hr ☐ Partial ☐ Chicago Excused Date Established

26. HSR Corridor ID: ☐ N/A

27. Latitude in decimal degrees *(WGS84 std: nn.nnnnnn)*

28. Longitude in decimal degrees *(WGS84 std: -nnn.nnnnnn)*

29. Lat/Long Source: ☐ Actual ☐ Estimated

30.A. Railroad Use *

31.A. State Use *

30.B. Railroad Use *

31.B. State Use *

30.C. Railroad Use *

31.C. State Use *

30.D. Railroad Use *

31.D. State Use *

32.A. Narrative *(Railroad Use)* *

32.B. Narrative *(State Use)* *

33. Emergency Notification Telephone No. *(posted)*

34. Railroad Contact *(Telephone No.)*

35. State Contact *(Telephone No.)*: 213-576-7078

Part II: Railroad Information

1. Estimated Number of Daily Train Movements

1.A. Total Day Thru Trains *(6 AM to 6 PM)*: 1

1.B. Total Night Thru Trains *(6 PM to 6 AM)*: 0

1.C. Total Switching Trains: 0

1.D. Total Transit Trains:

1.E. Check if Less Than One Movement Per Day ☐ How many trains per week?

2. Year of Train Count Data *(YYYY)*:

3. Speed of Train at Crossing
3.A. Maximum Timetable Speed *(mph)*: 10
3.B. Typical Speed Range Over Crossing *(mph)* From 5 to 10

4. Type and Count of Tracks
Main 1 Siding Yard Transit Industry

5. Train Detection *(Main Track only)*
☐ Constant Warning Time ☐ Motion Detection ☐ AFO ☐ PTC ☐ DC ☒ Other ☐ None

6. Is Track Signaled? ☐ Yes ☒ No

7.A. Event Recorder ☐ Yes ☐ No

7.B. Remote Health Monitoring ☐ Yes ☐ No

U. S. DOT CROSSING INVENTORY FORM

A. Revision Date *(MM/DD/YYYY)*	PAGE 2	D. Crossing Inventory Number *(7 char.)*
04/01/2008		928446Y

Part III: Highway or Pathway Traffic Control Device Information

1. Are there Signs or Signals? ☒ Yes ☐ No

2. Types of Passive Traffic Control Devices associated with the Crossing

2.A. Crossbuck Assemblies *(count)*	2.B. STOP Signs *(R1-1) (count)*	2.C. YIELD Signs *(R1-2) (count)*	2.D. Advance Warning Signs *(Check all that apply; include count)* ☐ None
2	0		☒ W10-1 ____ ☐ W10-3 ____ ☐ W10-11 ____ ☐ W10-2 ____ ☐ W10-4 ____ ☐ W10-12 ____

2.E. Low Ground Clearance Sign *(W10-5)*	2.F. Pavement Markings	2.G. Channelization Devices/Medians	2.H. EXEMPT Sign *(R15-3)*	2.I. ENS Sign *(I-13)* Displayed
☐ Yes *(count_____)* ☒ No	☒ Stop Lines ☐ Dynamic Envelope ☒ RR Xing Symbols ☐ None	☐ All Approaches ☐ Median ☐ One Approach ☐ None	☐ Yes ☐ No	☐ Yes ☐ No

2.J. Other MUTCD Signs ☐ Yes ☒ No	2.K. Private Crossing Signs *(if private)*	2.L. LED Enhanced Signs *(List types)*
Specify Type ____ Count ____ Specify Type ____ Count ____ Specify Type ____ Count ____	☐ Yes ☐ No	

3. Types of Train Activated Warning Devices at the Grade Crossing *(specify count of each device for all that apply)*

3.A. Gate Arms *(count)*	3.B. Gate Configuration	3.C. Cantilevered *(or Bridged)* Flashing Light Structures *(count)*	3.D. Mast Mounted Flashing Lights *(count of masts)* 8	3.E. Total Count of Flashing Light Pairs
Roadway 2 Pedestrian ____	☐ 2 Quad ☐ Full *(Barrier)* Resistance ☐ 3 Quad ☐ 4 Quad ☐ Median Gates	Over Traffic Lane 0 ☐ Incandescent Not Over Traffic Lane 0 ☐ LED	☐ Incandescent ☐ LED ☐ Back Lights Included ☐ Side Lights Included	4

3.F. Installation Date of Current Active Warning Devices: *(MM/YYYY)*	3.G. Wayside Horn	3.H. Highway Traffic Signals Controlling Crossing	3.I. Bells *(count)*
_____/_____ ☐ Not Required	☐ Yes Installed on *(MM/YYYY)* _____/_____ ☐ No	☐ Yes ☒ No	2

3.J. Non-Train Active Warning	3.K. Other Flashing Lights or Warning Devices
☐ Flagging/Flagman ☐ Manually Operated Signals ☐ Watchman ☐ Floodlighting ☐ None	Count 0 Specify type ____

4.A. Does nearby Hwy Intersection have Traffic Signals?	4.B. Hwy Traffic Signal Interconnection	4.C. Hwy Traffic Signal Preemption	5. Highway Traffic Pre-Signals	6. Highway Monitoring Devices *(Check all that apply)*
☒ Yes ☐ No	☐ Not Interconnected ☐ For Traffic Signals ☐ For Warning Signs	☐ Simultaneous ☐ Advance	☐ Yes ☐ No Storage Distance * ____ Stop Line Distance * ____	☐ Yes - Photo/Video Recording ☐ Yes – Vehicle Presence Detection ☐ None

Part IV: Physical Characteristics

1. Traffic Lanes Crossing Railroad	2. Is Roadway/Pathway Paved?	3. Does Track Run Down a Street?	4. Is Crossing Illuminated? *(Street lights within approx. 50 feet from nearest rail)*
☐ One-way Traffic ☐ Two-way Traffic ☐ Divided Traffic Number of Lanes 2	☒ Yes ☐ No	☐ Yes ☒ No	☒ Yes ☐ No

5. Crossing Surface *(on Main Track, multiple types allowed)* Installation Date * *(MM/YYYY)* _____/_____ Width * ____ Length * ____
☐ 1 Timber ☒ 2 Asphalt ☐ 3 Asphalt and Timber ☐ 4 Concrete ☐ 5 Concrete and Rubber ☐ 6 Rubber ☐ 7 Metal
☐ 8 Unconsolidated ☐ 9 Composite ☐ 10 Other *(specify)* ____

6. Intersecting Roadway within 500 feet?	7. Smallest Crossing Angle	8. Is Commercial Power Available? *
☐ Yes ☒ No If Yes, Approximate Distance *(feet)* ____	☐ 0° – 29° ☐ 30° – 59° ☒ 60° - 90°	☒ Yes ☐ No

Part V: Public Highway Information

1. Highway System	2. Functional Classification of Road at Crossing ☐ (0) Rural ☒ (1) Urban	3. Is Crossing on State Highway System?	4. Highway Speed Limit
☐ (01) Interstate Highway System ☐ (02) Other Nat Hwy System (NHS) ☐ (03) Federal AID, Not NHS ☒ (08) Non-Federal Aid	☐ (1) Interstate ☐ (5) Major Collector ☐ (2) Other Freeways and Expressways ☐ (3) Other Principal Arterial ☐ (6) Minor Collector ☐ (4) Minor Arterial ☒ (7) Local	☐ Yes ☒ No	25 MPH ☒ Posted ☐ Statutory

5. Linear Referencing System *(LRS Route ID)* *

6. LRS Milepost *

7. Annual Average Daily Traffic *(AADT)*	8. Estimated Percent Trucks	9. Regularly Used by School Buses?	10. Emergency Services Route
Year ____ AADT 000005	____ %	☐ Yes ☒ No Average Number per Day 0	☐ Yes ☐ No

Submission Information - *This information is used for administrative purposes and is not available on the public website.*

Submitted by ____ Organization ____ Phone ____ Date ____

VALLEJO MARINE WORLD, CALIFORNIA

Period of Record General Climate Summary - Temperature

Station:(049219) VALLEJO MARINE WORLD															
From Year=1998 To Year=2006															
	Monthly Averages			Daily Extremes				Monthly Extremes				Max. Temp.		Min. Temp.	
	Max.	Min.	Mean	High	Date	Low	Date	Highest Mean	Year	Lowest Mean	Year	>= 90 F	<= 32 F	<= 32 F	<= 0 F
	F	F	F	F	dd/yyyy or yyyymmdd	F	dd/yyyy or yyyymmdd	F	-	F	-	# Days	# Days	# Days	# Days
January	56.8	40.6	48.7	66	27/2003	21	07/1999	50.6	2000	46.7	1999	0.0	0.0	4.5	0.0
February	59.7	43.4	51.3	77	27/2002	30	10/2003	52.9	2000	49.9	1999	0.0	0.0	0.7	0.0
March	68.3	44.0	56.1	90	16/2004	25	25/1999	60.5	2004	51.1	1999	0.2	0.0	0.4	0.0
April	70.4	44.9	57.5	92	26/2004	32	09/1999	60.4	2004	54.5	2003	0.6	0.0	0.0	0.0
May	74.1	49.3	61.7	98	22/2000	38	10/2003	63.3	2004	58.5	1998	1.0	0.0	0.0	0.0
June	79.5	53.8	66.2	110	14/2000	44	10/1999	67.1	2003	65.6	1998	3.0	0.0	0.0	0.0
July	81.6	55.6	69.0	106	13/1999	49	05/1999	69.9	2003	67.5	2004	4.5	0.0	0.0	0.0
August	82.9	55.8	69.4	105	04/1998	47	06/2002	72.5	1998	67.8	2002	5.1	0.0	0.0	0.0
September	82.6	53.8	68.3	103	22/2003	44	19/2004	69.8	2004	65.7	2001	8.2	0.0	0.0	0.0
October	77.0	48.2	62.5	96	01/2001	37	31/2002	65.3	2003	61.5	2004	2.2	0.0	0.0	0.0
November	64.0	45.4	54.8	83	01/1999	30	24/2003	56.6	1999	53.1	1998	0.0	0.0	0.0	0.0
December	59.3	35.9	46.2	77	19/1999	23	21/1998	46.2	1998	46.2	1998	0.0	0.0	9.0	0.0
Annual	71.4	47.6	59.3	110	20000614	21	19990107	******	1900	*****	1900	24.8	0.0	14.6	0.0
Winter	58.6	40.0	48.7	77	19991219	21	19990107	47.6	1999	47.6	1999	0.0	0.0	14.2	0.0

Spring	70.9	46.0	58.4	98	20000522	25	19990325	61.4	2004	57.4	1998	1.8	0.0	0.4	0.0
Summer	81.3	55.1	68.2	110	20000614	44	19990610	69.3	1998	68.9	2003	12.6	0.0	0.0	0.0
Fall	74.6	49.1	61.9	103	20030922	30	20031124	61.4	1998	61.4	1998	10.4	0.0	0.0	0.0

Table updated on Oct 31, 2012

For monthly and annual means, thresholds, and sums:
Months with 5 or more missing days are not considered
Years with 1 or more missing months are not considered
Seasons are climatological not calendar seasons

Winter = Dec., Jan., and Feb. Spring = Mar., Apr., and May

Summer = Jun., Jul., and Aug. Fall = Sep., Oct., and Nov.

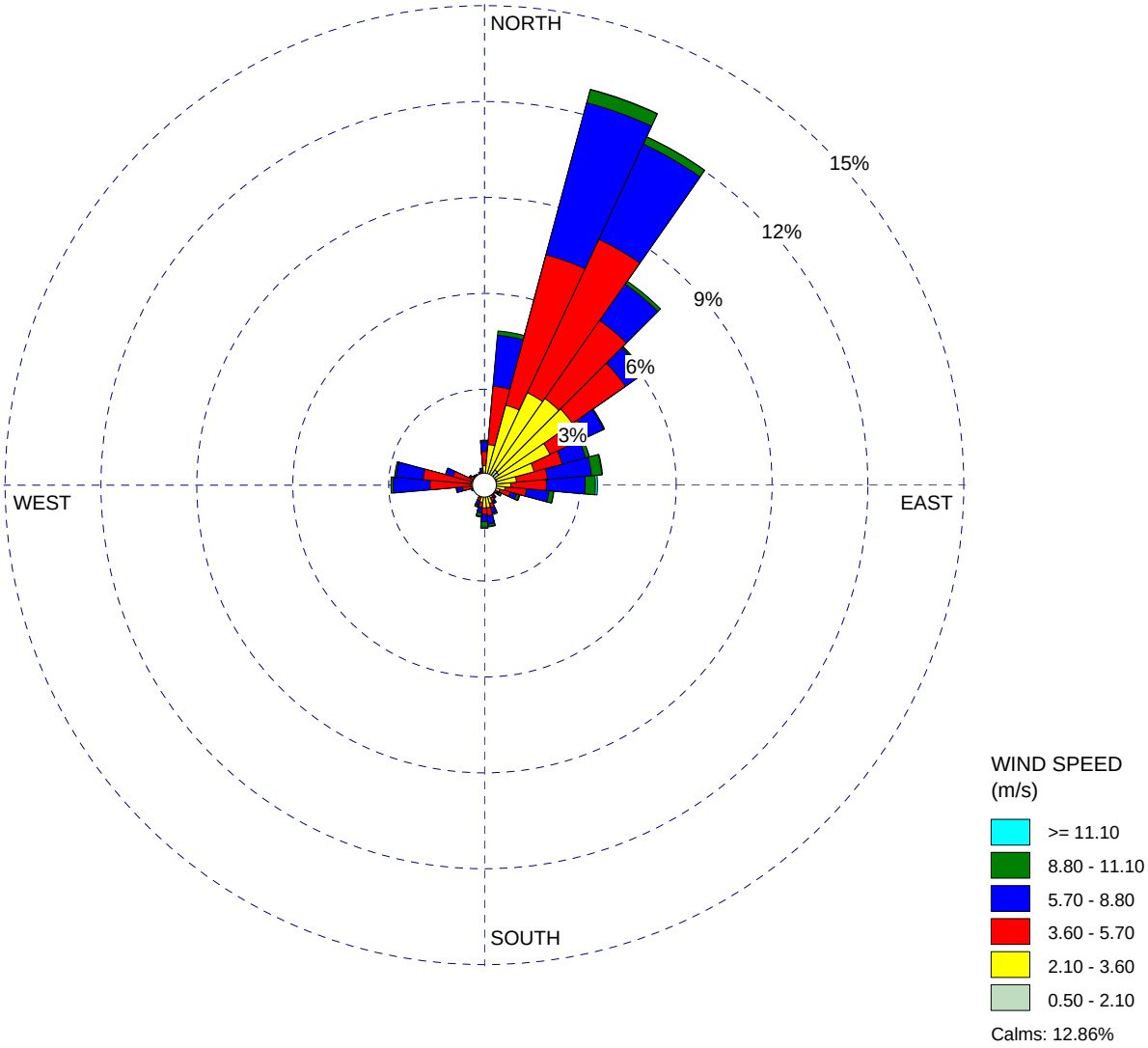
Western Regional Climate Center, wrcc@dri.edu

WIND ROSE PLOT:

Napa County Airport Meteorological Station
2009-2013

DISPLAY:

Wind Speed
Flow Vector (blowing to)



COMMENTS: School Hours (8AM-4PM)	DATA PERIOD: **Start Date: 1/1/2009 - 08:00** **End Date: 1/2/2014 - 15:00**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **12.86%**	TOTAL COUNT: **13948 hrs.**	
	AVG. WIND SPEED: **4.06 m/s**	DATE: **6/10/2016**	PROJECT NO.: **VALL-02**

Appendix

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Appendix D. Air Dispersion Model Output

Appendix

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Model Output
Unit Emission Rates (1 g/s)

Results Summary

Caliber Charter School HRA
Vallejo, CA

Concentration - Source Group: 16 - CFNR Locomotives

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		1.22852	ug/m^3	565781.53	4219364.25	6.19	1.50	6.19	

Concentration - Source Group: 17 - VCUSD Transportation Dept

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	1204.38069	ug/m^3	565671.53	4219224.25	4.54	1.50	4.54	1/14/2010, 9
PERIOD		39.89988	ug/m^3	565741.53	4219224.25	5.48	1.50	5.48	

Model Input
Unit Emission Rates (1 g/s)

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*** AERMOD - VERSION  15181 ***   *** Caliber Charter School HRA                                  ***        07/13/16
*** AERMET - VERSION  14134 ***   *** Vallejo, CA                                                ***        10:37:43
                                                                                                           PAGE   1
**MODELOPTs:   RegDFAULT CONC      ELEV      FLGPOL    URBAN

                                        ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
**Model Uses NO WET DEPLETION.  WETDPLT  =  F

**Model Uses URBAN Dispersion Algorithm for the SBL for   151 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =    118837.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
       1. Stack-tip Downwash.
       2. Model Accounts for ELEVated Terrain Effects.
       3. Use Calms Processing Routine.
       4. Use Missing Data Processing Routine.
       5. No Exponential Decay.
       6. Urban Roughness Length of 1.0 Meter Assumed.

**Other Options Specified:
       CCVR_Sub - Meteorological data includes CCVR substitutions
       TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of:  OTHER

**Model Calculates  1 Short Term Average(s) of:   1-HR
    and Calculates PERIOD Averages

**This Run Includes:    151 Source(s);       2 Source Group(s); and     180 Receptor(s)

               with:      0 POINT(s), including
                          0 POINTCAP(s) and      0 POINTHOR(s)
                and:    150 VOLUME source(s)
                and:      1 AREA type source(s)
                and:      0 LINE source(s)
                and:      0 OPENPIT source(s)


**Model Set To Continue RUNning After the Setup Testing.
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Model Input
Unit Emission Rates (1 g/s)

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**The AERMET Input Meteorological Data Version Date:  14134

**Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
         Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =     4.30 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                              ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =      3.7 MB of RAM.

**Detailed Error/Message File:   caliber.err
**File for Summary of Results:   caliber.sum
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Model Input
Unit Emission Rates (1 g/s)

**MODELOPTs: RegDFAULT CONC   ELEV   FLGPOL   URBAN

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000001	0	0.66667E-02	565963.4	4218868.4	8.0	5.00	2.84	2.16	YES	HRDOW
L0000002	0	0.66667E-02	565962.3	4218874.4	8.0	5.00	2.84	2.16	YES	HRDOW
L0000003	0	0.66667E-02	565961.1	4218880.4	8.0	5.00	2.84	2.16	YES	HRDOW
L0000004	0	0.66667E-02	565960.0	4218886.4	8.0	5.00	2.84	2.16	YES	HRDOW
L0000005	0	0.66667E-02	565958.9	4218892.4	8.0	5.00	2.84	2.16	YES	HRDOW
L0000006	0	0.66667E-02	565957.8	4218898.4	8.0	5.00	2.84	2.16	YES	HRDOW
L0000007	0	0.66667E-02	565956.7	4218904.4	8.0	5.00	2.84	2.16	YES	HRDOW
L0000008	0	0.66667E-02	565955.5	4218910.4	8.0	5.00	2.84	2.16	YES	HRDOW
L0000009	0	0.66667E-02	565954.4	4218916.4	8.0	5.00	2.84	2.16	YES	HRDOW
L0000010	0	0.66667E-02	565953.3	4218922.4	7.9	5.00	2.84	2.16	YES	HRDOW
L0000011	0	0.66667E-02	565952.2	4218928.4	7.9	5.00	2.84	2.16	YES	HRDOW
L0000012	0	0.66667E-02	565951.0	4218934.4	7.9	5.00	2.84	2.16	YES	HRDOW
L0000013	0	0.66667E-02	565949.9	4218940.4	7.9	5.00	2.84	2.16	YES	HRDOW
L0000014	0	0.66667E-02	565948.8	4218946.4	7.9	5.00	2.84	2.16	YES	HRDOW
L0000015	0	0.66667E-02	565947.7	4218952.4	7.9	5.00	2.84	2.16	YES	HRDOW
L0000016	0	0.66667E-02	565946.6	4218958.4	7.9	5.00	2.84	2.16	YES	HRDOW
L0000017	0	0.66667E-02	565945.4	4218964.4	7.9	5.00	2.84	2.16	YES	HRDOW
L0000018	0	0.66667E-02	565944.3	4218970.4	7.9	5.00	2.84	2.16	YES	HRDOW
L0000019	0	0.66667E-02	565943.2	4218976.4	7.9	5.00	2.84	2.16	YES	HRDOW
L0000020	0	0.66667E-02	565942.1	4218982.3	7.9	5.00	2.84	2.16	YES	HRDOW
L0000021	0	0.66667E-02	565940.9	4218988.3	7.8	5.00	2.84	2.16	YES	HRDOW
L0000022	0	0.66667E-02	565939.8	4218994.3	7.8	5.00	2.84	2.16	YES	HRDOW
L0000023	0	0.66667E-02	565938.7	4219000.3	7.8	5.00	2.84	2.16	YES	HRDOW
L0000024	0	0.66667E-02	565937.6	4219006.3	7.8	5.00	2.84	2.16	YES	HRDOW
L0000025	0	0.66667E-02	565936.4	4219012.3	7.8	5.00	2.84	2.16	YES	HRDOW
L0000026	0	0.66667E-02	565935.3	4219018.3	7.8	5.00	2.84	2.16	YES	HRDOW
L0000027	0	0.66667E-02	565934.2	4219024.3	7.8	5.00	2.84	2.16	YES	HRDOW
L0000028	0	0.66667E-02	565933.1	4219030.3	7.8	5.00	2.84	2.16	YES	HRDOW
L0000029	0	0.66667E-02	565932.0	4219036.3	7.8	5.00	2.84	2.16	YES	HRDOW
L0000030	0	0.66667E-02	565930.8	4219042.3	7.8	5.00	2.84	2.16	YES	HRDOW
L0000031	0	0.66667E-02	565929.7	4219048.3	7.8	5.00	2.84	2.16	YES	HRDOW
L0000032	0	0.66667E-02	565928.6	4219054.3	7.8	5.00	2.84	2.16	YES	HRDOW
L0000033	0	0.66667E-02	565927.5	4219060.3	7.8	5.00	2.84	2.16	YES	HRDOW
L0000034	0	0.66667E-02	565926.3	4219066.3	7.7	5.00	2.84	2.16	YES	HRDOW
L0000035	0	0.66667E-02	565925.2	4219072.3	7.7	5.00	2.84	2.16	YES	HRDOW
L0000036	0	0.66667E-02	565924.1	4219078.3	7.7	5.00	2.84	2.16	YES	HRDOW
L0000037	0	0.66667E-02	565923.0	4219084.3	7.7	5.00	2.84	2.16	YES	HRDOW
L0000038	0	0.66667E-02	565921.9	4219090.3	7.7	5.00	2.84	2.16	YES	HRDOW

Model Input
Unit Emission Rates (1 g/s)

L0000039	0	0.66667E-02	565920.7	4219096.3	7.7	5.00	2.84	2.16	YES	HRDOW
L0000040	0	0.66667E-02	565919.6	4219102.3	7.7	5.00	2.84	2.16	YES	HRDOW
L0000041	0	0.66667E-02	565918.5	4219108.3	7.7	5.00	2.84	2.16	YES	HRDOW
L0000042	0	0.66667E-02	565917.4	4219114.3	7.7	5.00	2.84	2.16	YES	HRDOW
L0000043	0	0.66667E-02	565916.2	4219120.2	7.7	5.00	2.84	2.16	YES	HRDOW
L0000044	0	0.66667E-02	565915.1	4219126.2	7.7	5.00	2.84	2.16	YES	HRDOW
L0000045	0	0.66667E-02	565914.0	4219132.2	7.6	5.00	2.84	2.16	YES	HRDOW
L0000046	0	0.66667E-02	565912.9	4219138.2	7.6	5.00	2.84	2.16	YES	HRDOW
L0000047	0	0.66667E-02	565911.7	4219144.2	7.6	5.00	2.84	2.16	YES	HRDOW
L0000048	0	0.66667E-02	565910.6	4219150.2	7.6	5.00	2.84	2.16	YES	HRDOW
L0000049	0	0.66667E-02	565909.5	4219156.2	7.6	5.00	2.84	2.16	YES	HRDOW
L0000050	0	0.66667E-02	565908.4	4219162.2	7.6	5.00	2.84	2.16	YES	HRDOW
L0000051	0	0.66667E-02	565907.3	4219168.2	7.6	5.00	2.84	2.16	YES	HRDOW
L0000052	0	0.66667E-02	565906.1	4219174.2	7.6	5.00	2.84	2.16	YES	HRDOW
L0000053	0	0.66667E-02	565905.0	4219180.2	7.6	5.00	2.84	2.16	YES	HRDOW
L0000054	0	0.66667E-02	565903.9	4219186.2	7.6	5.00	2.84	2.16	YES	HRDOW
L0000055	0	0.66667E-02	565902.8	4219192.2	7.6	5.00	2.84	2.16	YES	HRDOW
L0000056	0	0.66667E-02	565901.6	4219198.2	7.6	5.00	2.84	2.16	YES	HRDOW
L0000057	0	0.66667E-02	565900.5	4219204.2	7.6	5.00	2.84	2.16	YES	HRDOW
L0000058	0	0.66667E-02	565899.4	4219210.2	7.5	5.00	2.84	2.16	YES	HRDOW
L0000059	0	0.66667E-02	565898.3	4219216.2	7.5	5.00	2.84	2.16	YES	HRDOW
L0000060	0	0.66667E-02	565897.2	4219222.2	7.5	5.00	2.84	2.16	YES	HRDOW
L0000061	0	0.66667E-02	565896.0	4219228.2	7.5	5.00	2.84	2.16	YES	HRDOW
L0000062	0	0.66667E-02	565894.9	4219234.2	7.5	5.00	2.84	2.16	YES	HRDOW
L0000063	0	0.66667E-02	565893.8	4219240.2	7.5	5.00	2.84	2.16	YES	HRDOW
L0000064	0	0.66667E-02	565892.7	4219246.2	7.5	5.00	2.84	2.16	YES	HRDOW
L0000065	0	0.66667E-02	565891.5	4219252.2	7.5	5.00	2.84	2.16	YES	HRDOW
L0000066	0	0.66667E-02	565890.4	4219258.2	7.5	5.00	2.84	2.16	YES	HRDOW
L0000067	0	0.66667E-02	565889.3	4219264.1	7.5	5.00	2.84	2.16	YES	HRDOW
L0000068	0	0.66667E-02	565888.2	4219270.1	7.5	5.00	2.84	2.16	YES	HRDOW
L0000069	0	0.66667E-02	565887.0	4219276.1	7.5	5.00	2.84	2.16	YES	HRDOW
L0000070	0	0.66667E-02	565885.9	4219282.1	7.5	5.00	2.84	2.16	YES	HRDOW
L0000071	0	0.66667E-02	565884.8	4219288.1	7.4	5.00	2.84	2.16	YES	HRDOW
L0000072	0	0.66667E-02	565883.7	4219294.1	7.4	5.00	2.84	2.16	YES	HRDOW
L0000073	0	0.66667E-02	565882.6	4219300.1	7.4	5.00	2.84	2.16	YES	HRDOW
L0000074	0	0.66667E-02	565881.4	4219306.1	7.4	5.00	2.84	2.16	YES	HRDOW
L0000075	0	0.66667E-02	565880.3	4219312.1	7.4	5.00	2.84	2.16	YES	HRDOW
L0000076	0	0.66667E-02	565879.2	4219318.1	7.4	5.00	2.84	2.16	YES	HRDOW
L0000077	0	0.66667E-02	565878.1	4219324.1	7.4	5.00	2.84	2.16	YES	HRDOW
L0000078	0	0.66667E-02	565876.9	4219330.1	7.4	5.00	2.84	2.16	YES	HRDOW
L0000079	0	0.66667E-02	565875.8	4219336.1	7.4	5.00	2.84	2.16	YES	HRDOW
L0000080	0	0.66667E-02	565874.7	4219342.1	7.4	5.00	2.84	2.16	YES	HRDOW

Model Input
Unit Emission Rates (1 g/s)

**MODELOPTs: RegDFAULT CONC   ELEV   FLGPOL   URBAN

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000081	0	0.66667E-02	565873.6	4219348.1	7.4	5.00	2.84	2.16	YES	HRDOW
L0000082	0	0.66667E-02	565872.5	4219354.1	7.3	5.00	2.84	2.16	YES	HRDOW
L0000083	0	0.66667E-02	565871.3	4219360.1	7.3	5.00	2.84	2.16	YES	HRDOW
L0000084	0	0.66667E-02	565870.2	4219366.1	7.3	5.00	2.84	2.16	YES	HRDOW
L0000085	0	0.66667E-02	565869.1	4219372.1	7.3	5.00	2.84	2.16	YES	HRDOW
L0000086	0	0.66667E-02	565868.0	4219378.1	7.3	5.00	2.84	2.16	YES	HRDOW
L0000087	0	0.66667E-02	565866.8	4219384.1	7.3	5.00	2.84	2.16	YES	HRDOW
L0000088	0	0.66667E-02	565865.7	4219390.1	7.3	5.00	2.84	2.16	YES	HRDOW
L0000089	0	0.66667E-02	565864.6	4219396.1	7.3	5.00	2.84	2.16	YES	HRDOW
L0000090	0	0.66667E-02	565863.5	4219402.1	7.3	5.00	2.84	2.16	YES	HRDOW
L0000091	0	0.66667E-02	565862.4	4219408.0	7.3	5.00	2.84	2.16	YES	HRDOW
L0000092	0	0.66667E-02	565861.2	4219414.0	7.3	5.00	2.84	2.16	YES	HRDOW
L0000093	0	0.66667E-02	565860.1	4219420.0	7.3	5.00	2.84	2.16	YES	HRDOW
L0000094	0	0.66667E-02	565859.0	4219426.0	7.2	5.00	2.84	2.16	YES	HRDOW
L0000095	0	0.66667E-02	565857.9	4219432.0	7.2	5.00	2.84	2.16	YES	HRDOW
L0000096	0	0.66667E-02	565856.7	4219438.0	7.2	5.00	2.84	2.16	YES	HRDOW
L0000097	0	0.66667E-02	565855.6	4219444.0	7.2	5.00	2.84	2.16	YES	HRDOW
L0000098	0	0.66667E-02	565854.5	4219450.0	7.2	5.00	2.84	2.16	YES	HRDOW
L0000099	0	0.66667E-02	565853.4	4219456.0	7.2	5.00	2.84	2.16	YES	HRDOW
L0000100	0	0.66667E-02	565852.2	4219462.0	7.2	5.00	2.84	2.16	YES	HRDOW
L0000101	0	0.66667E-02	565851.1	4219468.0	7.2	5.00	2.84	2.16	YES	HRDOW
L0000102	0	0.66667E-02	565850.0	4219474.0	7.2	5.00	2.84	2.16	YES	HRDOW
L0000103	0	0.66667E-02	565848.9	4219480.0	7.2	5.00	2.84	2.16	YES	HRDOW
L0000104	0	0.66667E-02	565847.8	4219486.0	7.2	5.00	2.84	2.16	YES	HRDOW
L0000105	0	0.66667E-02	565846.6	4219492.0	7.2	5.00	2.84	2.16	YES	HRDOW
L0000106	0	0.66667E-02	565845.5	4219498.0	7.1	5.00	2.84	2.16	YES	HRDOW
L0000107	0	0.66667E-02	565844.4	4219504.0	7.1	5.00	2.84	2.16	YES	HRDOW
L0000108	0	0.66667E-02	565843.3	4219510.0	7.1	5.00	2.84	2.16	YES	HRDOW
L0000109	0	0.66667E-02	565842.1	4219516.0	7.1	5.00	2.84	2.16	YES	HRDOW
L0000110	0	0.66667E-02	565841.0	4219522.0	7.1	5.00	2.84	2.16	YES	HRDOW
L0000111	0	0.66667E-02	565839.9	4219528.0	7.1	5.00	2.84	2.16	YES	HRDOW
L0000112	0	0.66667E-02	565838.8	4219534.0	7.1	5.00	2.84	2.16	YES	HRDOW
L0000113	0	0.66667E-02	565837.7	4219540.0	7.1	5.00	2.84	2.16	YES	HRDOW
L0000114	0	0.66667E-02	565836.5	4219546.0	7.1	5.00	2.84	2.16	YES	HRDOW
L0000115	0	0.66667E-02	565835.4	4219551.9	7.1	5.00	2.84	2.16	YES	HRDOW
L0000116	0	0.66667E-02	565834.3	4219557.9	7.1	5.00	2.84	2.16	YES	HRDOW
L0000117	0	0.66667E-02	565833.2	4219563.9	7.1	5.00	2.84	2.16	YES	HRDOW
L0000118	0	0.66667E-02	565832.0	4219569.9	7.0	5.00	2.84	2.16	YES	HRDOW

L0000119	0	0.66667E-02	565830.9	4219575.9	7.0	5.00	2.84	2.16	YES	HRDOW
L0000120	0	0.66667E-02	565829.8	4219581.9	7.0	5.00	2.84	2.16	YES	HRDOW
L0000121	0	0.66667E-02	565828.7	4219587.9	7.0	5.00	2.84	2.16	YES	HRDOW
L0000122	0	0.66667E-02	565827.5	4219593.9	7.0	5.00	2.84	2.16	YES	HRDOW
L0000123	0	0.66667E-02	565826.4	4219599.9	7.0	5.00	2.84	2.16	YES	HRDOW
L0000124	0	0.66667E-02	565825.3	4219605.9	7.0	5.00	2.84	2.16	YES	HRDOW
L0000125	0	0.66667E-02	565824.2	4219611.9	7.0	5.00	2.84	2.16	YES	HRDOW
L0000126	0	0.66667E-02	565823.1	4219617.9	7.0	5.00	2.84	2.16	YES	HRDOW
L0000127	0	0.66667E-02	565821.9	4219623.9	7.0	5.00	2.84	2.16	YES	HRDOW
L0000128	0	0.66667E-02	565820.8	4219629.9	7.0	5.00	2.84	2.16	YES	HRDOW
L0000129	0	0.66667E-02	565819.7	4219635.9	7.0	5.00	2.84	2.16	YES	HRDOW
L0000130	0	0.66667E-02	565818.6	4219641.9	7.0	5.00	2.84	2.16	YES	HRDOW
L0000131	0	0.66667E-02	565817.4	4219647.9	7.0	5.00	2.84	2.16	YES	HRDOW
L0000132	0	0.66667E-02	565816.3	4219653.9	6.9	5.00	2.84	2.16	YES	HRDOW
L0000133	0	0.66667E-02	565815.2	4219659.9	6.9	5.00	2.84	2.16	YES	HRDOW
L0000134	0	0.66667E-02	565814.1	4219665.9	6.9	5.00	2.84	2.16	YES	HRDOW
L0000135	0	0.66667E-02	565813.0	4219671.9	6.9	5.00	2.84	2.16	YES	HRDOW
L0000136	0	0.66667E-02	565811.8	4219677.9	6.9	5.00	2.84	2.16	YES	HRDOW
L0000137	0	0.66667E-02	565810.7	4219683.9	6.9	5.00	2.84	2.16	YES	HRDOW
L0000138	0	0.66667E-02	565809.6	4219689.8	6.9	5.00	2.84	2.16	YES	HRDOW
L0000139	0	0.66667E-02	565808.5	4219695.8	6.9	5.00	2.84	2.16	YES	HRDOW
L0000140	0	0.66667E-02	565807.3	4219701.8	6.9	5.00	2.84	2.16	YES	HRDOW
L0000141	0	0.66667E-02	565806.2	4219707.8	6.9	5.00	2.84	2.16	YES	HRDOW
L0000142	0	0.66667E-02	565805.1	4219713.8	6.9	5.00	2.84	2.16	YES	HRDOW
L0000143	0	0.66667E-02	565804.0	4219719.8	6.8	5.00	2.84	2.16	YES	HRDOW
L0000144	0	0.66667E-02	565802.8	4219725.8	6.8	5.00	2.84	2.16	YES	HRDOW
L0000145	0	0.66667E-02	565801.7	4219731.8	6.8	5.00	2.84	2.16	YES	HRDOW
L0000146	0	0.66667E-02	565800.6	4219737.8	6.8	5.00	2.84	2.16	YES	HRDOW
L0000147	0	0.66667E-02	565799.5	4219743.8	6.8	5.00	2.84	2.16	YES	HRDOW
L0000148	0	0.66667E-02	565798.4	4219749.8	6.8	5.00	2.84	2.16	YES	HRDOW
L0000149	0	0.66667E-02	565797.2	4219755.8	6.8	5.00	2.84	2.16	YES	HRDOW
L0000150	0	0.66667E-02	565796.1	4219761.8	6.8	5.00	2.84	2.16	YES	HRDOW

**MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
17	0	0.98540E-04	565643.3	4219110.1	4.3	0.60	6	0.28	YES	HRDOW

Model Input
Unit Emission Rates (1 g/s)

**MODELOPTs: RegDFAULT CONC   ELEV   FLGPOL   URBAN

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
16	L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , L0000029 , L0000030 , L0000031 , L0000032 , L0000033 , L0000034 , L0000035 , L0000036 , L0000037 , L0000038 , L0000039 , L0000040 , L0000041 , L0000042 , L0000043 , L0000044 , L0000045 , L0000046 , L0000047 , L0000048 , L0000049 , L0000050 , L0000051 , L0000052 , L0000053 , L0000054 , L0000055 , L0000056 , L0000057 , L0000058 , L0000059 , L0000060 , L0000061 , L0000062 , L0000063 , L0000064 , L0000065 , L0000066 , L0000067 , L0000068 , L0000069 , L0000070 , L0000071 , L0000072 , L0000073 , L0000074 , L0000075 , L0000076 , L0000077 , L0000078 , L0000079 , L0000080 , L0000081 , L0000082 , L0000083 , L0000084 , L0000085 , L0000086 , L0000087 , L0000088 , L0000089 , L0000090 , L0000091 , L0000092 , L0000093 , L0000094 , L0000095 , L0000096 , L0000097 , L0000098 , L0000099 , L0000100 , L0000101 , L0000102 , L0000103 , L0000104 , L0000105 , L0000106 , L0000107 , L0000108 , L0000109 , L0000110 , L0000111 , L0000112 , L0000113 , L0000114 , L0000115 , L0000116 , L0000117 , L0000118 , L0000119 , L0000120 , L0000121 , L0000122 , L0000123 , L0000124 , L0000125 , L0000126 , L0000127 , L0000128 , L0000129 , L0000130 , L0000131 , L0000132 , L0000133 , L0000134 , L0000135 , L0000136 , L0000137 , L0000138 , L0000139 , L0000140 , L0000141 , L0000142 , L0000143 , L0000144 , L0000145 , L0000146 , L0000147 , L0000148 , L0000149 , L0000150 ,
17	17 ,

Model Input
Unit Emission Rates (1 g/s)

**MODELOPTs: RegDFAULT CONC   ELEV   FLGPOL   URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
	118837.	L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 ,
		L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 , L0000016 ,
		L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , L0000023 , L0000024 ,
		L0000025 , L0000026 , L0000027 , L0000028 , L0000029 , L0000030 , L0000031 , L0000032 ,
		L0000033 , L0000034 , L0000035 , L0000036 , L0000037 , L0000038 , L0000039 , L0000040 ,
		L0000041 , L0000042 , L0000043 , L0000044 , L0000045 , L0000046 , L0000047 , L0000048 ,
		L0000049 , L0000050 , L0000051 , L0000052 , L0000053 , L0000054 , L0000055 , L0000056 ,
		L0000057 , L0000058 , L0000059 , L0000060 , L0000061 , L0000062 , L0000063 , L0000064 ,
		L0000065 , L0000066 , L0000067 , L0000068 , L0000069 , L0000070 , L0000071 , L0000072 ,
		L0000073 , L0000074 , L0000075 , L0000076 , L0000077 , L0000078 , L0000079 , L0000080 ,
		L0000081 , L0000082 , L0000083 , L0000084 , L0000085 , L0000086 , L0000087 , L0000088 ,
		L0000089 , L0000090 , L0000091 , L0000092 , L0000093 , L0000094 , L0000095 , L0000096 ,
		L0000097 , L0000098 , L0000099 , L0000100 , L0000101 , L0000102 , L0000103 , L0000104 ,
		L0000105 , L0000106 , L0000107 , L0000108 , L0000109 , L0000110 , L0000111 , L0000112 ,
		L0000113 , L0000114 , L0000115 , L0000116 , L0000117 , L0000118 , L0000119 , L0000120 ,
		L0000121 , L0000122 , L0000123 , L0000124 , L0000125 , L0000126 , L0000127 , L0000128 ,
		L0000129 , L0000130 , L0000131 , L0000132 , L0000133 , L0000134 , L0000135 , L0000136 ,
		L0000137 , L0000138 , L0000139 , L0000140 , L0000141 , L0000142 , L0000143 , L0000144 ,
		L0000145 , L0000146 , L0000147 , L0000148 , L0000149 , L0000150 , 17 ,

Model Input
Unit Emission Rates (1 g/s)

**MODELOPTs: RegDFAULT CONC   ELEV   FLGPOL   URBAN

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = 16 (150 Volume Sources)   ; SOURCE TYPE = VOLUME   :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
DAY OF WEEK = WEEKDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SATURDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SUNDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

**MODELOPTs: RegDFAULT CONC   ELEV   FLGPOL   URBAN

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = 17   ; SOURCE TYPE = AREAPOLY :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
DAY OF WEEK = WEEKDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SATURDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SUNDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

Model Input
Unit Emission Rates (1 g/s)

**MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(	565671.5,	4219224.2,	4.5,	4.5,	1.5);	(565681.5,	4219224.2,	4.6,	4.6,	1.5);
(	565691.5,	4219224.2,	4.8,	4.8,	1.5);	(565701.5,	4219224.2,	4.9,	4.9,	1.5);
(	565711.5,	4219224.2,	5.0,	5.0,	1.5);	(565721.5,	4219224.2,	5.1,	5.1,	1.5);
(	565731.5,	4219224.2,	5.3,	5.3,	1.5);	(565741.5,	4219224.2,	5.5,	5.5,	1.5);
(	565751.5,	4219224.2,	5.7,	5.7,	1.5);	(565761.5,	4219224.2,	5.9,	5.9,	1.5);
(	565771.5,	4219224.2,	6.1,	6.1,	1.5);	(565781.5,	4219224.2,	6.4,	6.4,	1.5);
(	565671.5,	4219234.2,	4.5,	4.5,	1.5);	(565681.5,	4219234.2,	4.6,	4.6,	1.5);
(	565691.5,	4219234.2,	4.8,	4.8,	1.5);	(565701.5,	4219234.2,	4.9,	4.9,	1.5);
(	565711.5,	4219234.2,	5.0,	5.0,	1.5);	(565721.5,	4219234.2,	5.1,	5.1,	1.5);
(	565731.5,	4219234.2,	5.3,	5.3,	1.5);	(565741.5,	4219234.2,	5.5,	5.5,	1.5);
(	565751.5,	4219234.2,	5.6,	5.6,	1.5);	(565761.5,	4219234.2,	5.9,	5.9,	1.5);
(	565771.5,	4219234.2,	6.1,	6.1,	1.5);	(565781.5,	4219234.2,	6.4,	6.4,	1.5);
(	565671.5,	4219244.2,	4.5,	4.5,	1.5);	(565681.5,	4219244.2,	4.6,	4.6,	1.5);
(	565691.5,	4219244.2,	4.8,	4.8,	1.5);	(565701.5,	4219244.2,	4.9,	4.9,	1.5);
(	565711.5,	4219244.2,	5.0,	5.0,	1.5);	(565721.5,	4219244.2,	5.1,	5.1,	1.5);
(	565731.5,	4219244.2,	5.3,	5.3,	1.5);	(565741.5,	4219244.2,	5.4,	5.4,	1.5);
(	565751.5,	4219244.2,	5.6,	5.6,	1.5);	(565761.5,	4219244.2,	5.8,	5.8,	1.5);
(	565771.5,	4219244.2,	6.1,	6.1,	1.5);	(565781.5,	4219244.2,	6.3,	6.3,	1.5);
(	565671.5,	4219254.2,	4.5,	4.5,	1.5);	(565681.5,	4219254.2,	4.6,	4.6,	1.5);
(	565691.5,	4219254.2,	4.8,	4.8,	1.5);	(565701.5,	4219254.2,	4.9,	4.9,	1.5);
(	565711.5,	4219254.2,	5.0,	5.0,	1.5);	(565721.5,	4219254.2,	5.1,	5.1,	1.5);
(	565731.5,	4219254.2,	5.3,	5.3,	1.5);	(565741.5,	4219254.2,	5.4,	5.4,	1.5);
(	565751.5,	4219254.2,	5.6,	5.6,	1.5);	(565761.5,	4219254.2,	5.8,	5.8,	1.5);
(	565771.5,	4219254.2,	6.1,	6.1,	1.5);	(565781.5,	4219254.2,	6.3,	6.3,	1.5);
(	565671.5,	4219264.2,	4.5,	4.5,	1.5);	(565681.5,	4219264.2,	4.6,	4.6,	1.5);
(	565691.5,	4219264.2,	4.7,	4.7,	1.5);	(565701.5,	4219264.2,	4.9,	4.9,	1.5);
(	565711.5,	4219264.2,	5.0,	5.0,	1.5);	(565721.5,	4219264.2,	5.1,	5.1,	1.5);
(	565731.5,	4219264.2,	5.2,	5.2,	1.5);	(565741.5,	4219264.2,	5.4,	5.4,	1.5);
(	565751.5,	4219264.2,	5.6,	5.6,	1.5);	(565761.5,	4219264.2,	5.8,	5.8,	1.5);
(	565771.5,	4219264.2,	6.1,	6.1,	1.5);	(565781.5,	4219264.2,	6.3,	6.3,	1.5);
(	565671.5,	4219274.2,	4.5,	4.5,	1.5);	(565681.5,	4219274.2,	4.6,	4.6,	1.5);
(	565691.5,	4219274.2,	4.7,	4.7,	1.5);	(565701.5,	4219274.2,	4.8,	4.8,	1.5);
(	565711.5,	4219274.2,	5.0,	5.0,	1.5);	(565721.5,	4219274.2,	5.1,	5.1,	1.5);
(	565731.5,	4219274.2,	5.2,	5.2,	1.5);	(565741.5,	4219274.2,	5.4,	5.4,	1.5);
(	565751.5,	4219274.2,	5.6,	5.6,	1.5);	(565761.5,	4219274.2,	5.8,	5.8,	1.5);
(	565771.5,	4219274.2,	6.0,	6.0,	1.5);	(565781.5,	4219274.2,	6.3,	6.3,	1.5);
(	565671.5,	4219284.2,	4.5,	4.5,	1.5);	(565681.5,	4219284.2,	4.6,	4.6,	1.5);
(	565691.5,	4219284.2,	4.7,	4.7,	1.5);	(565701.5,	4219284.2,	4.8,	4.8,	1.5);
(	565711.5,	4219284.2,	4.9,	4.9,	1.5);	(565721.5,	4219284.2,	5.1,	5.1,	1.5);
(	565731.5,	4219284.2,	5.2,	5.2,	1.5);	(565741.5,	4219284.2,	5.4,	5.4,	1.5);
(	565751.5,	4219284.2,	5.6,	5.6,	1.5);	(565761.5,	4219284.2,	5.8,	5.8,	1.5);
(	565771.5,	4219284.2,	6.0,	6.0,	1.5);	(565781.5,	4219284.2,	6.3,	6.3,	1.5);

Model Input
Unit Emission Rates (1 g/s)

```
( 565671.5, 4219294.2,      4.4,      4.4,      1.5);      ( 565681.5, 4219294.2,      4.5,      4.5,      1.5);
( 565691.5, 4219294.2,      4.6,      4.6,      1.5);      ( 565701.5, 4219294.2,      4.7,      4.7,      1.5);
( 565711.5, 4219294.2,      4.8,      4.8,      1.5);      ( 565721.5, 4219294.2,      5.0,      5.0,      1.5);
( 565731.5, 4219294.2,      5.2,      5.2,      1.5);      ( 565741.5, 4219294.2,      5.3,      5.3,      1.5);
( 565751.5, 4219294.2,      5.5,      5.5,      1.5);      ( 565761.5, 4219294.2,      5.8,      5.8,      1.5);
( 565771.5, 4219294.2,      6.0,      6.0,      1.5);      ( 565781.5, 4219294.2,      6.3,      6.3,      1.5);
( 565671.5, 4219304.2,      4.4,      4.4,      1.5);      ( 565681.5, 4219304.2,      4.5,      4.5,      1.5);
( 565691.5, 4219304.2,      4.5,      4.5,      1.5);      ( 565701.5, 4219304.2,      4.6,      4.6,      1.5);
( 565711.5, 4219304.2,      4.8,      4.8,      1.5);      ( 565721.5, 4219304.2,      4.9,      4.9,      1.5);
( 565731.5, 4219304.2,      5.1,      5.1,      1.5);      ( 565741.5, 4219304.2,      5.3,      5.3,      1.5);
( 565751.5, 4219304.2,      5.5,      5.5,      1.5);      ( 565761.5, 4219304.2,      5.7,      5.7,      1.5);
( 565771.5, 4219304.2,      6.0,      6.0,      1.5);      ( 565781.5, 4219304.2,      6.2,      6.2,      1.5);
( 565671.5, 4219314.2,      4.3,      4.3,      1.5);      ( 565681.5, 4219314.2,      4.4,      4.4,      1.5);
( 565691.5, 4219314.2,      4.4,      4.4,      1.5);      ( 565701.5, 4219314.2,      4.5,      4.5,      1.5);
( 565711.5, 4219314.2,      4.7,      4.7,      1.5);      ( 565721.5, 4219314.2,      4.9,      4.9,      1.5);
( 565731.5, 4219314.2,      5.1,      5.1,      1.5);      ( 565741.5, 4219314.2,      5.3,      5.3,      1.5);
( 565751.5, 4219314.2,      5.5,      5.5,      1.5);      ( 565761.5, 4219314.2,      5.7,      5.7,      1.5);
( 565771.5, 4219314.2,      6.0,      6.0,      1.5);      ( 565781.5, 4219314.2,      6.2,      6.2,      1.5);
( 565671.5, 4219324.2,      4.2,      4.2,      1.5);      ( 565681.5, 4219324.2,      4.2,      4.2,      1.5);
( 565691.5, 4219324.2,      4.3,      4.3,      1.5);      ( 565701.5, 4219324.2,      4.4,      4.4,      1.5);
( 565711.5, 4219324.2,      4.6,      4.6,      1.5);      ( 565721.5, 4219324.2,      4.8,      4.8,      1.5);
( 565731.5, 4219324.2,      5.0,      5.0,      1.5);      ( 565741.5, 4219324.2,      5.2,      5.2,      1.5);
( 565751.5, 4219324.2,      5.4,      5.4,      1.5);      ( 565761.5, 4219324.2,      5.7,      5.7,      1.5);
( 565771.5, 4219324.2,      6.0,      6.0,      1.5);      ( 565781.5, 4219324.2,      6.2,      6.2,      1.5);
( 565671.5, 4219334.2,      4.0,      4.0,      1.5);      ( 565681.5, 4219334.2,      4.0,      4.0,      1.5);
( 565691.5, 4219334.2,      4.2,      4.2,      1.5);      ( 565701.5, 4219334.2,      4.3,      4.3,      1.5);
( 565711.5, 4219334.2,      4.5,      4.5,      1.5);      ( 565721.5, 4219334.2,      4.7,      4.7,      1.5);
( 565731.5, 4219334.2,      5.0,      5.0,      1.5);      ( 565741.5, 4219334.2,      5.2,      5.2,      1.5);
( 565751.5, 4219334.2,      5.4,      5.4,      1.5);      ( 565761.5, 4219334.2,      5.7,      5.7,      1.5);
( 565771.5, 4219334.2,      6.0,      6.0,      1.5);      ( 565781.5, 4219334.2,      6.2,      6.2,      1.5);
( 565671.5, 4219344.2,      3.8,      3.8,      1.5);      ( 565681.5, 4219344.2,      3.9,      3.9,      1.5);
( 565691.5, 4219344.2,      4.0,      4.0,      1.5);      ( 565701.5, 4219344.2,      4.1,      4.1,      1.5);
( 565711.5, 4219344.2,      4.4,      4.4,      1.5);      ( 565721.5, 4219344.2,      4.6,      4.6,      1.5);
( 565731.5, 4219344.2,      4.9,      4.9,      1.5);      ( 565741.5, 4219344.2,      5.1,      5.1,      1.5);
( 565751.5, 4219344.2,      5.4,      5.4,      1.5);      ( 565761.5, 4219344.2,      5.6,      5.6,      1.5);
( 565771.5, 4219344.2,      6.0,      6.0,      1.5);      ( 565781.5, 4219344.2,      6.2,      6.2,      1.5);
( 565671.5, 4219354.2,      3.8,      3.8,      1.5);      ( 565681.5, 4219354.2,      3.8,      3.8,      1.5);
( 565691.5, 4219354.2,      3.9,      3.9,      1.5);      ( 565701.5, 4219354.2,      4.0,      4.0,      1.5);
( 565711.5, 4219354.2,      4.3,      4.3,      1.5);      ( 565721.5, 4219354.2,      4.6,      4.6,      1.5);
( 565731.5, 4219354.2,      4.8,      4.8,      1.5);      ( 565741.5, 4219354.2,      5.1,      5.1,      1.5);
( 565751.5, 4219354.2,      5.3,      5.3,      1.5);      ( 565761.5, 4219354.2,      5.6,      5.6,      1.5);
( 565771.5, 4219354.2,      5.9,      5.9,      1.5);      ( 565781.5, 4219354.2,      6.2,      6.2,      1.5);
( 565671.5, 4219364.2,      3.7,      3.7,      1.5);      ( 565681.5, 4219364.2,      3.8,      3.8,      1.5);
( 565691.5, 4219364.2,      3.9,      3.9,      1.5);      ( 565701.5, 4219364.2,      4.0,      4.0,      1.5);
( 565711.5, 4219364.2,      4.2,      4.2,      1.5);      ( 565721.5, 4219364.2,      4.5,      4.5,      1.5);
( 565731.5, 4219364.2,      4.8,      4.8,      1.5);      ( 565741.5, 4219364.2,      5.1,      5.1,      1.5);
( 565751.5, 4219364.2,      5.3,      5.3,      1.5);      ( 565761.5, 4219364.2,      5.6,      5.6,      1.5);
( 565771.5, 4219364.2,      5.9,      5.9,      1.5);      ( 565781.5, 4219364.2,      6.2,      6.2,      1.5);
```

**MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

Model Input
Unit Emission Rates (1 g/s)

**MODELOPTs: RegDFAULT CONC   ELEV   FLGPOL   URBAN

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

  Surface file: C:\!MET Files\BAAQMD Met Files\Napa County Airport\724955.SFC   Met Version: 14134
  Profile file: C:\!MET Files\BAAQMD Met Files\Napa County Airport\724955.PFL
  Surface format: FREE
  Profile format: FREE
  Surface station no.:   93227   Upper air station no.:   23230
                Name: UNKNOWN   Name: OAKLAND/WSO_AP
                Year: 2009   Year: 2009

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
09	01	01	1	01	-2.8	0.059	-9.000	-9.000	-999.	34.	6.8	0.03	0.63	1.00	1.76	111.	10.0	279.2	2.0
09	01	01	1	02	-11.4	0.199	-9.000	-9.000	-999.	213.	62.6	0.03	0.63	1.00	3.36	98.	10.0	279.2	2.0
09	01	01	1	03	-19.9	0.345	-9.000	-9.000	-999.	485.	187.0	0.03	0.63	1.00	5.36	94.	10.0	278.1	2.0
09	01	01	1	04	-15.8	0.273	-9.000	-9.000	-999.	345.	117.7	0.03	0.63	1.00	4.36	93.	10.0	278.1	2.0
09	01	01	1	05	-13.7	0.237	-9.000	-9.000	-999.	277.	88.3	0.03	0.63	1.00	3.86	93.	10.0	278.1	2.0
09	01	01	1	06	-2.8	0.059	-9.000	-9.000	-999.	87.	6.8	0.03	0.63	1.00	1.76	92.	10.0	278.8	2.0
09	01	01	1	07	-9.1	0.158	-9.000	-9.000	-999.	151.	39.6	0.03	0.63	1.00	2.86	105.	10.0	278.8	2.0
09	01	01	1	08	-13.6	0.237	-9.000	-9.000	-999.	276.	88.5	0.03	0.63	1.00	3.86	93.	10.0	278.8	2.0
09	01	01	1	09	-9.4	0.318	-9.000	-9.000	-999.	430.	311.3	0.03	0.63	0.41	4.86	97.	10.0	278.8	2.0
09	01	01	1	10	4.8	0.296	0.220	0.016	81.	388.	-497.3	0.03	0.63	0.28	4.36	101.	10.0	279.2	2.0
09	01	01	1	11	11.8	0.301	0.366	0.016	151.	396.	-210.6	0.03	0.63	0.23	4.36	94.	10.0	279.2	2.0
09	01	01	1	12	15.7	0.335	0.450	0.016	210.	465.	-217.6	0.03	0.63	0.22	4.86	86.	10.0	279.2	2.0
09	01	01	1	13	16.4	0.291	0.488	0.016	257.	377.	-136.4	0.02	0.63	0.22	4.36	123.	10.0	279.2	2.0
09	01	01	1	14	13.8	0.334	0.480	0.016	291.	463.	-245.4	0.03	0.63	0.22	4.86	109.	10.0	279.2	2.0
09	01	01	1	15	8.1	0.202	0.411	0.015	310.	229.	-92.5	0.03	0.63	0.26	2.86	102.	10.0	279.9	2.0
09	01	01	1	16	-0.4	0.191	-9.000	-9.000	-999.	200.	1603.3	0.03	0.63	0.34	2.86	104.	10.0	279.9	2.0
09	01	01	1	17	-6.1	0.117	-9.000	-9.000	-999.	97.	23.6	0.03	0.63	0.58	2.36	111.	10.0	279.2	2.0
09	01	01	1	18	-11.4	0.199	-9.000	-9.000	-999.	213.	62.4	0.03	0.63	1.00	3.36	97.	10.0	278.8	2.0
09	01	01	1	19	-9.1	0.158	-9.000	-9.000	-999.	152.	39.6	0.03	0.63	1.00	2.86	94.	10.0	278.8	2.0
09	01	01	1	20	-9.1	0.158	-9.000	-9.000	-999.	151.	39.6	0.03	0.63	1.00	2.86	87.	10.0	278.8	2.0
09	01	01	1	21	-2.7	0.059	-9.000	-9.000	-999.	41.	6.8	0.03	0.63	1.00	1.76	90.	10.0	279.2	2.0
09	01	01	1	22	-6.3	0.110	-9.000	-9.000	-999.	88.	19.2	0.03	0.63	1.00	2.36	72.	10.0	279.2	2.0
09	01	01	1	23	-11.4	0.199	-9.000	-9.000	-999.	213.	62.6	0.03	0.63	1.00	3.36	100.	10.0	279.2	2.0
09	01	01	1	24	-11.4	0.199	-9.000	-9.000	-999.	213.	62.6	0.03	0.63	1.00	3.36	90.	10.0	279.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
09	01	01	01	10.0	1	111.	1.76	279.3	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

Model Input
Unit Emission Rates (1 g/s)

**MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** THE SUMMARY OF MAXIMUM PERIOD (43872 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)					OF TYPE	NETWORK GRID-ID
16	1ST HIGHEST VALUE IS	1.22852	AT (	565781.53,	4219364.25,	6.19,	6.19,	1.50)	DC
	2ND HIGHEST VALUE IS	1.20307	AT (	565781.53,	4219354.25,	6.22,	6.22,	1.50)	DC
	3RD HIGHEST VALUE IS	1.17857	AT (	565781.53,	4219344.25,	6.23,	6.23,	1.50)	DC
	4TH HIGHEST VALUE IS	1.15491	AT (	565781.53,	4219334.25,	6.23,	6.23,	1.50)	DC
	5TH HIGHEST VALUE IS	1.13201	AT (	565781.53,	4219324.25,	6.22,	6.22,	1.50)	DC
	6TH HIGHEST VALUE IS	1.10967	AT (	565781.53,	4219314.25,	6.23,	6.23,	1.50)	DC
	7TH HIGHEST VALUE IS	1.09544	AT (	565771.53,	4219364.25,	5.91,	5.91,	1.50)	DC
	8TH HIGHEST VALUE IS	1.08794	AT (	565781.53,	4219304.25,	6.25,	6.25,	1.50)	DC
	9TH HIGHEST VALUE IS	1.07467	AT (	565771.53,	4219354.25,	5.93,	5.93,	1.50)	DC
	10TH HIGHEST VALUE IS	1.06685	AT (	565781.53,	4219294.25,	6.27,	6.27,	1.50)	DC
17	1ST HIGHEST VALUE IS	39.89988	AT (	565741.53,	4219224.25,	5.48,	5.48,	1.50)	DC
	2ND HIGHEST VALUE IS	39.74121	AT (	565731.53,	4219224.25,	5.30,	5.30,	1.50)	DC
	3RD HIGHEST VALUE IS	39.48222	AT (	565751.53,	4219224.25,	5.67,	5.67,	1.50)	DC
	4TH HIGHEST VALUE IS	38.97283	AT (	565721.53,	4219224.25,	5.15,	5.15,	1.50)	DC
	5TH HIGHEST VALUE IS	38.40314	AT (	565761.53,	4219224.25,	5.90,	5.90,	1.50)	DC
	6TH HIGHEST VALUE IS	37.56806	AT (	565711.53,	4219224.25,	5.02,	5.02,	1.50)	DC
	7TH HIGHEST VALUE IS	36.31898	AT (	565771.53,	4219224.25,	6.14,	6.14,	1.50)	DC
	8TH HIGHEST VALUE IS	35.45052	AT (	565701.53,	4219224.25,	4.89,	4.89,	1.50)	DC
	9TH HIGHEST VALUE IS	32.43943	AT (	565691.53,	4219224.25,	4.77,	4.77,	1.50)	DC
	10TH HIGHEST VALUE IS	32.19965	AT (	565781.53,	4219224.25,	6.38,	6.38,	1.50)	DC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

Model Input
Unit Emission Rates (1 g/s)

**MODELOPTs: RegDFAULT CONC   ELEV   FLGPOL   URBAN

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF OTHER   IN MICROGRAMS/M**3   **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
16 HIGH 1ST HIGH VALUE IS	102.09663	ON 11011809:	AT (565781.53, 4219364.25, 6.19, 6.19, 1.50)	DC	
17 HIGH 1ST HIGH VALUE IS	1204.38069	ON 10011409:	AT (565671.53, 4219224.25, 4.54, 4.54, 1.50)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
                     GP = GRIDPOLR
                     DC = DISCCART
                     DP = DISCPOLR

**MODELOPTs: RegDFAULT CONC   ELEV   FLGPOL   URBAN

*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of   0 Fatal Error Message(s)
A Total of   0 Warning Message(s)
A Total of   10597 Informational Message(s)

A Total of   43872 Hours Were Processed

A Total of   9342 Calm Hours Identified

A Total of   1255 Missing Hours Identified (2.86 Percent)

   ******** FATAL ERROR MESSAGES ********
              *** NONE ***

   ********   WARNING MESSAGES   ********
              *** NONE ***

   ****
   *** AERMOD Finishes Successfully ***
   ****

Appendix

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Appendix E. Risk Calculations

Appendix

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Table E1 - Stationary Sources and Railroad
Pollutant Concentration Worksheet

Source No.	Source	Contaminant	Weight Fraction	Emission Rates[1] **Annual Avg** (g/s)	Model Output[2] **Annual Avg** ($\mu g/m^3$)	Annual Average MER Concentration ($\mu g/m^3$)	Model Output[2] **1-Hour** ($\mu g/m^3$)	Acute (1-hour) MER Concentration ($\mu g/m^3$)
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Staff Scenario								
16	California Northern Railroad	Diesel Particulate	1.00E+00	8.19E-05	1.229	0.00010	n/a	
17	VCUSD Transportation Department	Diesel Particulate	1.00E+00	5.04E-05	39.90	0.00201	n/a	
		Acetaldehyde	6.94E-02	1.60E-04	39.90	4.43E-04	1.20E+03	1.34E-02
		Benzene	3.54E-03			2.26E-05		6.82E-04
		1,3-Butadiene	1.30E-03			8.32E-06		2.51E-04
		Formaldehyde	9.26E-01			5.91E-03		1.78E-01
Student Scenario								
16	California Northern Railroad	Diesel Particulate	1.00E+00	1.31E-04	1.229	0.00016	n/a	
17	VCUSD Transportation Department	Diesel Particulate	1.00E+00	1.04E-04	39.90	0.00416	n/a	
		Acetaldehyde	6.94E-02	1.60E-04	39.90	4.43E-04	1.20E+03	1.34E-02
		Benzene	3.54E-03			2.26E-05		6.82E-04
		1,3-Butadiene	1.30E-03			8.32E-06		2.51E-04
		Formaldehyde	9.26E-01			5.91E-03		1.78E-01
Note: Maximum Exposed Receptor (MER)						For Cancer/Chronic Calculation		For Acute Calculation

[1] Emission Rates, per source, from Source Emissions Inventories (Appendix C).

[2] Model Output (Appendix D) at the maximum exposed receptor (MER) are based on unit emission rates for emission sources (1 g/s per source).

Table E2
HARP2 Results for Cancer Risk and Chronic Hazards
School Scenario

No.	Source	Contaminant	**Carcinogenic Risks**		Chronic Non-Cancer Risks - Toxicological Endpoints*											
			Staff	**Students**	CV	CNS	IMMUN	KIDNEY	GILV	REPRO	RESP	SKIN	EYE	BONE	ENDO	BLOOD
			per million	per million												
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
16	California Northern	Diesel Particulate	**0.01**	**0.02**							**3.20E-05**					
17	VCUSD Transportation	Diesel Particulate	1.2E-01	5.0E-01							8.32E-04					
	Department	Acetaldehyde	2.5E-04	4.9E-04							3.16E-06					
		Benzene	1.3E-04	2.5E-04												7.53E-06
		1,3-Butadiene	2.8E-04	5.5E-04						4.16E-06						
		Formaldehyde	7.0E-03	1.4E-02							6.57E-04					
		Source Total	**0.13**	**0.52**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.16E-06	**1.49E-03**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.53E-06

Risk Factors used in CARB's HARP2 for School-Based Receptors

	Staff	Students	
	16 < 70 years	2 < 16 years	OEHHA age bin
Dose Exposure Factors:	250	180	exposure frequency (days/year)
	230	520	8-hour inhalation rate (L/kg-8 hours) [1]
	1	1	inhalation absorption factor
Risk Calculation Factors:	1	3	age sensitivity factor
	25	10	exposure duration (years)
	70	70	averaging time (years)

[1] 8-hour inhalation rate taken as the 95th percentile breathing rates for Moderate Intensity Activities (OEHHA, 2015).

* Key to Toxicological Endpoints

CV	Cardiovascular System
CNS	Central Nervous System
IMMUN	Immune System
KIDN	Kidneys
GILV	Gastrointestinal Tract and Liver/Alimentary Tract
RESP	Respiratory System
REPRO	Reproductive System
SKIN	Skin irritation and/or other effects
EYE	Eye irritation and/or other effects
BONE	Bones and Teeth
ENDO	Endocrine System
BLOOD	Hematological System

Table E3
HARP2 Results for Acute Hazards
School Scenario

Source No.	Source	Contaminant	Acute (1-Hour) Non-Cancer Risks - Toxicological Endpoints*										
			CV	CNS	IMMUN	KIDNEY	GILV	REPRO	RESP	SKIN	**EYE**	BONE	ENDO	BLOOD
(a)	(b)	(c)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
17	VCUSD Transportation Department	Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.85E-05	0.00E+00	2.85E-05	0.00E+00	0.00E+00	0.00E+00
		Benzene	0.00E+00	0.00E+00	2.53E-05	0.00E+00	0.00E+00	2.53E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-05
		1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.80E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.24E-03	0.00E+00	0.00E+00	0.00E+00
		Source Total	0.00E+00	0.00E+00	2.53E-05	0.00E+00	0.00E+00	2.56E-05	2.85E-05	0.00E+00	**3.26E-03**	0.00E+00	0.00E+00	2.53E-05

Note: As OEHHA does not provide an approved 1-hour REL for diesel particulate exhaust, acute hazards for source 16 and the diesel buses of source 17 are not needed for this evaluation.

* Key to Toxicological Endpoints

CV	Cardiovascular System	RESP	Respiratory System
CNS	Central Nervous System	SKIN	Skin irritation and/or other effects
IMMUN	Immune System	EYE	Eye irritation and/or other effects
KIDN	Kidneys	BONE	Bones and Teeth
GILV	Gastrointestinal Tract and Liver/Alimentary Tract	ENDO	Endocrine System
REPRO	Reproductive System	BLOOD	Hematological System

Table E4 - Summary of Health Risks
Individual Sources and Cumulative

Health Risk Summary

Source No.	Source	Cancer Risk - Staff (per	Cancer Risk - Students (per	Chronic Hazard	Acute Hazard	$PM_{2.5}$ (µg/m3)	Methodology
SCREENING ANALYSIS VALUES [1]							
1	Highway 29 - Sonoma Boulevard	0.94	0.94	0.001	0.001	0.010	Highway Screening Tool
2	Lincoln Highway/Broadway	2.48	2.48	0.020	0.020	0.037	Roadway Screening Analysis Calculator
3	Redwood Street	1.10	1.10	0.020	0.020	0.013	Roadway Screening Analysis Calculator
4	Klimisch's Inc	0.00	0.00	0.000	0.000	0.001	Stationary Source Screening Tool
5	E Auto Body	0.00	0.00	0.001	0.001	0.000	Stationary Source Screening Tool
6	Rose's Collision Repair Center	0.00	0.00	0.000	0.000	0.000	Stationary Source Screening Tool
7	Earl Scheib of California	0.00	0.00	0.000	0.000	0.000	Stationary Source Screening Tool
8	Sonoma Auto Collision	0.00	0.00	0.000	0.000	0.000	Stationary Source Screening Tool
9	Foster Lumber	n/a	n/a	n/a	n/a	n/a	Stationary Source Screening Tool
10	Solano Collision Inc.	0.00	0.00	0.002	0.002	0.000	Stationary Source Screening Tool
11	Vallejo Sanitation & Flood Control District	0.37	0.37	0.000	0.003	0.002	Stationary Source Screening Tool; distance multiplier
12	D&F Autoshine	0.15	0.15	0.001	0.001	0.000	Stationary Source Screening Tool
13	Vallejo One Hour Cleaners	0.00	0.00	0.000	0.000	0.000	Stationary Source Screening Tool
14	A1 Collision Repair	0.00	0.00	0.003	0.003	0.000	Stationary Source Screening Tool
15	Road Runner Gas	0.40	0.40	0.000	0.029	n/a	Stationary Source Screening Tool; distance multiplier
REFINED MODELING VALUES							
16	California Northern Railroad	0.01	0.02	0.000	n/a	n/a	Air dispersion modeling; HARP2
17	VCUSD Transportation Dept.	0.13	0.52	0.001	0.003	n/a	
	BAAQMD Significance Threshold	10.0	10.0	1.0	1.0	0.30	For each individual source
	Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	
CUMULATIVE ANALYSIS							
	Cumulative Total	5.58	5.98	0.050	0.083	0.063	For ALL Sources
	BAAQMD Significance Threshold	100	100	10.0	10.0	0.80	
	Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	

[1] BAAQMD Screening Level Cancer Risk Values for stationary and mobile sources are for 70-year residential exposures. As school-based receptors would be exposed at much shorter durations than 70-years (i.e. 25-year exposure scenario for staff and 10-year exposure scenario for grades TK-8 students), these screening level risks are conservative.