PLACER COUNTY AIR POLLUTION CONTROL DISTRICT

11464 B Avenue, Auburn, CA 95603 • (530) 889-7130 • Fax (530) 889-7107

Thomas J. Christofk, Air Pollution Control Officer

August 18, 2005

Mr. Michael N. Jones
U.S. EPA (D243-02)
4930 Page Road
Durham, NC 27703

VIA Express Delivery

Dear Mr. Jones:

Enclosed is the completed application in response to RFA No. OAR-EMAD-05-16, Local Scale Air Toxics Ambient Monitoring.

The application is in four parts:

1) Completed Form SF-424
2) Narrative Workplan
3) Detailed Budget
4) Quality Assurance Narrative

I believe this project strongly meets the intent of the RFA, and when completed, will provide substantial information with both local and broad national interest.

Sincerely,

Thomas J. Christofk
Air Pollution Control Officer

From: Tom Christofk
To: Jane Bailey
Date: 8/17/2005 9:53:49 AM
Subject: Fwd: Draft Cover Letter

Jane...

Please print out the attached letter on our letterhead and date it for tomorrow. I would like to sign it and get it off via FedEx tomorrow...assuming we get all the financial data completed this afternoon. Take note of the numbers to use from Mel

TC

>>> "Melvin Zeldin" <mzeldin45@earthlink.net> 08/17 9:37 AM >>>
Tom:

Attached is a draft cover letter for the grant application submittal. It is prepared with the appropriate address for FedEx delivery. Also, on the FedEx shipping slip, the phone number to use is: 919-541-0528

Talk to you this afternoon.

Mel

CC: Yu-Shuo Chang

APPLICATION FOR FEDERAL ASSISTANCE

Version 7/03

		2. DATE SUBMITTED August 18, 2005	Applicant Identifier
1. TYPE OF SUBMISSION: Application ☐ Construction ☑ Non-Construction	Pre-application ☐ Construction ☐ Non-Construction	**3. DATE RECEIVED BY STATE**	State Application Identifier
		4. DATE RECEIVED BY FEDERAL AGENCY	Federal Identifier

5. APPLICANT INFORMATION

Legal Name: Placer County Air Pollution Control District	**Organizational Unit:** Department:
Organizational DUNS: 88425 8724	Division:
Address: Street: 11464 B Avenue	**Name and telephone number of person to be contacted on matters involving this application (give area code)** Prefix: Mr. First Name: Yushuo
City: Auburn	Middle Name
County: Placer	Last Name Chang
State: CA Zip Code 95603	Suffix:
Country: USA	Email: ychang@placer.ca.gov
6. EMPLOYER IDENTIFICATION NUMBER *(EIN):* 94-6000527	Phone Number (give area code) (530)889-7121 Fax Number (give area code) (530)889-7107

8. TYPE OF APPLICATION: ☑ New ☐ Continuation ☐ Revision. If Revision, enter appropriate letter(s) in box(es) (See back of form for description of letters.) ☐ ☐ Other (specify)	**7. TYPE OF APPLICANT:** (See back of form for Application Types) G Other (specify)
	9. NAME OF FEDERAL AGENCY: U.S. Environmental Protection Agency
10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: 66-034 TITLE (Name of Program): Local-Scale Air Toxics Ambient Monitoring	**11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:** Roseville Railyard Air Monitoring Project
12. AREAS AFFECTED BY PROJECT *(Cities, Counties, States, etc.):* Sacramento and Placer Counties	
13. PROPOSED PROJECT Start Date: January 2006 Ending Date: March 2007	**14. CONGRESSIONAL DISTRICTS OF:** a. Applicant 4 b. Project 3 and 4

15. ESTIMATED FUNDING:		**16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?**
a. Federal	$ 218,101.00	a. Yes. ☐ THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON DATE:
b. Applicant	$ .00	
c. State	$ .00	
d. Local	$ .00	b. No. ☐ PROGRAM IS NOT COVERED BY E. O. 12372
e. Other	$ .00	☑ OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW
f. Program Income	$ .00	**17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?**
g. TOTAL	$ 218,101.00	☐ Yes If "Yes" attach an explanation. ☑ No

18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT. THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.

a. Authorized Representative

Prefix Mr.	First Name Thomas	Middle Name J.
Last Name Christofk		Suffix
b. Title Air Pollution Control Officer		c. Telephone Number (give area code) (530)889-7134
d. Signature of Authorized Representative: Thomas J. Christofk		e. Date Signed August 17, 2005

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Standard Form 424 (Rev.9-2003)
Prescribed by OMB Circular A-102

Part 2: Narrative Workplan

Project Title: Roseville Railyard Air Monitoring Project (RRAMP)

Category: (1) Source Identification and Characterization

Applicant Information:

Placer County Air Pollution Control District
11464 B Avenue
Auburn, CA 95603
Contact Person: Tom Christofk, APCO
Phone Number: 530-889-7130
e-mail: tchristo@placer.ca.gov
Fax Number: 530-889-7107

Amount of Funding Requested: $218,101

Total Project Costs: $661,378 (as follows):

USEPA (RFA request)	$218,101
Placer County APCD	$ 99,835
Sacramento Metro AQMD	$142,269
South Coast AQMD (in kind)	$ 40,500
Union Pacific Railroad	$100,000
USEPA Region IX	$ 50,000
California ARB (in-kind)	$ 10,673

Project Period:

January 2005 through March 2008 (for the entire project)
January 2006 through March 2007 (for the portion to be covered by this grant)

Description of Project:

(1) Project Summary

(a) Background

In 2000, community concerns about the Union Pacific Railyard facility in Roseville led the Placer County APCD (PCAPCD) to request the California Air Resources Board (ARB) to conduct a risk assessment from the diesel emissions at the facility. This was a major undertaking, and after almost three years of study, ARB released the results in October 2004. The study concluded, in part, that:

- *diesel PM emissions from railyard operations are estimated to be about 25 tons per year;*
- *excess cancer risk levels between 100 and 500 in a million, based on California-derived diesel toxicity, affect an area in which 14,000 to 26,000 people live;*
- *and excess cancer risk levels between 10 and 100 in a million affect an area in which about 140,000 to 155,000 people live.*

Based on these findings and other community concerns, PCAPCD decided that a follow-up air toxics monitoring study was imperative, and the PCAPCD Board of Directors approved such a study at their October 2004 meeting. The purpose of the study, therefore, is to use field monitoring

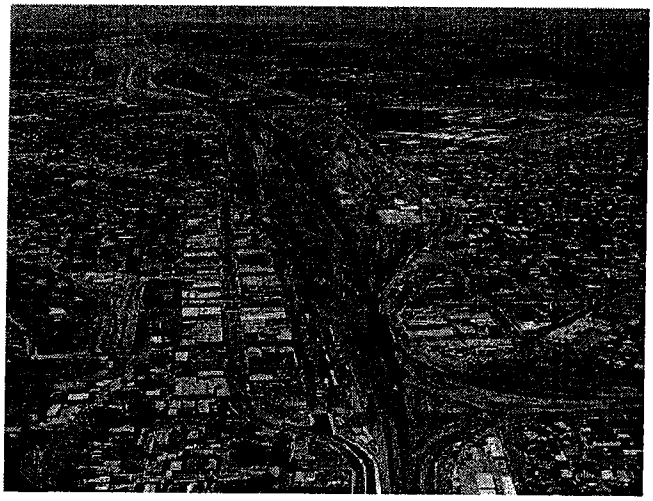
equipment and the latest monitoring technologies to measure the air toxic impacts from the emissions, primarily diesel, emanating from the Roseville Railyard facility, and to determine model-to-monitor comparisons.

(b) Project Setting

The Roseville Railyard (J.R. Davis Yard) is operated by the Union Pacific Railroad, and is located on a one-quarter mile wide by four-mile long area primarily in the community of Roseville, California, northeast of Sacramento. The facility is approximately two-thirds within Placer County, and one-third within Sacramento County. The Railyard operates around the clock, 365 days a year, and is considered one of the largest such facilities in the western United States. On an annual basis, approximately 31,000 locomotives stop at the facility each year, and 98% of Union Pacific's Northern California traffic moves through the facility.

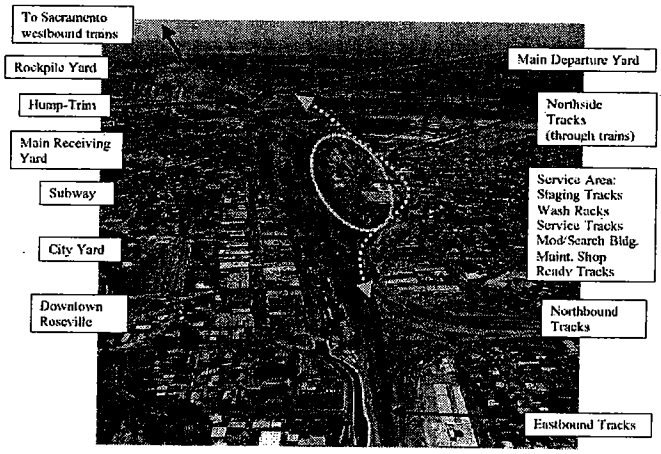
The Railyard is oriented approximately in a northeast-southwest direction. Prevailing winds are typically from the southeast, or close to perpendicular to the orientation of the facility. The downtown area of Roseville is situated nearly adjacent to the facility on the southern edge, while a mixture of residential, commercial and open space areas are located adjacent to the northern edge.

The facility service area, including staging tracks, wash racks, service tracks, maintenance shop, and ready tracks are situated toward the eastern part of the Railyard, while the hump and trim, rockpile yard, and main receiving yard are situated more toward the central-western part of the facility. According to CARB estimates, approximately 50% of the diesel emissions are from locomotive moving throughout the Railyard; about 45% are from idling emissions; and 5% from the testing of locomotives. The greatest emissions tend to be produced within the facility service area, at about 8 tons per year, and within that area, almost three-fourths of the emissions are from idling locomotives. The area with the second greatest amount of emissions, at 7.5 tons per year, is the hump and trim area.



Aerial Photo of the Roseville Railyard

Figure II.1: Aerial Photo of J.R. Davis Yard



Operational Layout of the Facility

As can be seen in the photos above, some residential communities abut the facility. Therefore, emissions from the facility can have direct and substantial air quality impact on those people residing in these areas, as was determined from the CARB's initial risk assessment.

(c) Project Objectives

There are several objectives to the RRAMP:

(1) To determine, through ambient air monitoring, localized air pollutant/toxic impacts from the emissions at the UPRR facility;

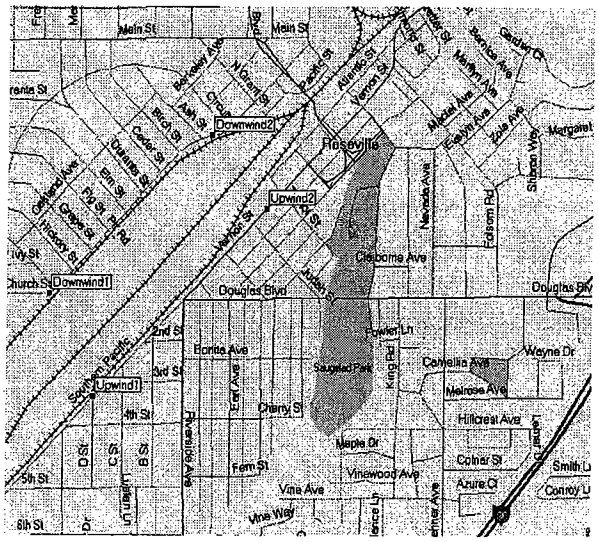
(2) To verify the effectiveness of mitigation measures to be implemented by the Union Pacific Railroad;

(3) To improve the accuracy of future modeling analyses; and

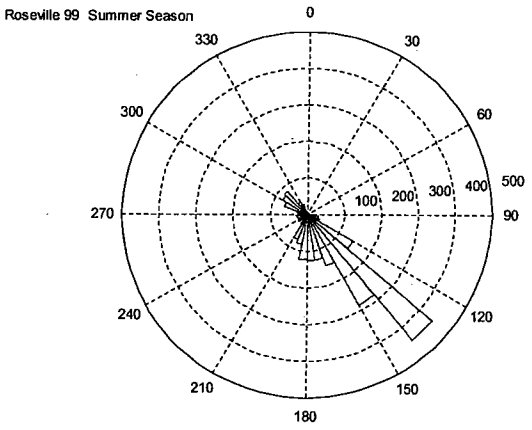
(4) To provide feedback to the public regarding air quality conditions relevant to objectives (1) and (2).

(d) Concept of Operations

Recognizing the limitations for directly measuring diesel - particulate matter (DPM) in ambient air, and, recognizing that it would be virtually impossible to try to distinguish between DPM from the railyard locomotives versus nearby truck traffic on Interstate-80 (about 1 mile southeast the railyard), the concept is to approach this monitoring project in a slightly different way. Two pairs of upwind/downwind monitoring locations are being utilized (see below), arranged optimally to coincide with the predominant wind directions for the projected period of sampling. Each pair is situated, to the degree feasible, such that the ONLY source of emissions between the sites is the railyard facility. Since the railyard is oriented in northeast-southwest direction, the optimum wind direction is from the southeast, or perpendicular to the tracks. Wind rose data show that this is the prevailing wind direction, primarily at night, during the summer months (see below.)



Location of Upwind/Downwind Sites



Windrose -Summer

Further, since CARB completed the emissions/modeling/risk assessment of the facility, areas of projected maximum impacts are now known. Therefore, sites have been established such that, for the first pair, the downwind site is within the maximum impact area near the railyard service area. The second pair is similar, in that the downwind site is within the maximum impact area near the maintenance yard.

For a study of this type, the problem with filter-based sampling is that such sampling is an integrated sample over a period of time with varying wind directions. The concept in the RRAMP is to utilize continuous black carbon (BC)-measuring aethalometers, continuous PM2.5 Beta Attenuation Monitors (BAMs), and co-located filter sampling as well. Also, the use of a continuous NOx analyzer will help with diesel plume detection, as simultaneous peaks in both NOx and BC would strongly indicate the presence of a diesel emissions plume. With continuous measurements, there is the ability to select only those hours when the wind direction is most directly from the upwind site, across the facility, to the downwind site. The upwind site would measure incoming background BC, whereas the downwind site would have the background plus the additional emissions from the facility. Looking at the wind data in the area, there also maybe a much smaller subset, but nonetheless useful number of hours where the winds are from the opposite direction. Thus the upwind/downwind monitors become reversed. Using statistical analyses, it should be able to determine the distinct difference between monitoring sites caused by the RR operations. For comparative purposes to more standard filter-based measurements, there will be PM2.5 FRM samplers at each of the four sites. Sampling will be done on an every-three-day basis, with quartz filter media used on 2/3 of the sampling days (to conduct elemental carbon analysis to compare to equivalent period black carbon as determined by the aethalometers); and Teflon filter media used on 1/3 of the days to compare with the PM2.5 continuous samplers. Though these comparisons are not critical to the success of the study, nevertheless, it was deemed important to have some structured comparisons to filter-based samplers.

During the second year of the study (2006), for which EPA funding is requested, we want to augment the measurements by including VOC and carbonyl toxic analyses at one pair of upwind/downwind sites. In addition, PAH samples, collected at both one upwind and downwind site, but not analyzed, during the first year of the study would undergo laboratory analysis. Samples for VOC's and carbonyls will be collected on a 6-hour basis, coinciding with the diurnal time period where the winds are from the southeast, which is between 10 pm and 4 am. Additionally, this time period offers advantages in that confounding sources of diesel and motor vehicle emissions tend to be at a minimum during these hours, whereas the railyard operates continuously over 24 hours, with little variation in emissions.

(e) Study Sampling Period

The primary field monitoring will begin in mid-July and continue through the end of September – about a two and one-half month period. The cycle of monitoring would be repeated for three consecutive years (2005, 2006, & 2007) to correspond with the emission reduction project being implemented in at the railyard. (For 2005, the initial year, sampling was initiated on schedule on July 15.)

The primary sampling period will coincide with the seasonal time of year when winds tend to be most persistent from a particular direction. As previously mentioned, the predominant wind direction is from the southeast, and that the season with the most persistency is in summer. In addition, analyses showed that the persistency by time of day for these winds occurs primarily during the overnight and early morning hours. Winds become much more variable with respect to direction during the daytime hours The CARB study shows that temporal emissions do not substantially vary over a 24-hour period. Therefore, the primary months for air monitoring (July through September) should not be biased by lack of emissions during the nighttime period.

(f) Equipment and Measurements

The following table lists the equipment to be used in this study:

Measurement(s)	Manufacture / Model# / Notes
NOx	TECO-42C Horiba APNA-360
Aethalometer	Magee Scientific / AE2 / Refurbished, dual beam
BAM	Met One / E-BAM
PM2.5 FRM	BGI / PQ-200 / PM2.5
Wind Speed	Met One
Wind Direction	Met-One
Temperature	Met One
Relative Humidity	Met One
Solar Radiation	Met One
Atmospheric Pressure	Met One

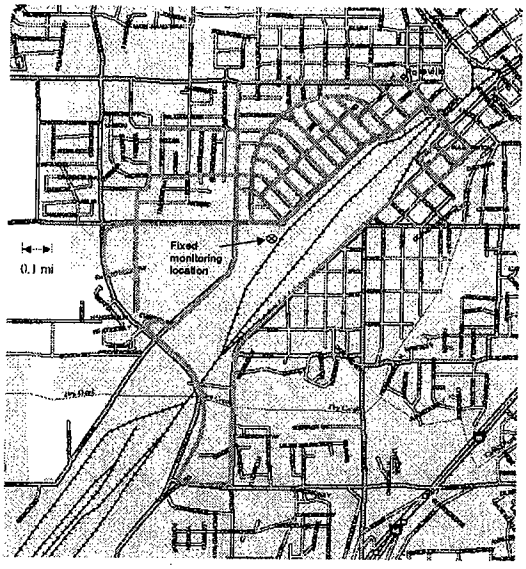
In addition, for the VOC toxics analyses, samples will be collected using Xontek 912 instruments – the same ones used for the PAMS program. Carbonyls will be collected using PQ100 cartridge samplers. Some of the toxic compounds to be analyzed include: bromomethane, dichloromethane, chloroform, carbon disulfide, carbon tetrachloride, methyl chloroform, benzene, trichloroethylene, trans-1-3 dichloropropene, toluene, perchloroethylene, chlorobenzene, ethyl benzene, m,p,o-xylenes, styrene, 1,2-, 1,-3, 1,4-dichlorobenzene, 1,3-butadiene, acrolein, acetone, acetonitrile, acrylonitrile, formaldehyde, and acetaldehyde. Many of these compounds are not associated with the railyard emissions; however, it would be expected that those toxic compounds which do originate from the railyard would show upwind/downwind differences, while the other compounds would be similar. This would help to add confidence to the characterization of those emissions which truly would be emitted from the facility.

During the first year of the study, Dr. Thomas Cahill of U.C. Davis, as additional in-kind support, deployed his DRUM samplers at one pair of upwind and downwind sites. Speciation of the size fraction below 0.25 microns may be a good indicator of direct diesel emissions. As part of that effort, samples were stored, but not analyzed due to lack of funding, for PAH's, which are associated with diesel emissions. Some of the funding from this grant would be used to analyze those samples, thereby adding value to a more comprehensive scope of air toxic analyses. Also, these samples will be analyzed for elemental components, so that potential markers for locomotive diesel exhaust can be determined for future source apportionment analyses.

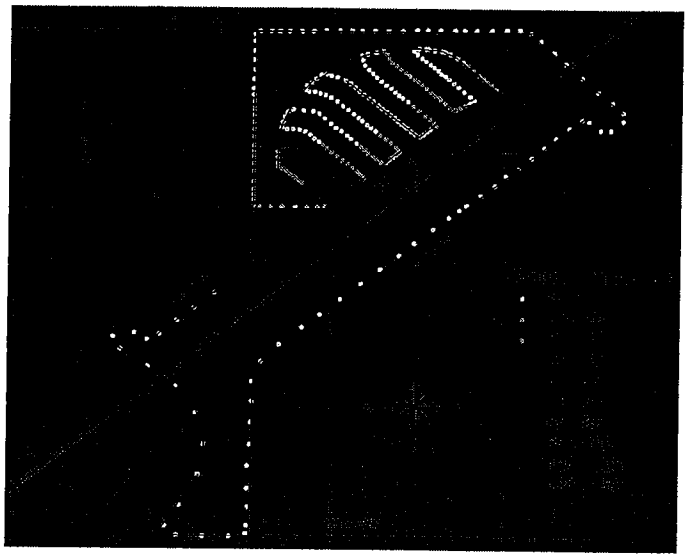
(g) Pilot Study

One of the concerns raised about this type of study is the ability to detect significant pollutant influences at the downwind site. As a result, Placer County contracted with Desert Research Institute (DRI) to conduct a short-term mobile sampling project. The mobile van was deployed during the night and early morning hours of April 21 and 22, 2005, during the period with favorable southeasterly winds (from upwind to downwind direction). The results showed that

elevated NOx and fine PM were detectible at the downwind area. One of the resulting plots is shown as follows:



Mobile van street traverses



Results from one traverse. Arrow shows wind dir.

(h) <u>Roles and Responsibilities</u>

This is a cooperative study among local, state, and federal air agencies and Union Pacific Railroad (UPRR). One of the unique aspects of the RRAMP is the partnership and cooperation of UPRR. This allows for the siting of monitors right at the "fenceline" of the facility, with utility access from UPRR property. In addition, UPRR will be collecting and providing useful activity data on its operations during the summer intensive sampling periods. Thus, the opportunity to have valuable information, otherwise typically not available to the air agencies, enhances the value of the study. UPRR has also committed to voluntarily implement emission reduction strategies, which is expected to be measured in terms of reduced air quality/toxic impacts.

The participating agencies and their roles/responsibilities are described below:

(1) Placer County Air Pollution Control District (PCAPCD) – the local air agency with the lead responsibility for the project. PCAPCD is providing direct funding, project management and oversight, field technical support, and contractual support for technical elements.

(2) Sacramento Metro Air Quality Management District (SacMetro) – a regional agency and partner to PCAPCD for this project, providing equipment, field staff for calibrations, technical support, and back-up support to PCAPCD field operations.

(3) South Coast Air Quality Management District (SCAQMD) – a regional agency providing laboratory support for the laboratory processing and analysis of filter samples.

(4) California Air Resources Board – the State air agency proving technical expertise, field audits, and field/laboratory support for the supplementary VOC and carbonyl toxics analysis to be conducted in 2006.

(5) USEPA Region IX – provided funding in 2005 for the purchase of equipment and other supporting functions.

(6) Union Pacific Railroad – providing direct funding, on-site access for monitoring purposes, utility support, and activity data on its operations.

(7) U.C. Davis (Dr.Thomas Cahill) – providing elemental analyses, and analysis of the PAH samples.

(i) Project Tasks

The Roseville Railyard Air Monitoring Project includes the following six tasks: 1) equipment procurement and installation; 2) network operations and data processing; 3) laboratory analyses; 4) quality assurance; 5) data validation and data analysis; and 6) management and reporting.

Under Task 1, Equipment Procurement and Installation, the equipment previously listed is specified, procured, acceptance-tested, installed, and calibrated. New instruments are configured and bench-tested in the shop prior to field deployment. Instrument placement, sample presentation tubing, and wiring are documented. Arrangements are made to ensure continued sampling between mid-July and the end of September, 2005, and similar periods in 2006 and 2007. Data logging capabilities and outputs of each instrument are specified. *Timelines: (a) full project: Feb 2005 through July 2007; (b) grant funded portion: May 2006 – July 2006.*

Under Task 2, Network Operations and Data Processing, routine on-site operations and external QA audits are conducted. On-site operations include: 1) inspection of instruments; 2) periodic performance tests; 3) sample receipt, changing, and storage; 4) documentation of instrument, station, and meteorological conditions; 5) preventive maintenance; 6) corrective maintenance; and 7) transmission of data, samples, and documentation. Other on-site operations include: 1) periodic download and examination of field data; 2) review of site documentation; 3) replenishment of consumables and supplies; 4) calibration, repair, and maintenance; and 5) coordination with auditors. *Timelines: (a) full project: July 2005-September 2007; (b) grant funded portion: July 2006 – September 2006.*

Task 3, Laboratory Analyses, will be conducted by the South Coast Air Quality Management District for PM2.5 mass and organic/elemental carbon; by the California Air Resources Board for VOC's and carbonyls; and Lawrence Livermore Laboratory through UC Davis for PAH analyses. *Timelines: (a) full project: July 2005-December 2007; (b) grant funded portion: January 2006 – December 2006.*

Task 4, Quality Assurance, is a key component of the project, and is described in the Quality Assurance Narrative of this grant application. *Timelines: (a) full project: April 2005-January 2008; (b) grant funded portion: April 2006 – January 2007.*

Under Task 5, Data Validation and Analysis, a database of specified accuracy, precision, validity, and completeness will be been developed. Initial data review and validation will be conducted by PCAPCD under the direction of the Project Manager. A data analysis contractor will then perform additional data reviews and appropriate analyses to meet the objectives of the study. Data received from all participating laboratories will undergo similar data review and then be incorporated into the data base. The data analysis contractor, selected through a competitive procurement, will be responsible for a number of important tasks, as follows:

Data Analysis Sub-Task 1 - Data Review

Even though data made available to the contractor will undergo quality assurance checks, the contractor will be required to review the data for the purpose of identifying possible outliers and other data inconsistencies. Data provided to the contractor will include all the data collected in the field, and from the laboratories

Data Analysis Sub-Task 2 – Data Description

The contractor will be required to provide general descriptive statistics for each measured parameter. The nature of these statistics may include, for example, ANOVA, time series plots, box plots, wind roses, etc.

Data Analysis Sub-Task 3 – Upwind/Downwind Differences

The contractor will be required to perform necessary statistical analyses to determine upwind/downwind differences for key components: air toxic pollutants, black carbon and PM2.5 (BAM) data. Some of the considerations for performing this sub-task include:

a) defining the optimum upwind/downwind wind direction for each site pair, and developing a subset of hours with those wind directions; and determining those air toxics samples which were collected during the optimum wind conditions, and which were not
b) determining descriptive statistics for each parameter for the subset of hours or samples under optimum wind conditions, and comparing to the statistics for all hours and all conditions; performing statistical significance tests comparing upwind site data versus downwind site data;

Data Analysis Sub-Task 4 – Trend Analysis

At the conclusion of the third year of sampling, the contractor would be required to conduct appropriate trend analyses due to the emission reduction activities implemented by UPRR. Recognizing the limitations of trend determinations over such a short period of time, the contractor is expected to utilize a methodology that will allow for the greatest level of confidence of a trend, should one exist.

Data Analysis Sub-Task 5 – Reports

The contractor will be required to provide a separate report for each year of data. The first two reports will each cover Tasks 1-3; and the last report will cover Tasks 1-4. The reports will include results and summaries of the data analyses conducted, as well as interpretative analyses of the results.

Timelines: (a) full project: June 2005-January 2008; (b) grant funded portion: June 2006 – January 2007.

Under Task 6, Management and Reporting, the efforts of different project participants will be coordinated. Interim annual reports will be prepared following the conclusion of each year's intensive study, and at the conclusion of the data base compilation and subsequent data analyses. The three interim reports, collectively, will comprise the final report for the project. *Timelines: (a) full project: January 2005-March 2008; (b) grant funded portion: January 2006 – March 2007.*

(j) <u>Technical Advisory Committee (TAC)</u>

A Technical Advisory Committee has been established to provide technical review and oversight to the project, with the objective being to produce the most scientifically credible design and approach for the RRAMP. The TAC has been meeting approximately every other month during the initial year; and will meet 2-3 times per year during the second and third years of the RRAMP. Members include: Dr. Robert Blaisdell (California Office of Environmental and Health Hazard Assessment); Dr. John Watson (DRI); Dr. Thomas Cahill (UC Davis); Mr. William Loscutoff (CARB); Mr. Rudy Eden (South Coast AQMD); Mr. Gary Rubenstein (Sierra Research); Mr. Mel Zeldin (Consultant to PCAPCD); Dr. Yu-Shuo Chang (PCAPCD); Mr. John Ching (Sacramento Metro AQMD); and Ms. Catherine Brown (USEPA, Region 9).

2. Work Products

The following products are needed for this study:

(a) Project Monitoring Plan (completed)
(b) Data Analysis Plan (including contractor) (completed)
(c) Field Standard Operating Procedures (completed)
(d) Operational Contingency Plan (completed)
(e) Quality Assurance Project Plan (Revised final draft submitted to EPA Region 9)
(f) Data Base (to be developed)
(g) Annual Interim Project Reports – to include description of operations and procedures, data collected, data quality summaries, data analysis results, interpretations of results, problem areas, and corrective actions (to be completed)

3. Benefits to the Public

Emissions from railroad operations are a significant source of ozone and PM precursors, directly emitted PM, and toxic air pollutants. Because emissions reductions from railroads are primarily under EPA authority, very little local information is available. The recent CARB risk assessment of the Roseville Railyard showed cancer risks in excess of 500 in a million just from this one facility alone. This is much greater than the risks caused be the vast majority of individual stationary sources subject to local regulations. However, the CARB study did not have any measured data to work with – only estimated emissions, meteorology from monitors some distance from the facility, and computer models. Further, the CARB analysis only looked at the toxic risk from diesel PM emissions. This current field study will help provide the public with a more robust and complete analysis of the toxic risks to the public as a result of the UPRR operations in Roseville. Further, since UPRR has committed, under a letter of agreement with PCAPCD to implement innovative emissions reducing technologies and practices, reduced levels of air toxics are expected to occur. This study will serve as both a baseline for pre-implementation ambient conditions, and determinations in subsequent years of the measurable improvement and associated lower cancer risk to the public from implementation of these measures.

4. Applicability to Other Areas

Railroads are one of the key non-road mobile sources specified in this RFA. The Roseville Railyard presents a unique opportunity to characterize the pollution from facility operations for several reasons: (1) the cooperation and participation of UPRR in the study to gain access to sites and operational activity data not routinely accessible to the public; (2) the magnitude of the UPRR operations (over 30,000 locomotives go through this facility each year); (3) orientation of monitoring sites at the immediate facility fenceline so that the only source of emissions between sites is the facility itself; and (4) the persistency of prevailing summertime nighttime wind conditions which are perpendicular to the track orientation such that the winds blow directly from the upwind locations to the downwind locations. This may truly be one of the very few facilities in the country under which all these conditions exist for such a study. Yet there are many hundreds of railroad facilities across the U.S., many of which also lie adjacent to residential areas. The results from this study can provide direct and beneficial information as to the importance of rail facilities in characterizing air toxic excess cancer risk to other local neighborhoods. Further, because the larger scope of this study includes mitigation measures to be implemented by UPRR, the success of such measures in reducing local toxic risk may have huge importance by demonstrating that such measures, if implemented at other facilities, can have measurable benefits to the public.

5. Tracking and Measuring Progress with Outcomes/Outputs

Progress toward achieving the environmental outcomes and outputs will be evaluated on a weekly basis. Field data will be reviewed, evaluated, and preliminarily analyzed to assure that the data quality objectives are being met. If problems arise, corrective action will be initiated. A contingency plan has been developed which elaborates on back-up actions which will occur in the event of (a) personnel losses (e.g., due to accident, etc.), (2) equipment failures; (3) utility failures; and (4) security failures (e.g., vandalism). This is necessary to assure that there are not significant data losses which could affect the robustness of the data needed to meet the project objectives.

With respect to the specified "outcomes," this project specifically is targeted at "...increased state and local APCA ability to characterize the sources and local-scale distribution of HAP's..." By maintaining the weekly evaluation process, this condition will be achieved. For the "outputs," CARB has already released its modeling risk assessment to the public. Data collected under this study will be available publicly, and periodic updates to the public will be made as well.

6. Measuring Project Success

Project success will be measured in several ways. First, there are several data objectives that have been specified. These include: (1) meeting the window sampling period of July through September; (2) meeting the data completeness targets; and (3) meeting the precision and bias objectives for the instruments; and (4) being able to qualify the value of the data collected. It may not be possible to meet each and every data goal, and in the event one or some of these objectives are not met, it will be necessary to qualify the value of the data collected, and the uncertainty associated with it. Two factors must be met, however: (1) sufficient data meeting QA objectives to produce enough data for analysis; and (2) sufficient signal to noise ratio such that project objectives (e.g., upwind/downwind differences) and three-year trends can be determined. For the former, the signal is expected to be sufficient. For the latter, the trend signal may be very close to the instrument uncertainty level, so extra care is needed in applying appropriate statistical analyses.

Another measure of success is the integration of information from project partners. This project has several partners with key responsibilities. Coordination among the partners is essential for project success. PCAPCD staff are committed to maintaining the necessary coordination and cooperation among the partners to assure success.

Finally, the third element for success is the timeliness of the project, data analyses, and release of information to the public. Field sampling occurs during the summer; laboratory analyses and data base compilation occurs in the fall; data analyses occur in early winter, and results and reports are planned to be released each March following the year of the field sampling. With contingency plans in place, and with proper oversight and management by PCAPCD, schedule slippages are expected to be minimized, and overall project timelines met as closely as possible to the target dates.

7. Roles and Responsibilities

(This is described on pages 2-6 and 2-7.)

8. Biographical Information on Key Personnel

(a) Tom Christofk, Placer County APCO, Overall Project Responsibility

Tom Christofk was appointed the Air Pollution Control Officer for the Placer County Air Pollution Control District in 2002 after having served as the District's General Manager since December 1999. Prior to this he was a Senior Management Analyst with the Placer County Executive Office, responsible for emergency/incident management and special projects. From 1973 through 1981 he was an officer in the US Marine Corps, serving in a variety of command and staff

positions, to include development testing of new systems in ship to shore movement. From 1981 until 1990 he held a number of different positions with Ford Aerospace and Communications Corporation to include Training Section Supervisor, Program Manager, and Marketing Manager for both ordnance and advanced technology programs. Thereafter he was a general manager of a small manufacturing company and marketing consultant until moving into the public sector in 1995 with Placer County. Tom has a BA in Political Science from Loyola Marymount University of Los Angeles.

(b) Yu-Shuo Chang, Placer County APCD, Project Manager

Yu-Shuo Chang is an air quality specialist with PCAPCD. Prior to working with the agency, he received his Doctor of Philosophy degree in Environmental Engineering in 2003 from University of Southern California. Mr. Chang is responsible for CEQA project review, emission data analysis, monitoring data analysis, and air quality modeling studies. He also participated the Roseville Rail Yard Study conducted by CARB on potential relative risk resulting from diesel particulate matters. He is serving as the project manager for this project.

(c) Bruce Springsteen, Placer County APCD, QA Manager

Bruce Springsteen is an air quality specialist with the Placer County APCD. Bruce received a Masters of Science degree in Mechanical Engineering in 1990 from the University of California at Davis. Prior to working at Placer County, Mr. Springsteen has 15 years of experience conducting and evaluating air toxic emissions tests, and evaluating control strategies, from various sources, including coal, biomass, municipal waste, industrial waste, and hazardous waste combustors. He is serving as the project QA manager for this project.

(d) Kurt Schreiber, Placer County APCD, Field Technician

Kurt Schreiber is an air quality specialist with Placer County APCD. Prior to this time Kurt worked in water quality monitoring, analysis, and corrective control actions. Mr. Schreiber earned his Associate of Science Degree in Mathematics and Physics at American River College in Sacramento California in 1975. He is also a licensed California Contractor having extensive experience in project management for various construction projects throughout California.

(e) Mike Sims, Placer County APCD, Field Technician

Mike Sims is an air monitoring technician with Placer County APCD. Prior to this his background was in respiratory therapy, electric motor repair. Plus he also worked at Sierra-Nevada Memorial Hospital in materials management for fifteen years.

(f) Mel Zeldin, Technical Project Consultant to PCAPCD

Mel Zeldin has over 33 years experience in air quality management. He spent most of his career with the South Coast Air Quality Management District, where he retired in 2001. Prior to his retirement, Mr. Zeldin was responsible for the monitoring and laboratory services at the agency. Part of his responsibilities included the project management for the agency's MATES-II study—one of the most comprehensive urban air toxics monitoring and modeling studies ever conducted. Since his retirement, Mr.Zeldin provides consulting services on technical and policy issues relating to air quality management. He is serving as a technical consultant to PCAPCD for this project.

9. Ranking Factors

Many of the ranking factors have already been discussed in this narrative. Each of the factors is listed with a cross-reference to the appropriate page(s). Where additional explanation is needed, it is provided accordingly.

(a) Narrative Workplan – pages 2-1 to 2-11

(b) Background/Basis – items #1a-b, pages 2-1 to 2-2

(c) Description of Objective – item #1c-e, pages 2-2 to 2-5

(d) High Priority HAP's – item #1f, page 2-5. In addition, it should be noted that this study places a high emphasis on diesel emissions, and from a source type that is not yet been well characterized.
(e) Data Analysis – item #1i, pages 2-7 to 2-8.
(f) Transferability – item #4, page 2-9
(g) Qualifications – While the day-to-day field operations are under the responsibility of the PCAPCD, and this field project is the first such project conducted by the agency, there is considerable experience with the project partners. Sacramento Metro AQMD is providing their experience for equipment check-out, calibrations, and augmented field support. PCAPCD staff have been given extensive training in the operation and maintenance of the instruments. For example, PCAPCD staff spent two days in training at the Puget Sound APCA which has several years experience operating the aethalometers. Laboratory analyses for PM mass and OC/EC is being conducted by the South Coast AQMD staff, which has decades of laboratory experience. Toxic VOC's and carbonyls will be conducted by the California ARB, which has conducted California's air toxics programs for over a decade. Additionally, CARB is providing support for field audits – something they regularly do for local air districts.
(h) Quality Assurance Narrative – Part 4 of the application submission
(i) Leveraging of Other Resources – This is a highly leveraged project among PCAPCD and its many partners. The requested EPA Grant funding is only for the second year of the 3-year project. PCAPCD is providing in-kind support for the first year field staffing, technical contractor, and incidental costs. Sacramento Metro is providing funding for equipment, and in-kind staff support for calibrations and back-up services. CARB is providing in-kind support for field audits, technical assistance and back-up services; South Coast AQMD is providing in-kind laboratory support; UPRR has provided a $100,000 level of support for equipment, logistical support (e.g., equipment shelters, utility costs, security costs), and UC Davis has provided in-kind support for the operation of their DRUM samplers. In total, the requested EPA Grant funding for the second year of the study represents only 33% of the total project costs.
(j) EPA Strategic Plan Linkage and Anticipated Outcomes/Outputs – items #5 and #6, page 2-10. We believe this project has direct bearing on EPA's Strategic Plan Linkage, and when concluded, will provide valuable and much-needed information which can apply nationally.

Part 3: Budget Detail for RRAMP (2005~2006)

Element	Cost
Personnel	
Project Manager (PCAPCD)	$4,260
Project QA Manager (PCAPCD)	$4,260
Field Tecnhician (PCAPCD)	$33,640
Air Resources Supervisor (ARB)	$740
Air Pollution Specialist (ARB)	$6,070
Subtotal	**$48,970**
Fringe Benefits	
@ 46% (Placer County)	$19,393
@ 34.7% (Air Resource Board)	$2,363
Subtotal	**$21,756**
Contractual Costs	
Project Technical Consultant	$20,000
Contract Technician	$35,000
Elemental Analysis (provided by Dr. Thomas Cahill, UC Davis)	$16,148
PAH Analysis (provided by Dr. Thomas Cahill, UC Davis)	$22,527
Project Data Analysis Contract	$35,000
Subtotal	**$128,675**
Equipment	
Refurbished Samplers (provided from Air Resource Board)	**$1,000**
Supplies	
Site Rental Fee	$2,000
Operating Cost (e.g. utilities, phone servicies)	$10,200
Sampling Cartridges, Support Chemicals	$1,500
Subtotal	**$13,700**
Other	
General Expense (e.g. office supplies, printing)	**$4,000**
Total Cost	**$218,101**

Part 4: Quality Assurance Narrative

The funding requested for this project in large part covers elements for Year 2 of the project. The initial year of the project is already underway. A Quality Assurance Project Plan (QAPP) was developed, consistent with EPA guidelines, for the base project, and submitted to EPA Region 9 for approval. If the grant were to be awarded, the QAPP would be modified to incorporate the air toxics monitoring elements that are now not part of the base monitoring program. Placer County APCD is committed to assuring that all elements of the QAPP are strictly adhered to.

The existing QAPP also contains appropriate Data Quality Objectives. Similarly, the DQO's will be modified to account for the air toxics monitoring component, should the project be awarded.

A Quality Management Plan, however, was not prepared for the base project. If the project is awarded, PCAPCD will be prepare the requisite QMP, and submit it to EPA Region 9 for approval.