

Document Readers



SF-424

Application for Federal Assistance

Title: AMS Community Air Toxics Monitoring

Document Status

Document Phase: Draft

Last Modified: 05/23/2011

Current Editor: Mike Jones

Delegate: Dennis Finney

IGMS Information

Competition Close

Date:

AAShip:

Approving Region: HQ

Project Officer: Mike Jones

PO Phone:

Awarding Region: HQ

Grant Coordinator:

Solicitation Information

Opportunity ID: EPA-OAR-OAQPS-11-05

Competition ID:

Opportunity Title: Community-Scale Air Toxics Ambient Monitoring

Competition Title:

Opening Date: 03/23/2011

Closing Date: 05/23/2011

Grants.Gov

Tracking Number: GRANT10874521

Date Received by EAPPLY: 05/23/2011

Submission Information

Submission: Application

Grant: Non-Construction

Date Submitted: 05/23/2011

Time Submitted: 01:53:26 PM

Type of Application: New

Applicant Information

Grants.gov

IGMS

Applicant Type: C: City or Township Government

Applicant Name: City of Philadelphia

Applicant DUNS #: 8344664630000

Organizational Unit: Department of Public Health

Sub Org Unit: Air Management Services

EIN: 236003047

Address: 321 University Avenue, 2nd Floor

City: Philadelphia

State: PA: Pennsylvania

Zip: 19104-4543

County:

POC Name: Thomas Huynh

POC Phone: 215-685-7584

POC E-Mail:

POC FAX #:

Project Information

Federal Agency: EPA

CFDA: 66.034
Project Title: South Philadelphia Community Continuous Air Toxics Monitoring Project
Project Period Start: 09/01/2011 Project Period End: 08/31/2013

Congressional Districts

Estimated Funding

Federal	\$363,291
Applicant	\$0
<i>(For all applicants including states)</i>	
State	\$0
<i>(For state contribution to non-state applicants)</i>	
Local	\$0
Other	\$0
Program Income	\$0
TOTAL	\$363,291

Is the Application subject to review by State Executive Order 12372 Process? No - Program Not Covered By E.O. 12372

Available for Review:

Is the Applicant delinquent on any Federal Debt? No

Authorized Representative

Key Contacts

Budget Summary

Application Attachments

Notifications History

Application for Federal Assistance SF-424

* 1. Type of Submission:

- Preapplication
 Application
 Changed/Corrected Application

* 2. Type of Application:

- New
 Continuation
 Revision

* If Revision, select appropriate letter(s):

* Other (Specify):

* 3. Date Received:

05/23/2011

4. Applicant Identifier:

5a. Federal Entity Identifier:

5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name:

City of Philadelphia

* b. Employer/Taxpayer Identification Number (EIN/TIN):

236003047

* c. Organizational DUNS:

8344664630000

d. Address:

* Street1:

321 University Avenue, 2nd Floor

Street2:

* City:

Philadelphia

County/Parish:

Philadelphia

* State:

PA: Pennsylvania

Province:

* Country:

USA: UNITED STATES

* Zip / Postal Code:

19104-4543

e. Organizational Unit:

Department Name:

Department of Public Health

Division Name:

Air Management Services

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:

* First Name:

Thomas

Middle Name:

* Last Name:

Huynh

Suffix:

Title:

Air Director

Organizational Affiliation:

* Telephone Number:

215-685-7584

Fax Number:

215-685-7451

* Email:

Thomas.Huynh@phila.gov

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

C: City or Township Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Environmental Protection Agency

11. Catalog of Federal Domestic Assistance Number:

66.034

CFDA Title:

Surveys, Studies, Research, Investigations, Demonstrations, and Special Purpose Activities
Relating to the Clean Air Act

*** 12. Funding Opportunity Number:**

EPA-OAR-OAQPS-11-05

* Title:

Community-Scale Air Toxics Ambient Monitoring

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment

Delete Attachment

View Attachment

*** 15. Descriptive Title of Applicant's Project:**

South Philadelphia Community Continuous Air Toxics Monitoring Project

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

Application for Federal Assistance SF-424**16. Congressional Districts Of:*** a. Applicant b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

17. Proposed Project:* a. Start Date: * b. End Date: **18. Estimated Funding (\$):**

* a. Federal	<input type="text" value="363,291.00"/>
* b. Applicant	<input type="text" value="0.00"/>
* c. State	<input type="text" value="0.00"/>
* d. Local	<input type="text" value="0.00"/>
* e. Other	<input type="text" value="0.00"/>
* f. Program Income	<input type="text" value="0.00"/>
* g. TOTAL	<input type="text" value="363,291.00"/>

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?** a. This application was made available to the State under the Executive Order 12372 Process for review on b. Program is subject to E.O. 12372 but has not been selected by the State for review. c. Program is not covered by E.O. 12372.*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)** Yes No

If "Yes", provide explanation and attach

21. *By signing this application, I certify (1) to the statements contained in the list of certifications** and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)

 ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:Prefix: * First Name: Middle Name: * Last Name: Suffix: * Title: * Telephone Number: Fax Number: * Email: * Signature of Authorized Representative: * Date Signed:

BUDGET INFORMATION - Non-Construction Programs

OMB Approval No. 4040-0006
Expiration Date 07/30/2010

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Community Scale Air Toxics Monitoring	66.034	\$	\$	363,291.00	\$ 0.00	\$ 363,291.00
2.						
3.						
4.						
5. Totals		\$	\$	363,291.00	\$	\$ 363,291.00

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SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY			Total (5)	
	(1)	(2)	(3)		(4)
	Community Scale Air Toxics Monitoring				
a. Personnel	\$ 92,452.00	\$	\$	\$	92,452.00
b. Fringe Benefits	42,696.00				42,696.00
c. Travel	6,600.00				6,600.00
d. Equipment	129,000.00				129,000.00
e. Supplies	43,420.00				43,420.00
f. Contractual	31,500.00				31,500.00
g. Construction	0.00				
h. Other	5,000.00				5,000.00
i. Total Direct Charges (sum of 6a-6h)	350,668.00			\$	350,668.00
j. Indirect Charges	12,623.00			\$	12,623.00
k. TOTALS (sum of 6i and 6j)	\$ 363,291.00	\$	\$	\$	363,291.00
7. Program Income		\$	\$	\$	

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SECTION C - NON-FEDERAL RESOURCES

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS
8. Community Scale Air Toxics Monitoring	\$ 0.00	0.00	\$	\$ 0.00
9.				
10.				
11.				
12. TOTAL (sum of lines 8-11)	\$	\$	\$	\$

SECTION D - FORECASTED CASH NEEDS

Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
\$ 265,395.00	\$ 66,348.75	\$ 66,348.75	\$ 66,348.75	\$ 66,348.75
\$				
14. Non-Federal				
15. TOTAL (sum of lines 13 and 14)	\$ 265,395.00	\$ 66,348.75	\$ 66,348.75	\$ 66,348.75

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) Grant Program	FUTURE FUNDING PERIODS (YEARS)			
	(b) First	(c) Second	(d) Third	(e) Fourth
16. Community Scale Air Toxics Monitoring	\$ 97,895.00	\$	\$	\$
17.				
18.				
19.				
20. TOTAL (sum of lines 16 - 19)	\$ 97,895.00	\$	\$	\$

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges:	350,668	22. Indirect Charges:	12,623 (9.34% Negotiated Indirect Rate)
23. Remarks:			

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Community- Scale Air Toxics Ambient Monitoring Grant Application
RFP Number: EPA-OAR-OAQPS-11-05
CDFA Number: 66.034

Project Title: South Philadelphia Community Continuous Air Toxics Monitoring Project

Organization: Air Management Services

Address: 321 University Avenue, 2nd Floor, Philadelphia, PA 19104

Contact: Thomas Huynh

Phone: 215-685-7585

Fax: 215-685-7451

Email: Thomas.Huynh@phila.gov

Total Project Cost: \$363,291

Project Period (dates): 9/1/2011 – 8/31/2013

DUNS Number: 834466463

Basis and Rationale

This project is intended to assist Philadelphia Air Management Services (AMS) in assessing the degree and extent to which air toxics from a major oil refinery and other manufacturing activities impact the immediate community.

The community surrounding the aforementioned oil refinery at 3144 Passyunk Avenue, Philadelphia, PA 19145, has long been concerned about the possible impacts of exposure to air toxics, as outlined in the attached support letters. Because this neighborhood has high poverty rates, lower-than average education levels, and a large at-risk population, AMS has ongoing concerns about the environmental justice implications of the heavy industrial activities that may be impacting the community. Philadelphia was rated the second worst City in the U.S. for Asthma in 2007 by the Asthma and Allergy Foundation of America, and asthma impacts more than one in five children in Philadelphia.¹

The 2005 NATA indicated high health risks in the City. Air toxics in Philadelphia that show an excess lifetime cancer risk of greater than one in a million are: formaldehyde, benzene, acetaldehyde, 1,3-butadiene, carbon tetrachloride, naphthalene, chromium compounds, arsenic compounds, pahpom, perchloroethylene, and ethylene oxide. Philadelphia shows a total cancer risk of 58 in a million and is ranked 87th out of 3222 counties in the nation.

The oil refinery is one of approximately 50 in the United States that uses hydrofluoric acid as a catalyst in making gasoline. This chemical, if released to the atmosphere, becomes hydrogen fluoride gas (HF). HF is of great concern to the surrounding community due to its highly toxic characteristics. The refinery in the last year has experienced various operational issues such as fires and other accidental releases of chemicals. AMS as part of this project will continuously monitor HF and be in a position to quickly take appropriate action to protect the community.

Currently, AMS measures toxic pollutants at Laboratory (LAB), Community Health Services (CHS), Roxborough (ROX), Ritner (RIT) and PHL Airport (SWA) monitoring sites. The closest site to measure air toxics in Philadelphia to the refinery is the RIT site at 24th and Ritner, Latitude: 39.922517, Longitude: - 75.186783. However, the operating schedule currently is every 6th day collected by Canister Subambient

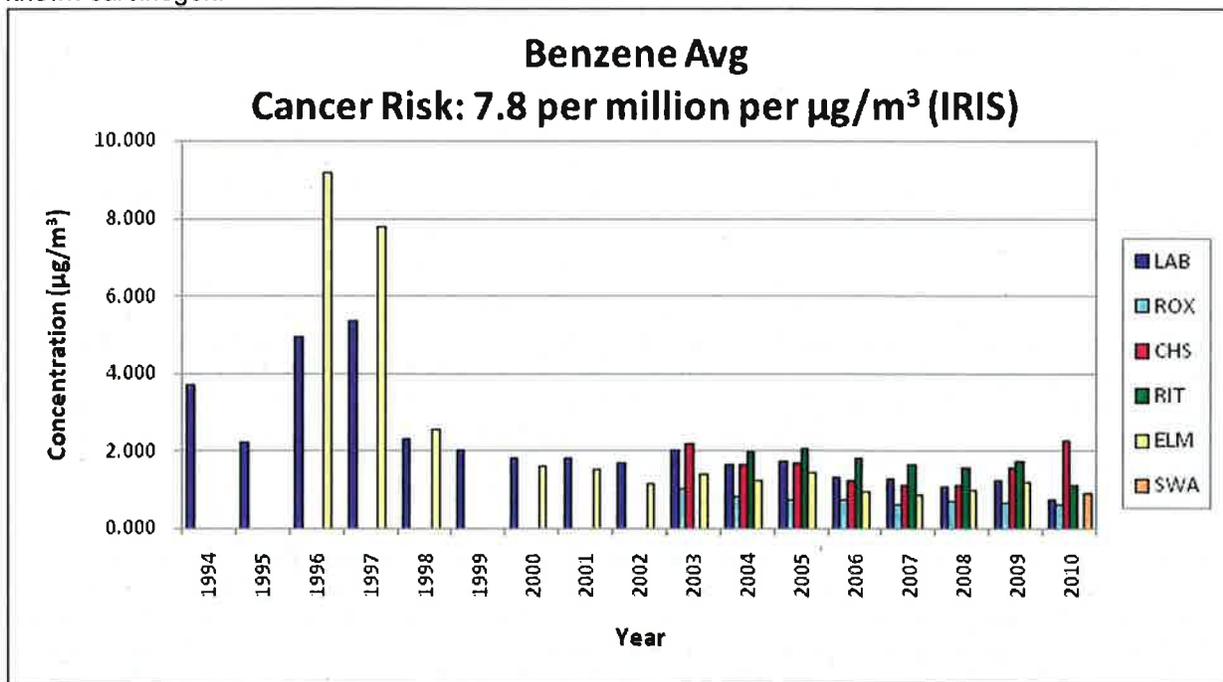
¹ http://www.pediatricasthma.org/community_coalitions/philadelphia

Pressure and analyzed by Multi-Detector GC. RIT is the only AMS monitor in zip code 19145. AMS does not currently have a monitor to measure air toxics continuously.

AMS needs to determine if there is indeed a need for concern from the immediate community and be able to take corrective action and communicate to citizens. In order to do this, AMS would like to purchase the Cerex UV Sentry DOAS air monitoring system and the Cerex SPECTRA-1 TDL, both of which are designed for continuous operation. This monitor will provide the capability to measure in real-time process releases and other temporal events that can be communicated to the community and industry.

As part of this project AMS will try to correlate the continuous data with the 24-hr batch sampling that is currently being done on a once every 6 day schedule. The results of this study could lead to the continuous method of measurement being more widely utilized and the possible replacement of the batch sampling method.

As show in the chart below, RIT has been reading high levels of benzene since 2004. Benzene is a known carcinogen.



These compounds measured by the AMS Lab showed an excess lifetime cancer risk of greater than one in a million in 2010 at RIT: 1,1,2,2-Tetrachloroethane, 1,2-Dibromoethane, 1,2-Dichloroethane, 1,3-Butadiene, 1,4-Dichlorobenzene, Acrylonitrile, Benzene, Carbon tetrachloride, Chloroform, Chloromethane, and Tetrachloroethylene.

This project supports EPA's Strategic Plan Goal 1 by advancing our understanding of air toxics science, impacts, and mitigation approaches. For the purpose of this grant opportunity, it falls under Category 1 on page 3 of the RFP: Community-Scale Modeling.

Technical Approach

Funding will be used to purchase the Cerex UV Sentry DOAS air monitoring system and Cerex SPECTRA-1 TDL gas analyzer. Data and trends will be reported and public health risk will be analyzed to determine human exposure and health risks to air toxics, and comparisons will be made to RIT and NATA data.

The Cerex UV Sentry DOAS is a multi-gas open-path air-monitoring system that uses ultraviolet differential optical absorption spectroscopy (UV-DOAS) with a CCD-array (charged-couple device) detector to analyze ambient air for hazardous pollutants and VOC toxics. The UV Sentry is a "mono-static" system whereby the UV emitter is located at one end of the path, and a reflector is located at the other end of the path. This easy-to-use and portable unit projects ultraviolet light (generated by a Xenon or Deuterium lamp) through a cell that interacts with ambient sample gas across a monitoring path up to 1,000 meters. The UV Sentry DOAS system provides real-time detection, quantification, and continuous monitoring of gaseous compounds (i.e. Ammonia, Benzene, Carbon Disulfide, Formaldehyde, Hydrogen Sulfide, Nitrogen Oxide (NO), Nitrogen Dioxide (NO₂) Ozone, o-xylene, m-xylene, p-xylene, Sulfur Dioxide (SO₂) Toluene and 1,3 Butadiene) ranging in concentrations from the parts-per-trillion to percent level. The data is collected using an integrated controller or a laptop computer using USB and can be interfaced with most data acquisition systems. Cerex open-path analyzers feature software programmable adjustment of alarm levels and user configurable relay activated alerts for gas faults. Alarm outputs include 4-20mA signals and SPDT relays for warning, alarms, and faults. Combined with a wireless network Cerex analyzers can relay concentration levels from remote locations to a central control station for immediate response.

The CEREX UV open-path monitoring system is based on charge capacitor diode array (CCD) technology. The fundamentals of the system's operation are simple. First, ultraviolet light is generated from some type of source, usually either a deuterium or xenon lamp. The light is collected and concentrated using standard telescope optics. The concentrated light then passes through an input lens into the spectrometer via a fiber optic coupling. Once through a holographic grating, the light then hits the CCD array which in turn charges the capacitor. The capacitors are discharged at a sample rate set by the user and the light signal at each light frequency is proportional to the total charge of each capacitor. Finally, a graphical representation of the UV spectra is produced by measuring the electrical charge of each capacitor at each given wavelength (signal intensity vs. wavelength).

The CEREX UV open-path air monitor size, simplicity of design and ease of use, enable the system to have the flexibility to meet many different monitoring applications. For example the system has been operated using both a deuterium and xenon sources. Deuterium sources have a lower noise and higher UV spectral component than traditional xenon lamps. The systems have also been operated at both long (850meters, with xenon) and short path lengths (10meters).

The Cerex SPECTRA-1 gas detection monitor will be used to detect hydrogen fluoride (HF) based on tuneable diode laser absorption spectroscopy (TDLAS). The identification of gas species by absorption spectroscopy is well established. A molecule can be identified by its characteristic absorption spectra. If the frequency (or wavelength) of the infrared (IR) light source matches the vibrational frequency of the molecule, then light will be absorbed. The Beer-Lambert law is the linear relationship we use to calculate molecule concentration (ppm) from the characteristic absorption a molecule exhibits. One of these absorption features is chosen that does not coincide with any other molecule absorption spectra. The wavelength of the tuneable laser is set very close to the absorption feature to be measured. A laser is ideally suited for this, as the light output is monochromatic. The laser wavelength is then scanned back and forth over this absorption feature. The resulting change in laser intensity when scanned over the absorption feature provides the information required to calculate the molecule concentration.

Sensitivity and MDL are determined by the particular molecule absorption line chosen, and the optical path length. The instrument can detect several gases such as HF, CH₄, NH₃, CO₂, CO, HCN, C₂H₂, C₂H₄, C₂H₆, H₂S and others.

The proposed site of the new monitor is:

Philadelphia Job Corps Center
2810 South 20th Street Bldg 12

Philadelphia, PA 19145-5001
Phone: (267) 386-2888

From this site, AMS will be able to effectively monitor ambient concentrations of Hazardous Air Pollutants from industrial sources on neighboring residences.

Data Analysis

The two-year project will involve intensive sampling at the proposed site. Airborne concentrations of a large number of air toxics will be performed. Human exposure and health risks in the vicinity of the refinery will then be estimated.

Data and trends will be reported and public health risk will be analyzed to determine human exposure and health risks to air toxics, and comparisons will be made to RIT and NATA.

Target compounds to be monitored under this project are: 1,3 Butadiene (C₄H₆), Acetaldehyde (C₂H₄O), Acetone (CH₃COCH₃), Acrolein (C₃H₄O), Ammonia (NH₃), Benzene (C₆H₆), Carbon Disulfide (CS₂), Chlorine (CL₂), Chlorine Dioxide (CLO₂), Ethyl Benzene (C₈H₁₀), Formaldehyde (CH₂O), Hydrogen Sulfide (H₂S), Isoprene (C₅H₈), Mercury (Hg), Naphthalene (C₁₀H₈), Nitric Oxide (NO), Nitrogen Dioxide (NO₂), Nitrous Acid (HNO₂), Oxygen (O₂), Ozone (O₃), Phenol (C₆H₅OH), Styrene (C₈H₈), Sulfur Dioxide (SO₂), Toluene (C₆H₅CH₃), Trimethylbenzene (C₉H₁₂), O-Xylene, M-Xylene, P-Xylene (C₈H₁₀), and hydrogen fluoride (HF).

The concentrations for each air toxic will be characterized in term of its median, mean and max values. The values will be used to estimate cancer risks. Cancer estimates will be based on standard exposure and inhalation rate assumptions, along with cancer unit risk estimates for each toxic in the inhalation pathway. The airborne concentrations measured in and risks estimated will be benchmarked against those determined in other recent air toxics studies.

AMS will compare the continuous data from these instruments with the data collected from 24hour batch sampling using statistical methods to determine the correlation between the two.

Quality Assurance:

The QA officer will make several plots of the concentration data. The first will be a set of plots of target gas concentration versus time. These plots will be examined for any expected trends in time. The concentration values should not go negative to any great extent; although around zero concentration the values may go slightly negative, the average value over time should be zero. Suppression of negative values should never be done in the analysis because then a zero average can never be achieved. If values go negative with time in a regular fashion, then something is amiss with the data. The most likely case is that there is a small remaining absorbance due to the target gas in the water vapor reference spectrum. If the concentration values are much higher than the anticipated values, there may also be a problem with the water vapor reference spectrum. In this case there may have been too much of the target gas absorbance subtracted from the water vapor reference. If that is so, the water vapor reference should be fixed and then the data reanalyzed.

Plots will be made of the target gas concentration versus the water vapor. If the variability of the target gas and the water vapor are correlated and this is not expected, the water vapor reference spectrum must, in most cases, be corrected. The next step is to plot the concentration values of those gases whose concentrations are expected to be correlated. This includes any gases that are derived from the same source. If the variability of these gases is not correlated, the data must be carefully examined for the cause. There are no good guidelines to judge what is causing that problem, but a nonlinear response of the instrument for one of the gases is a possibility. If that is suspected, the QA Officer must carefully examine the QA data for possible clues.

Activities associated with the completion of this project include:

- Receiving demonstration of UV Sentry DOAS by Cerex at RIT site.
- Securing equipment purchase.
- Coordinating with Philadelphia Jobs Center, where equipment will be located.
- Providing and inquiring about target gases standard and work on Method Detection Limits (MDLs) using EPA TO-16 method and target compounds.
- Setting up site and wireless network.
- Capturing data and conducting Quality Assurance.
- Preparing Quarterly Reports on target compound concentrations.
- Finalizing quarterly reports with enhanced data analysis.

Project Timeline:

Activity	Fall 2011	Winter 2012	Spring 2012	Summer 2012	Fall 2012	Winter 2013	Spring 2013	Summer 2013	Fall 2013	Winter 2014	Spring 2014	Summer 2014
Preparation for field sampling	X											
Sampling intensives		X	X	X	X	X	X	X	X	X	X	X
Data analysis/assessment						X	X	X	X	X	X	X
Preliminary assessment reports										X	X	X
Final Report												X

Environmental Justice Impacts

The monitoring equipment purchased under this project will be installed in South Philadelphia near a heavily industrial area, home to a major oil refinery as well as other manufacturing firms. According to the 2000 Census² (2010 data is not yet available), zip code 19145 is home to more than 45,000 residents, including more than 11,000 (>25%) living below the federal poverty level. Median family income in 1999 dollars was roughly \$33,000, well below the national average of \$50,046. The area is also home to many children (11,705 under the age of 18 in 2000) and seniors (7,860 or 7.2% in 2000, above the national average of 12.4% seniors). The neighborhood is also very diverse, with a population that is 51% White, 37.2% Black or African American, 0.2% American Indian/Alaska Native, 8.9% Asian, 1.7% Hispanic or Latino, and 2.3% Other. Only 9.7% of the neighborhood’s population possesses a Bachelor’s degree, well below the national average.

Community Collaboration/Outreach

AMS has a long-standing relationship with community groups in this neighborhood, and will work with partners there to disseminate any relevant findings and educate residents about how to reduce human health risks associated with air toxics. Mable Mallard of the Right-to-Know Committee, which is a South Philadelphia community advocacy group has agreed to provide assistance to AMS in coordinating with community members to address any local concerns and distribute information.

During the course of this project, AMS will also look to improve measurement techniques and identify any localized air toxics problems. The overall goal is to reduce total Hazardous Air Pollutants (HAPs), human exposure to those HAPS, and consequently ameliorate adverse health effects associated with those pollutants.

Environmental Results: Outcomes, Outputs, Performance Measures

² Source: U.S. Census Bureau, Summary File 1 (SF 1) and Summary File 3 (SF 3), 2000 Census

Outputs from this project include:

- Monitoring data showing the levels of air toxics over time.
- An analysis of the probable sources of these contaminants and their impact on the local community.
- Documentation of lessons learned and improved expertise of AMS staff.

Outcomes from this project include:

Short-term	Mid-Term	Long-Term
<ul style="list-style-type: none"> • Improved community understanding of environmental impacts of local manufacturing. • Documented linkages (if they exist) between accidental releases and human exposure to HAPs. • Improved procedures and expertise at AMS in operating monitoring equipment. 	<ul style="list-style-type: none"> • Interventions at manufacturing facilities to reduce HAP releases. • Possible expansion of monitoring in the neighborhood, if warranted. 	<ul style="list-style-type: none"> • Reduced HAP Emissions from Refinery and other sources. • Reduced airborne HAP concentrations. • Improved Human Health Outcomes (specifically, reduced cancer rates). • Replace costly batch HAP monitoring with real-time continuous monitoring.

Performance Measures

Cancer risk will be analyzed during the course of this study. Based on the results of this enhanced monitoring, AMS may make recommendations or conduct other interventions to reduce toxic exposure in the local community.

Programmatic Capability and Past Performance

AMS, a unit of the Philadelphia Department of Public Health, is responsible for enforcement of the Philadelphia Air Management Code, the Regulations of the Air Pollution Control Board, the Noise and Excessive Vibration Code, Regulations of the Board of Health. AMS also has authority through EPA and Pennsylvania DEP to enforce state & federal regulations controlling air pollution. In addition to providing engineering, enforcement and laboratory services, AMS also operates a citywide air sampling network to continuously monitor Philadelphia’s air for comparison with Federal air quality standards. AMS has more than 70 staff members who are charged with monitoring air quality in the City of Philadelphia and ensuring compliance with the Philadelphia Air Code as well as State and Federal regulations. The agency maintains 11 air monitoring stations across the city, responds to citizen complaints about pollution, noise and odors, and handles permitting and inspection of industrial and residential facilities where pollution may arise.

Since the City of Philadelphia first established air pollution control measures in 1948, there has been significant progress toward improving the quality of air in the City. AMS has been an important part of that effort by enforcing local, state and federal regulations, by monitoring and analyzing levels of air pollution, and by collaborating with its partners on compulsory and voluntary measures across the region. Our staff members possess extensive technical expertise in fields related to air quality tracking, analysis and modeling. For more information on Air Management Services, please visit our website at: <http://www.phila.gov/health/airmanagement/>.

Grants Received from EPA by AMS:

Grants received from EPA by AMS have successfully generated significant benefits during the past three years. Outcomes include increased compliance with air quality regulations and public health benefits. Outputs include the following:

In Fiscal Year 2010, 375,932 air samples were taken, 45 violations were issued to major facilities, 2,358 asbestos inspections were conducted, and 1,480 citizen complaints were serviced.

In Fiscal Year 2009, 360,658 air samples were taken, 58 violations were issued to major facilities, 2,956 asbestos inspections were conducted, and 1,234 citizen complaints were serviced.

In Fiscal Year 2008, 408,501 air samples were taken, 51 violations were issued to major facilities, 3,365 asbestos inspections were conducted, and 1,222 citizen complaints were serviced.

As part of AMS Section 103 and 105 commitments, the AMS Voluntary Programs Coordinator also sends quarterly reports to EPA on the number and status of known diesel retrofit projects, both public and private, within the City of Philadelphia. Reports include the number of vehicles retrofitted, the type of technology used, and an estimate of emissions reduces by the retrofits based on vehicle miles traveled. This reporting mechanism was initiated in fall of 2005 and the first report was submitted by the reporting deadline of December 31, 2005. Subsequent reports have been submitted on time. Reporting is now done on a semiannual basis. AMS is currently in good standing with all grant commitments, including those to EPA. Grants from EPA that were managed during the period January 2008 – December 2010 include:

Project Title: Air Pollution Control Program

Received by AMS: 2006-2009 (Most recent: Oct. 1, 2010 – Sept. 30, 2011)

Funding Agency: EPA, Agreement # A-00304508

Reporting frequency: Various reports are sent on a monthly, quarterly, and semiannual basis

CDFR number: 66.001 (Section 105 of the Clean Air Act)

AMS receives Air Pollution Control Program funding to support several major goals: Achieving attainment and maintenance with National Ambient Air Quality Standards (NAAQS) for the six criteria pollutants (ozone, particulate matter, carbon monoxide, lead, sulfur dioxide and nitrogen dioxide), meeting visibility goals, reducing or eliminating risks to human health from toxic air contaminants, and mitigating the effects of air pollution on the environment, particularly to the City's land, buildings and waterways which can be damaged by acid rain. AMS activities funded by this grant include monitoring, data analysis, attainment plan development, and other functions that address multiple pollutant, cross-media, interstate, trans-boundary as well as traditional local air quality concerns.

AMS tracks the six criteria pollutants as well as approximately 51 air toxics and a number of other pollutants. There are numerous outputs and activities generated by this grant. Reports are submitted that track the city's outreach and inter-agency collaboration, progress on regulatory and attainment-related measures such as State Implementation Plan revision, and voluntary programs such as those that reduce diesel emissions. Air monitoring and analysis activities are also supported by this grant, and data and planning documents are submitted to EPA and PADEP periodically. These include emissions inventories for criteria pollutants and air toxics. AMS participates in a number of workshops and training events related to these activities each year. Finally, AMS reports to EPA's central databases on permitting, compliance and enforcement activities for emissions sources as well as air monitoring within the City of Philadelphia as part of this grant.

All reports for this Section 105 grant have been submitted in a timely fashion and AMS is meeting guidelines established by EPA for carrying out grant functions.

Project Title: National Air Toxics Trend Site Grant (NATTS)

Received by AMS: 2005-2008 (Most recently Jul. 1, 2010 – Jun. 30, 2011)
Funding Agency: EPA, Agreement # XA-97333002
Reporting frequency: Quarterly
CDA number: 66.034 (Section 103 of the Clean Air Act)

The NATTS laboratory network is a system designed to help EPA track and evaluate trends in high-risk air contaminants, particularly six priority pollutants: formaldehyde, arsenic, hexavalent chromium, benzene, 1,3 butadiene, and acrolein. Light absorbing carbon is also tracked at these sites. Air Management Services supports the network by conducting laboratory analysis that assists in examining health effects on the public. NATTS is funded under Section 103 of the Clean Air Act.

AMS is up to date in its submission of reports related to the NATTS grant.

Project Title: PM2.5 Ambient Air Monitoring Program
Received by AMS: 2005-2008 (Most recent Apr. 1, 2011 – March 31, 2012)
Funding Agency: EPA, Agreement #PM-97311802
Reporting frequency: Data is updated periodically and email confirmations are sent to EPA central database system accordingly.
CDA number: 66.034 (Section 103 of the Clean Air Act)

The PM2.5 Ambient Air Monitoring Program is intended to track the region's progress toward achieving attainment with Clean Air Act standards for fine particulates. National Ambient Air Quality Standards for PM2.5 were enacted in 1997 to help reduce human exposure to fine particulates, which can be inhaled deep into the lungs and can exacerbate health problems such as asthma. Funds have been used to upgrade and maintain the City's monitoring system for particulate matter. Notably, the grant has helped to purchase continuous monitors and to replace non-continuous ones. EPA has also provided in-kind contributions under this grant in the form of supplies (e.g. filters) and laboratory services. AMS submits data generated by this monitoring system periodically, and is up to date on all submissions. The PM2.5 Ambient Air Monitoring Program falls under Section 103 of the Clean Air Act.

AMS is up to date in its submission of reports related to the PM2.5 grant.

Staff Expertise/Qualifications

Staff members involved in this project have extensive experience in installing and maintaining sophisticated air pollution monitoring equipment as well as quality assuring the data produced. Lab Engineering Supervisor Paresh Mehta and Administrative Chemist Philipose Cheriyan will be responsible for the installation and maintenance of the equipment, as well as data collection activities. Program Services Chief Henry Kim will coordinate the data analysis and will compile reports to EPA to track progress in implementation of the project. Air Director Thomas Huynh will oversee all activities to ensure that all project milestones are achieved. Mr. Huynh has successfully managed several projects related to air programs for a number of years and frequently communicates with community members regarding the quality of Philadelphia's air.

Detailed Budget Narrative

This project will require staff time, Travel, Equipment, Supplies, Contractual Services, and other expenditures including indirect costs. Personnel costs for seven employees, each using a portion of their staff time, amount to \$135,148 for the two year period, including \$42,696 in fringe costs. Equipment purchased will be the Open Path Cerex UV Sentry Ambient Analyzer, Transmitter Head w/ D2 Source, Cerex Spectra-1 TDL Open pass Gas Monitor, Calibration Equipment, and two Computers including software, data acquisition, and a wireless modem to transmit data, totaling \$129,000. Installing and servicing the equipment will also involve some travel, so \$6,600 in travel costs are reflected here as well. Necessary supplies in the amount of \$43,420 include the shelter, air conditioner, contractor, construction

materials, calibration gas, replacement parts and consumables. \$31,500 in contractual services will also required, and these include annual instrument service and maintenance, electrical service, a wireless plan, initial installation and instrument training, and shipping. AMS will also need \$5,000 for site preparation and support in the initial equipment setup. Finally, \$12,623 in indirect costs has been included and a negotiated indirect rate is attached. The grand total for the two-year project (and the total amount requested) is \$363,291.

Please see the detailed budget below.

Budget Detail

Category	Initial Year	2nd year Operating Cost	Total
Salaries	\$46,226	\$46,226	\$92,452
Fringe	\$21,348	\$21,348	\$42,696
Travel	\$3,300	\$3,300	\$6,600
Equipment	\$129,000	\$0	\$129,000
Supplies	\$35,710	\$7,710	\$43,420
Contractual Svc.	\$18,500	\$13,000	\$31,500
Other	\$5,000	\$0	\$5,000
Indirect Costs	\$6,311	\$6,311	\$12,623
Total	\$265,395	\$97,895	\$363,291
PERSONNEL	Project		Project
Position/Title	%	Salary	Salary
Director	3.00%	\$106,124	\$3,184
Administrator	3.00%	\$59,901	\$1,797
Administrative Engineer	10.00%	\$89,424	\$8,942
Engineer Supervisor	10.00%	\$57,969	\$5,797
QC/ Data Acquisition Engineer	10.00%	\$63,992	\$6,399
Graduate Engineer	10.00%	\$47,818	\$4,782
Elect Tech II	20.00%	\$46,303	\$9,261
Analytical Chemist II	10.00%	\$47,179	\$4,718
Total			\$44,880
ADJ. FOR HOLIDAYS, O.T., PAY DIFFERENTIAL			\$46,226
FRINGE			\$21,348
Total Annual Personnel			\$67,574
Total Personnel for 2-Year Grant Period			\$135,148
TRAVEL			
Transportation to the monitoring site @51 cent per miles and approximately 6,600 miles			\$3,300
Total Travel for 2-Year Grant Period			\$6,600
EQUIPMENT			
Cerex UV Sentry open path ambient analyzer			\$62,500
Transmitter Head w/ D2 Source			\$12,500
Cerex SPECTRA-1 TDL open path gas monitor			\$46,000
Calibration Equipment			\$5,000
(2) Computers Includes software, data acquisition, and wireless modem			\$3,000
Total Equipment			\$129,000
SUPPLIES			
Shelter, air conditioner, contractor, construction materials			\$28,000
Calibration gas for 2 years			\$10,000
Replacement Parts/ consumables for 2 years			\$5,420
Total Supplies			\$43,420
CONTRACTUAL			
Annual instrument service and maintenance for 2 years			\$20,000
Electrical Service for 2 years			\$3,000
Wireless Plan for 2 years			\$3,000
Initial Installation and instrument training			\$5,000
Shipping			\$500
Total Contractual			\$31,500
OTHER			
Provide site preparation and support in initial setup			\$5,000
Total Other			\$5,000
SUBTOTAL			\$350,668
INDIRECT COST 11.75% of Personnel cost			\$12,623

GRAND TOTAL			\$363,291
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Leveraging

AMS has no matching funds available to support this project at this time. However, it is very likely that additional staff time and resources beyond those set out in the project budget will be required to complete the project. Partner resources will also support this grant, including staff time of community and advocacy groups to connect AMS with local residents and effectively distribute information.