APPLICATION FOR FEDERAL ASSISTANCE

Version 7/03

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

5. APPLICANT INFORMATION

Legal Name: New York State Department of Environmental Conservation	**Organizational Unit:** Department: Same
Organizational DUNS: 806780912	Division: Division of Air Resources
Address: Street: 625 Broadway	**Name and telephone number of person to be contacted on matters involving this application (give area code)** Prefix: Mr. / First Name: Tony
City: Albany	Middle Name
County: Albany	Last Name: Zappala
State: New York / Zip Code: 12233-5022	Suffix:
Country: United States	Email: ajzappal@gw.dec.state.ny.us
6. EMPLOYER IDENTIFICATION NUMBER *(EIN):* 14-6013200	Phone Number (give area code): (518) 402-8451 / Fax Number (give area code): (518) 402-8454

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) A Other (specify) **9. NAME OF FEDERAL AGENCY:** United States 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:** Tonawanda Community Air Quality Study
12. AREAS AFFECTED BY PROJECT *(Cities, Counties, States, etc.):* City of Tonawanda Erie County	
13. PROPOSED PROJECT Start Date: 10/01/2005 / Ending Date: 9/30/2007	**14. CONGRESSIONAL DISTRICTS OF:** a. Applicant: All New York State / b. Project: All New York State

15. ESTIMATED FUNDING:		**16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?**
a. Federal	$ 293,809.00	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	$ 293,809.00	☐ 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: Ms.	First Name: Nancy	Middle Name
Last Name: Lussier		Suffix
b. Title: Director of Management and Budget Services		c. Telephone Number (give area code): (518) 402-9237
d. Signature of Authorized Representative		e. Date Signed: 8/22/05

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

OMB Approval No. 0348-0040

ASSURANCES - NON-CONSTRUCTION PROGRAMS

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.

2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.

3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.

4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.

5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).

6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.

8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.

10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is $10,000 or more.

11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).

12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.

13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).

14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.

15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.

16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.

17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."

18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	TITLE
[signature]	Director, Division of Mgmt. & Budget Services
APPLICANT ORGANIZATION	DATE SUBMITTED
New York State Department of Environmental Conservation	8/22/05

OMB Approval No.0348-0044

SECTION A - BUDGET SUMMARY

GRANT PROGRAM FUNCTION OR ACTIVITY (a)	CATALOG OF FEDERAL DOMESTIC ASS'TCE NO. (b)	Estimated Unobligated Balance		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Air Pollution Control	66.034			$293,809	$0	$293,809
5. TOTALS				$293,809	$0	$293,809

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM FUNCTION OR ACTIVITY				Total
	Air Pollution Control				
a. Personnel	$0				$0
b. Fringe Benefits	0				$0
c. Travel	13,709				0
d. Equipment	264,500				13,709
e. Supplies	15,600				264,500
f. Contractual	0				15,600
g. Construction	0				0
h. Other	0				0
i Total Direct Charges	$293,809				0
j. Indirect Charges	0				$293,809
k. TOTALS	$293,809				0
					$293,809
7. Program Income					

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3. Detailed Itemized Budget for Tonawanda Community Air Quality Study

No Personnel costs are being charged to this grant.
No Contractual cost are being charged to this grant.

Travel:	#	**In Kind**	**Direct Costs**
To Tonowanda from Albany Weekly (mi)	29,952		$12,130
Local Tonowanda Sample Collection (mi)	3,900		$1,579
Travel Total:			**$13,709**

Equipment:	#	**In Kind**	**Direct Costs**
EKTO 8' x 8' Environmental Shelter	1, 3	$25,000	$75,000
Canister Sampler (Pressurized Summa)	1, 3	$14,000	$42,000
Summa Canisters	20		$9,000
Carbonyl Sampler	1, 3	$14,000	$42,000
DNPH Sampling Tubes (Supelco)	300		$2,500
TEOM 1400AB (PM-2.5)	4		$72,000
Datalogger	2, 2	$14,000	$14,000
Meteorology (MetOne Instruments and 10 m Tower)	1		$8,000
Equipment Total:		**$67,000**	**$264,500**

Supplies:	#	**In Kind**	**Direct Costs**
Electric Installation and $200/Mo. per site	4		$9,600
Site Preparation (Concrete or treated Lumber)	4		$1,500
Site Preparation (Fencing)	4		$4,500
Supplies Total:			**$15,600**

Total Direct Costs: $293,809

Total Indirect Costs: $0

Total Grant Request: $293,809

SECTION C - NON-FEDERAL RESOURCES				
(a) Grant Program	(b) Applicant	(c) State	(d) other Sources	(e) TOTALS
8. AIR POLLUTION CONTROL	$0			$0
12. TOTALS (sums of lines 8 and 11)	$0			$0

SECTION D - FORECASTED CASH NEEDS					
	Total for first year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	$293,809	$73,452	$73,452	$73,452	$73,453
14. Non-Federal	$0	$0	$0	$0	$0
15. TOTAL (sum of lines 13 and 14)	$293,809	$73,452	$73,452	$73,452	$73,453

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
17.				
18.				
19.				
20. TOTALS (sum of lines 16-19)				

SECTION F - OTHER BUDGET INFORMATION (Attach additional sheets if neccessary)			
21. Direct Charges	$293,809	22. Indirect Charges	$0
23. Remarks: Detailed Estimated Budget Attached As Part Of Application.			

AMBIENT AIR MONITORING AND ANALYSIS PLAN FOR TONAWANDA COMMUNITY AIR QUALITY STUDY

Applicant:	New York State Department of Environmental Conservation
Contact Person:	Gary Boynton
Category:	Community-Scale Monitoring
Phone:	(518) 402-8508
Fax:	(518) 525-2730
Email:	gaboynto@gw.dec.state.ny.us
Funding Request:	$293,809
Project Period:	Sampling (April 1, 2006 - March 31, 2007)

1. PROJECT SUMMARY

This air quality study is designed to evaluate and improve air quality models used to predict community exposure. The collected monitored data will be used to refine exposure assessments for the National Scale Assessment project and Residual Risk program required under §112(f). A final report will be prepared and shared with local government, state and local public health officials, community groups and business groups to continue on-going discussions about future air toxic and other risk reduction efforts in the community.

Tonawanda is an industrialized, urban community located in the western part of New York State in Erie County, just north of Buffalo. It is divided by major interstate highways and has industrial clusters of some of New York's largest point and area sources including: a coke production facility, several petroleum terminals, chemical bulk storage terminals, co-generation and electric generation facilities, and facilities manufacturing tires, specialty chemicals and pesticides, cellulose sponge, and DuPont Corian® (solid surfaces) and Tedlar® (polyvinyl fluoride) products. Potential environmental justice areas have also been identified within this community (See Fig. 1).

In February of 2005, NYS DEC staff were presented with ambient sampling results from the Tonawanda Clean Air Coalition (Coalition). The Coalition is a group of concerned citizens that use a sampling method consisting of a bucket specifically designed to measure chemicals in the air. The "Bucket" is advertised as an easy to use air sampling device housed inside a 5 gallon plastic bucket. The "Bucket" was developed in Northern California in 1995 by an environmental engineering firm in order to simplify and reduce the costs of widely accepted methods used for testing toxic gases in the air. After sampling the air, the sample is sent to an EPA certified laboratory for testing. The results are indicative of a short sampling time, 5-15 minutes.

The Coalition took air samples across from the NOCO Energy Facility (petroleum storage) at 700 Grand Island Boulevard in the Town of Tonawanda in August 2004. The results of this sampling presented in February 2005 indicated levels of benzene five to ten times higher than other statewide data collected by NYS DEC from 1990 to 2000. During our preliminary emission inventory verification and point source air dispersion modeling, Tonawanda Coke Corporation was identified as a primary source of emissions contributing to ambient benzene concentrations. The recent citizen concerns from the "Bucket" ambient sampling for benzene concentrations in Tonawanda prompted NYS DEC Division of Air Resources staff to conduct a further evaluation of the potential air toxics problems in this community.

On June 21 and June 23, 2005 DEC Air staff collected one hour air samples in the Tonawanda Industrial Area. Results of this limited sampling indicate that while there are no acute health exposure concerns for benzene in the area, there is a need to assess chronic exposure. These results justify the need for a long term sampling and analysis effort.

DEC Air staff have been collaborating with the Tonawanda Clean Air Coalition and the Town of Tonawanda Commission for Conservation and Environment (Commission) for at least two years. Both of these citizens groups are concerned with the effects of toxic air emissions and odors in the area and the general risk associated with living in the Town. A long-term monitoring study and associated impact analysis will help in determining the risk associated with living near a cluster of large facilities. This monitoring study may identify the need to further reduce emissions from these facilities below existing federal and state regulatory limits.

1.1 PROJECT MISSION AND GOALS

On March 31, 2005 the EPA released the Risk Assessment Document for Coke Oven MACT Residual Risk. Tonawanda Coke Corporation was one of four facilities included in this assessment. The residual risk assessment concluded that "The results of the more refined level of analysis of this assessment showed that the emissions from these four facilities are not considered to cause a potential concern for adverse noncancer health impacts but do pose potential cancer risks to the individual most exposed living within 50 km of these facilities." Specific to New York, cancer risk isopleths around Tonawanda Coke showed a greater than one-in-one million potential cancer risk for individuals living within 5 km from the facility. However, the risk assessment documentation stated "For this risk analysis, no monitoring data exist. Therefore, it was not possible to evaluate the ambient concentrations estimated by the modeling using monitoring data."

A NYS DEC detailed analysis of ambient concentrations and trends of benzene in New York State from 1990 to 2003 demonstrated benzene levels have decreased by as much as 50 percent or more statewide. Yet, a comparison of the average benzene concentrations to New York State health-based guidelines adopted from the EPA's Integrated Risk Information System (IRIS), 0.13 $\mu g/m^3$, indicate the levels are still above one-in-one million cancer risk level, even at remote locations in New York where measurements showed a mean 24 hour concentration value of 0.86 µg/m3. The health based guideline of 0.13 ug/m^3 represents an excess lifetime excess cancer risk of one in one-million. The maximum 24 hr concentration recorded during this period was 104 µg/m3 in Lackawana which was previously the site of a coke oven facility (See Fig. 2); however, this should not be compared to an annual concentration when drawing conclusion of overall cancer risk. The mean 24 hr measurement for Lackawana was calculated to be 5.09 µg/m3. Other maximum concentrations, in the range of 40 to 60 µg/m3, were detected at Lackawana and at the Freshkills landfill on Staten Island (Aleksic et al., 2005).

Based upon EPA's 1996 National Scale Assessment (NSA), Erie County was ranked among the highest in New York State and the nation for upper bound lifetime cumulative cancer risk. The recognized limitations of the NSA state that: 1) model estimates are more uncertain at the census tract level and more reliable at larger geographic scales such as the county level; and 2) the estimates reflect average exposures and not individual extremes. A more refined analysis of local-scale ambient air quality and spatial variability of air toxic contaminants is warranted for this community. The results of this study will help assess the future applicability of such modeled ambient concentration data and risk characterizations.

The main goals of this community-scale monitoring project are to:

1) First, evaluate the National Emission Inventory (NEI) database supplemented by a microscale emission inventory of the Tonawanda area. This data will be used to generate point, area and mobile source emission estimates of air toxic contaminants in the Tonawanda area.

2) Evaluate the modeling results from EPA's National Scale Assessment for the 33 priority urban HAPs (See Table I. and Table II.) at the census tract level. Eleven out of the 33 priority HAPs are VOCs and two are carbonyl compounds.

3) Ground truth the Residual Risk Assessment for the Coke Oven NESHAP with model to monitor validation and more accurately quantify the impacts to the maximally exposed individual living within close proximity of the facility; and

4) Provide a foundation for a future community participation effort to address the public's overall concerns about air toxics in the Tonawanda area. The Department will engage the local community in discussions by conducting informational public meetings about the study design and incorporate their suggestions into the program's approaches. Where the Department does not expect the overall project's intent to change, the study design may change as a result of public participation input. A final report will be prepared and shared with local government, state and local public health officials, community groups and business groups to continue discussions about future air toxic and other risk reduction efforts in the community.

1.2 STUDY APPROACH

Consistent with the resources available, the air monitoring staff of NYSDEC will measure the levels of urban air toxic contaminants. The focus will be on particulates, carbonyls, and volatile organic compounds (VOC's) listed in EPA's method TO-15. EPA approved sampling and analytical methodologies have been selected for the compounds identified within the body of this document. A detailed data gathering, analysis and reporting is planned in an effort to understand and quantify the level of impact of the various pollutants on ambient air quality in the vicinity of Tonawanda. A final, stand-alone report will be provided of the findings.

Specifically, using data analysis techniques described in Section 5.3 (which will be further detailed in a separate protocol), the process by which this study will achieve the monitoring goal is:

1) Conduct a study for 1 year to collect monitoring data for analysis. This will be accomplished by selecting four key sites and performing "state of the art" monitoring and statistical analysis of the collected data. Continuous monitoring of weather data, fine particles by Tapered Element Oscillating Microbalance (TEOM), VOC's and carbonyl data will be collected to discern the air quality in the area.

2) Analyze pollutant specific data in terms of minimum versus maximum facility influence using wind direction and wind speed information to characterize the monitors and their corresponding pollutant composition. In other words, the relative contribution of the facilities can be quantified as the difference in upwind versus downwind observed values. Emphasis will be placed on

pollutants which are observed at levels at or above health benchmark values, as well as those found to have been associated with facility activities.

3) Determine any spatial variation and potential reduction of the facilities' influence on pollutant levels observed at the downwind monitoring sites with corresponding observations at the upwind sites and other NYS DEC network sites like the CAM monitor located in Tonawanda.

In addition to the above, a comparison will be made of the maximum observed levels of 24 hour and annual average concentrations at the monitors to health benchmark values (e.g. NYS DEC Short-term and Annual Guideline Values, SGCs and AGCs) as a screening level assessment of potential health effects associated with the general observed levels in and around the facilities. Monitor comparisons will also be made to the EPA NSA and Residual Risk Assessment for Coke Ovens modeled ambient concentrations.

The analysis program will include reporting of findings to all interested parties and community groups in order to incorporate their suggestions into the program's approaches. A final report will be prepared once consensus is reached on the program approach and the results of the monitoring and data analysis. In addition, the collected data and final report will be made available to all participants for discussion and any independent analysis that they choose to perform.

Sections 2 to 5 provide the project organization and responsibilities, the monitor siting criteria and justification, the meteorological data collection, the pollutants to be sampled and the sampling methodologies, and the data handling and reporting procedures to be implemented in order to achieve the planned goals.

1.3 STUDY PLANNING

In the year 2005, DEC staff will perform emission inventories review and verification, refined air dispersion modeling and siting evaluations to determine where the ambient monitoring stations should be established to assess the air quality. One station will be on the western edge of the facility area (winds generally prevail from the WSW to WNW). This site will be considered the upwind station for long-term averages to identify background levels of air contamination (if daily or hourly data is to be used for complex data analysis it must be cautioned that actual wind direction must be analyzed to confirm "upwind designation" for each sampling hour or day). Following an evaluation by DEC staff of the area, meteorological data, potential modeling results and monitoring site locations, a tentative list of the sites will be identified.

DEC will establish, and operate monitoring stations to sample air toxic contaminants including selected VOC's, particulates, and carbonyls. The VOC and carbonyl samples collected will be analyzed by DEC's Bureau of Air Quality Surveillance and ambient concentrations reported. Particulates will be monitored continuously by TEOM with a 2.5 micron cut point. Target VOCs are the same as for the statewide network. Some of the compounds in Table I have been targets of monitoring since 1988. This project will sample for aldehydes and ketones (carbonyls) at each of the monitoring sites.

1.4 KEY UNITS/PERSONNEL

Quality assurance oversight of DEC sampling and analysis will be performed by DEC's air

monitoring quality assurance programs. Data analysis will be performed by staff with appropriate expertise in the Bureau of Air Quality Analysis and Research.

Community outreach will be conducted by a trained Citizen Participation Specialist from NYS DEC's Buffalo office with assistance from Buffalo Air Staff and the Toxic Assessment Section and the Office of Environmental Justice located in Albany, NY. Staff from our Buffalo office are very active in engaging the Tonawanda community with local air issues.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

The New York State DEC will solely be responsible for directing the study which consists of the development of the project and quality assurance plans, network design and siting, sampler installation and operation, management of daily sampling and sample analysis, equipment calibration and maintenance, performance and system audits, data compilation and validation, and data reporting and analysis. DEC will provide the equipment, spare parts and supplies, operation, maintenance, procedures, reports, and data. DEC will make good faith efforts to provide the data in various formats and reports for further evaluation by interested parties. The program will be directed primarily by the following staff:

POSITION	DUTIES	STAFF	UNIT
Director	Statewide Air Monitoring Program	Patrick Lavin	BAQS
Regional Air Pollution Engineer	Air Program Responsibility in Tonawanda, Local Liaison	Larry Sitzman	DEC Region 9
Regional Citizen Participation Spec.	Public Outreach	Meaghan Boice-Green	DEC Region 9
Project Researcher	Integrate Field and Lab Work, Sample Analysis, Validation & Reporting	Jacqueline Perry	BAQS
Section Chief	Analytical Work, Data Validation and Reporting	Garry Boynton	BAQS
Research Scientists	Data Analysis	Thomas Gentile Nenad Aleksic	BAQR

3.0 BUDGET

Travel:	**#**	**In Kind**	**Direct Costs**
To Tonawanda from Albany Weekly (mi)	29,952		$12,130
Local Tonawanda Sample Collection (mi)	3,900		$1,579
Travel Total:			**$13,709**

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Summa Canisters	20		$9,000
Carbonyl Sampler	1, 3	$14,000	$42,000
DNPH Sampling Tubes (Supelco)	300		$2,500
TEOM 1400AB (PM-2.5)	4		$72,000
Datalogger	2, 2	$14,000	$14,000
Meteorology (MetOne Instruments and 10 m Tower)	1		$8,000
Equipment Total:		**$67,000**	**$264,500**

Supplies:	#	In Kind	Direct Costs
Electric Installation and $150/Mo per site	4		$9,600
Site Preparation (Concrete or treated Lumber)	4		$1,500
Site Preparation (Fencing)	4		$4,500
Supplies Total:			**$15,600**

Total Direct Costs: $293,809
Total Indirect Costs: $0
Total In-Kind Equipment: $67,000
Total Grant Request: $293,809

3.1 SITE DESCRIPTIONS AND CRITERIA

Two types of sites will be implemented for this project. One upwind site will collect data indicative of air quality before area impacts. Three perimeter sites will provide air quality data that are representative of maximum air contaminant levels leaving the area. Each site will need:

1) High quality power and phone lines must be near the site.
2) Enough security to prevent vandalism but 24 hour access for the operators.
3) Maximum height above the ground of 45 feet.
4) No trees or major wind obstacles within 60 feet of air intake.
5) A minimum of 100 to 300 yards from the nearest major road (depends on traffic density).

The upwind site will be chosen with little impact from the facilities or other local, manmade sources, yet will still be near the area. The three perimeter sites will be chosen to quantify the air quality at the perimeter of the major source area. These sites must surround the facilities and be in the vicinity of impacted receptors. Significant wind fetches from the lake to the area will be considered as a positive siting factor. A five year windrose will show the predominant winds and second and third most prevalent wind direction for placing each of the three sites.

All potential site areas will be surveyed by DEC technical staff from Albany and Buffalo to ensure these criteria are met. Significant assistance from the Buffalo Regional office and the local citizens group will be needed to secure permission from landowners to setup the monitoring stations.

4.0 PROJECT SAMPLING METHODOLOGIES

4.1 VOC'S - DEC TOXIC AIR MONITORING PROGRAM

The volatile organic compounds (VOC's) will be collected using stainless steel canisters contained in a sampler known as an ambient air canister sampler. The sampler is an air flow calibrated sampling device that pumps ambient air into the canister. A special stainless steel diaphragm pump provides a constant pressure to push the sample through the sampler. A relief valve is used to maintain a steady pressure for the sample flow controller. The maximum time from sampling to sample analysis is 30 days.

This sampler will collect 24 hour samples on a one-in-six day schedule. Canisters will be analyzed for the same 43 target compounds consistent with NYS Toxics Air Monitoring Network. Co-located samples and sample re-analysis are obtained and analyzed every sampling event. The goal is 10% of the samples taken. The analytes with the abbreviations, minimum detection levels, and associated annual guideline concentrations (AGC's) as listed in NYS DAR-1 or Air Guide-1 are in Table I.

The analysis methodology is a modified version of EPA method TO-15. Air samples are taken from the canister at a controlled flow and temperature by an Entech Automation Model 7100 sampler. The air contaminants and water vapor are trapped on a cryogenic sorbent bed held at -180 ^{0} C. The bed is then heated to drive the sample into a Varian ion trap GC/MS analyzer while leaving the water behind to be purged before the next sample is begun. This method of analysis allow positive identification by retention time and molecular mass. Calibration standards are run at least twice during each analysis run to allow accurate quantification. Analytical quality assurance will consist of calibration using standards run at the beginning, middle, and end of each analytical batch, analysis of replicate injections of sample canisters, analysis of co-located canisters and participation in the National Air Toxics Trends System performance evaluation program (NATTS) sponsored by EPA. Historically, the rate of completeness has surpassed 90%.

TABLE I: METHOD DETECTION LIMITS (MDL) AND NYS DEC AGC CONCENTRATION

*CHEMICAL	MDL**	AGC***	CHEMICAL	MDL	AGC
*Methylene Chloride	0.02	0.61	1,1-Dichloroethylene	0.02	0.005#
*Chloroform	0.024	0.009#	Hexachloro-1,3-Butadiene	0.024	0.005#
*1,2 Dichloroethane	0.03	0.01#	1,1-Dichloroethane	0.02	5
1,1,1 Trichloroethane	0.024	183	Chloromethane	0.025	373
*Carbon Tetrachloride	0.03	0.01#	Chloroethane	0.06	3,790
*Trichloroethylene	0.025	0.08	cis1,2-Dichloroethylene	0.03	479
1,1,2 Trichloroethane	0.03	0.01#	cis 1,3-Dichloropropene	0.03	0.04
*Tetrachloroethylene	0.025	0.15	trans 1,3-Dichloropropene	0.04	0.04
*Benzene	0.03	0.04	Dichlorodifluoromethane	0.024	2427
Toluene	0.035	106	Trichlorofluoromethane	0.03	3560
Ethylbenzene	0.06	230	Trichlorotrifluoroethane	0.02	23488
M,P-Xylene	0.06	161	Dichlorotetrafluoroethane	0.04	2,432

O-Xylene	0.04	161	1,2-Dibromoethane	0.03	0.0007#
Chlorobenzene	0.03	23.9	A-chlorotoluene (Benzylchloride)	0.04	0.004#
1,2 Dichlorobenzene	0.03	60	*1,1,2,2 Tetrachloroethane	0.03	0.02
1,3 Dichlorobenzene	0.03	60	Bromomethane	0.03	1.29
1,4 Dichlorobenzene	0.04	0.015#	Styrene	0.10	235
*Vinyl Chloride	0.05	0.04	Bromodichloromethane	0.024	0.003#
*1,2 Dichloropropane	0.03	0.87	*1,3 Butadiene	0.04	0.01#
1,2,4-Trimethylbenzene	0.05	59	Methyl Tert Butyl Ether	0.03	834
1,3,5-Trimethylbenzene	0.05	59	1,2,4 Trichlorobenzene	0.034	NA
1,1-Dichloroethylene	0.02	0.005#			
Hexachloro-1,3-Butadiene	0.024	0.005#			

* Compound designated as one of the 33 Urban Priority HAPs
**Annual Guideline Concentration, parts per billion volume
***Minimum Detection Limit, parts per billion volume
MDL is not low enough to monitor ambient air in concentration range of AGC
AGC is below that of the MDL. MDL's at this time are the best that can be expected with the current technology

MDL NOTE- Compounds with AGC's below the MDL have received special attention to attempt to further reduce the MDL. However, the extremely small AGC values of these compounds are beyond the capabilities of the canister based GC/MS methodology. Six of these compounds have been monitored for years. Of these benzene and carbon tetrachloride are found often enough to calculate an annual average despite the MDL issue. The other four are seldom, if ever, detected at any site.

4.2 CARBONYL COMPOUNDS

Carbonyl compounds will be sampled at the sites indicated in the Monitoring Sites table in Section 5.0. Twenty four hour samples taken at this rate will draw approximately 1000 liters of air through the sample cartridge, providing excellent detection limits (listed in Table II). The samplers use a vacuum pump to draw ambient air through a heated ozone denuder, to remove interfering ozone, and then through the DNPH coated silica gel sampling cartridge. Supelco LpDNPH S10 cartridges will be used. During storage, cartridges will be kept refrigerated. There is no temperature regulation for the cartridges while installed in the sampler. This sampler will collect 24 hour samples on a one-in-six day schedule.

Cartridges will be analyzed for the thirteen target compounds described in EPA method TO-11a. A Gilson ASPEC XL automated sample processor will be used to extract the DNPH derivatives, mix the extract and transfer a portion of the extract into autosampler vials for analysis on an HPLC. Analytical quality assurance will consist of calibration using standards run at the beginning, middle, and end of each analytical batch; analysis of replicate injections of sample extracts; analysis of co-located samples and participation in the National Air Toxics Trends System performance evaluation program (NATTS) sponsored by EPA. The accuracy for this analysis has been better than 20%, while the results for precision are better than 25%. Historically, the rate of completeness has surpassed 85%.

TABLE II. CARBONYL ANALYTES AND ANALYTICAL DETECTION LIMITS (MDL)

Chemical	**AGC ppb**	**MDL ppbv**
2-Butanone (MEK)	122.3	0.009
*Acetaldehyde	239	0.004
Benzaldehyde	NA	0.004
Crotonaldehyde	4.8	0.009
*Formaldehyde	0.05	0.007
Hexanal	NA	0.008
Methacrolein	NA	0.005
Propionaldehyde	NA	0.004
Valeraldehyde	120	0.011
m-Tolualdehyde	NA	0.003
n-Butyraldehyde	NA	0.007

*** Compound designated as one of the 33 Urban Priority HAPs**

4.3 PARTICULATES - PM 2.5

Particulates in the PM 2.5 size range will be monitored with a Model 1400ab Tapered Element Oscillating Microbalance from Thermo Environment Inc.

4.4 METEOROLOGY

Data from the monitoring site will be used and presented with the quarterly reports. This data will be relied upon as the primary source of the parameters needed for data analysis and reporting. The collection site is deemed representative of the general land attributes of the area. The local airport data will be used as back-up and is useful as it is an indication of the general wind flow across the area. Variations between the stations under weak flow situations can occur due to differences in local topography.

The data monitored on a continuous basis includes wind speed and direction, horizontal wind deviation (sigma theta), temperature, humidity and pressure. These data will be reduced to basic hourly averages, with the sigma-theta providing a magnitude of the spread of a potential plume from the area.

5.0 DATA HANDLING

5.1 DATA VALIDATION AND REPORTING

Data validation and reporting will be performed by monitoring staff in accordance with routine network procedures used with existing samplers located in the statewide network. Data reports will be available after the 90th day following the close of the calendar quarter in which the sample was taken. Data reports will be available in either a hard copy or a comma delimited ASCII format which can be input directly into various spread sheet and database programs.

5.2 QUALITY ASSURANCE PLAN

The Quality Assurance Plan uses existing QA plans which have been completed and approved by Region 2 EPA for routine program use. All sampling is an extension of the approved DEC air monitoring QA program. The following requirements are summary of the process used as a minimum :

Procedure	Frequency
Performance Audits	Annual (unless stated otherwise)
System Audits	Annual
Precision Requirements	+/- 20% (10% co-located samples in the statewide network) (10% duplicate analysis of samples)
Accuracy Requirements	+/- 25% (Quarterly participation in the NATTS performance evaluation samples.)
Percent Valid Data Requirements	>75% Data completeness reported quarterly and percentages under 90% will trigger further review and troubleshooting for vexing but correctable problems.
Certification of PM2.5 instrument	Annual (Monthly audits)
QA Reporting	Annual

5.3 DATA ANALYSIS AND REPORTING

The data to be collected as part of this proposed plan, will be analyzed in accord with the goals identified in Section 1.2

It is proposed that a detailed data analysis protocol will be developed by identified staff who will implement this aspect of the study. The protocol will be shared with all other parties for comment before implementation. However, the general approach of data analysis will incorporate the following concepts using statistical measure such as means, medians, deviations, frequency distributions, and correlations to make proper inferences of area influence:

1) Plots of pollutant concentrations against wind direction at individual monitor sites will allow the classification of upwind versus downwind monitors and the potential association of increased downwind concentrations with area effects. The wind sector of interest will be refined by consideration of the horizontal deviation or spread (sigma-theta) of the wind.

2) Data will also be segregated by wind speed, stability class and pressure to study and possibly normalize the influence of these factors in the identification of the area effects on observed levels.

3) Data at monitors at the perimeter of and on the area will be compared to the corresponding monitors further downwind in an attempt to determine spatial pollutant level variations with downwind distance. This analysis will consider wind sectors refined by the average sigma-theta for the periods of interest to choose the monitors being impacted by the area. Averages of 24 hour concentrations under similar wind flow and meteorological conditions will be used to represent ensemble averages.

4) Data will also be segregated into subsets of major area activity to better understand the influence of emissions changes on the observed concentrations.

5) Non-detect levels will not be substituted by half of the MDL values to avoid false positive and negative statistical measures. The analysis will accent those pollutants which have a large percent of observations above detection levels, as well as those above the respective SGCs and AGCs.

6) Days of the week, seasonal, diurnal, and temperature subsets of data will be used in order to potentially infer the contribution of the area versus mobile source emissions.

It is envisioned that a final presentation of findings will be made to interested parties. A stand alone final report of the data and the findings will be presented. In addition, all valid collected data will be made available for use by anyone for independent analysis.

6.0 PERSONNEL BIOSKETCH

Dr. Nenad Aleksic is a Research Scientist with the Division of Air Resources, NYSDEC. Dr. Aleksic has received his degrees in atmospheric science from the University of Belgrade, Yugoslavia. In his seven years at NYSDEC he has worked on data management and analysis issues for vehicle emission controls, acid fog deposition, and toxics data observations in New York State. Prior to coming to NYSDEC, Dr. Aleksic worked for the University of Belgrade and Atmospheric Science Research Centre of State University of New York at Albany.

Garry Boynton, B.S. is currently employed by the Dept. of Environmental Conservation as an Environmental Chemist III. He has a Bachelor of Science degree in Chemistry (1973) for the Worcester Polytechnic Institute of Worcester Massachusetts. Mr. Boynton's career has been focused on air monitoring for the last 22 years. His early analytical training, with the NYS Dept. of Agriculture and Markets, was in pesticide residue analysis of food and environmental samples. His first environmental work was with the Love Canal air monitoring project. He has been a lead in the design and

implementation of 3 major air studies around the Fresh Kills landfill on Staten Island and the lead in designing and implementing the New York State VOC monitoring Network. He is now the air monitoring laboratory manager with responsibilities for the repair and maintenance of the "Criteria" pollutant network, sampling and analysis of canister samples for the Air Toxics monitoring program, the Photochemical Assessment Monitoring (PAMS) program in NYC including the carbonyls sampling and analysis for both the PAMS and National Air Toxics Trends (NATTS) programs. He has been the Air Monitoring Emergency Response Coordinator since the task was created in 2003. This task has been advisory within the NYSDEC response capabilities and entails the coordination of staff and support with the Scientific Advisory Group that is activated during specific environmental emergency responses. The majority of the funding is from the 105 grant and state funding. The EPA NATTS grant for two stations supports a small portion of the statewide VOC laboratory analysis.

Steven DeSantis, BS. MS. - is a Research Scientist with the Division of Air. Mr. DeSantis received his Bachelor of Science degree from the State University of New York's College of Environmental Science and Forestry in 1982. He received his Masters of Science in Environmental Health, majoring in Industrial Hygiene, from Hunter College in New York City in 1990. Mr. DeSantis has worked for the Department of Environmental Conservation's Air Division for seventeen years. He started with the Department at the New York City Region 2 field office and transferred to Albany's Central Office. For the past 10 years, Mr. DeSantis has worked in the Air Toxics Section specializing in the permitting, inventory, evaluation and atmospheric modeling of hazardous air pollutants.

Dirk Felton, BA. MS. PE - is a Research Scientist with the Division of Air. Mr. Felton received his Bachelor of Arts degree in Physics from Kenyon College in1987. He received his Master of Science degree in Environmental Engineering in1993 from Stevens Institute of Technology and his New York Professional Engineer's license in 2003. Mr. Felton has worked for the Department of Environmental Conservation's Air Division in the monitoring Bureau for nine years and for the State University of New York's Atmospheric Science Research Center for a year and a half. He implemented the PM-2.5 monitoring program in New York, collaborated on the EPA Supersite program and serves on two National committees, CASAC AAMM and STAPPA/ALAPCO Monitoring Steering Committee as well as serving as the chair of the Regional NESCAUM Monitoring and Assessment Committee.

Thomas Gentile, B.A., M.S. is a Research Scientist and serves as Chief of the Air Toxics Section in the Division of Air Resources in Albany, New York. This Section is responsible for dispersion modeling and risk assessment of air toxics in support of the air quality permitting program, as well as, the development and maintenance of the overall Air Toxics Program in the NYSDEC. Mr. Gentile has a Bachelor of Arts in Biology from North Adams State College and a Master of Science in Public Health from the Graduate School of Public Health at the University of Massachusetts at Amherst. Tom has worked on numerous air toxics issues at the State and Federal level. He was a member of the Clean Air Act Advisory Committee (CAAC) Workgroup working on the development of a National Integrated Urban Air Toxics Strategy for reducing air pollution, the NYSDEC Mercury Task Force, the Chemical Information Management Project with the Forum on State and Tribal Toxics Actions (FOSTTA) and served as a consultant to the USEPA Science Advisory Board Executive Committee on risk assessment and air pollution issues.

Marilyn J. Wurth, B.S., is a Research Scientist with the Division of Air Resources, NYSDEC. Ms. Wurth received a B.S. in Biology with a concentration in Chemistry from Siena College in 1988 and is approaching the completion of a M.S. in Environmental Health Sciences from the University at Albany. For the past seven years, Ms. Wurth has assisted other staff members of the Air Toxics Section, Bureau of Air Quality Analysis and Research, in deriving ambient air guideline concentrations, conducting toxicological and scientific literature reviews, and performing local scale risk assessments. Prior to coming to NYSDEC, Ms. Wurth was employed for 10 years as a technical writer for a publishing company specializing in occupational health and chemical safety information.

References:

Aleksic, N., Boynton, G., and Sistla, G. Concentrations and trends of benzene in ambient air over New York State during 1990 to 2003 (submitted for publication review 2005). Journal of Atmospheric Environment.

Figure 1. Tonawanda EJ Demographics and Facility Locations

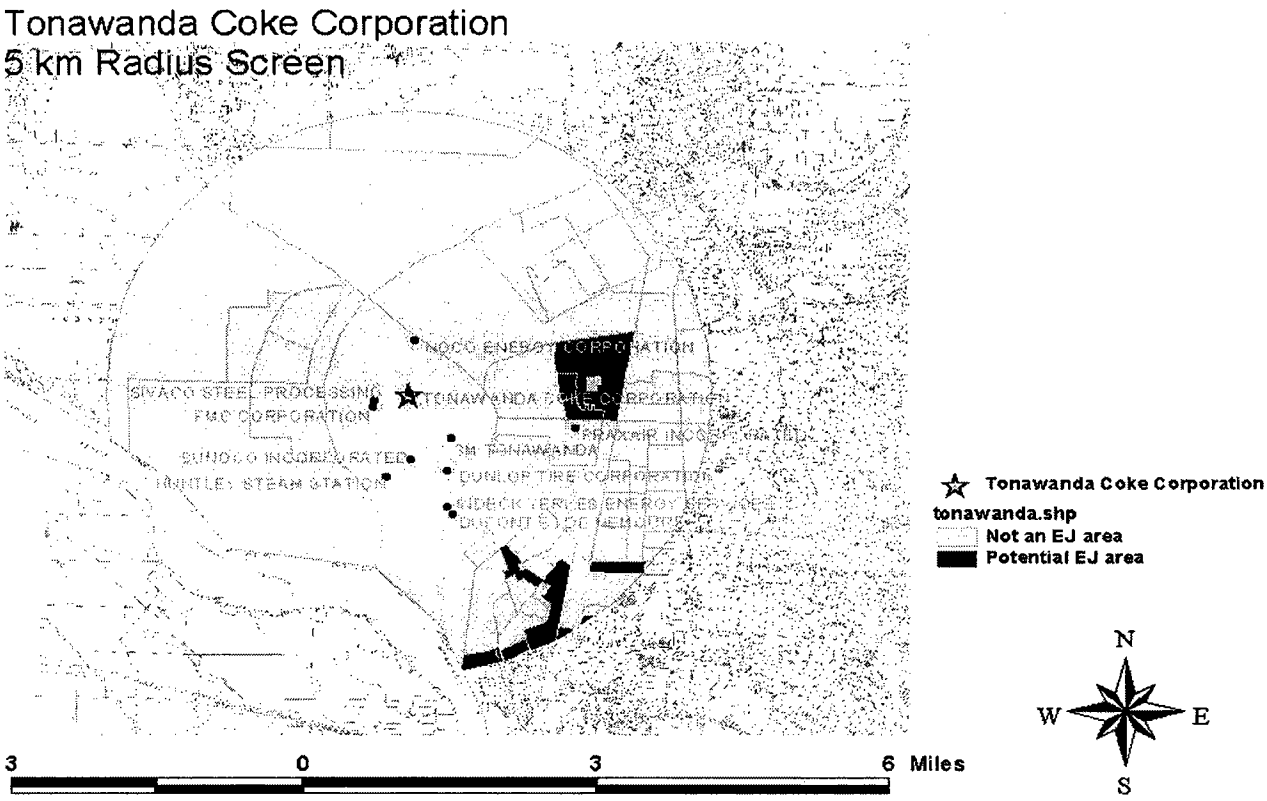

Figure 2. Summary statistics of 24-hr benzene concentrations (ug/m3) for the periods 1990-2003 and 2001-2003

Note: Risk is defined as an excess cancer risk of one-in-one-million

Statistic	LKWANA	EASTHS	TROY	NF	WFBASE
Period 1990-2003					
25th percentile	1.41	1.44	1.20	0.80	0.32
Mean	5.09	2.85	2.31	1.80	0.86
Median	3.09	2.33	1.88	1.26	0.61
75th percentile	6.18	3.59	2.81	2.26	1.01
IQR	4.78	2.14	1.61	1.46	0.69
Max	104.51	15.23	17.57	21.87	8.61
Sample size	601	536	630	619	657
Std. Deviation	7.13	2.14	1.80	1.79	0.90
Risk	39.2	21.9	17.8	13.9	6.6
Period 2001-2003					
25th percentile	0.94	1.43	1.13	0.73	0.30
Mean	2.26	2.05	1.68	1.08	0.54
Median	1.35	1.81	1.39	0.92	0.47
75th percentile	2.21	2.40	1.90	1.28	0.64
IQR	1.28	0.98	0.77	0.55	0.34
Max	16.71	7.52	6.91	4.10	3.30
Sample size	164	162	164	172	171
Std. Deviation	2.49	0.95	0.96	0.57	0.43
Risk	17.4	15.7	12.9	8.3	4.2

Legend:

LKWANA	Lackawana, Buffalo Area, NY
EASTHS	Eastern Highschool, Brooklyn, NY
TROY	Troy, NY, Capital District Area
NF	Niagara Falls, NY
WFBASE	Whiteface Mountain, Adirondack Area, NY

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Denise M. Sheehan
Acting
Commissioner

AUG 22 2005

Mr. Michael N. Jones
U.S. Environmental Protection Agency - Region II
4930 Page Road
Durham, NC 27703

Dear Mr. Jones:

Enclosed, you will find two applications from the New York State Department of Environmental Conservation requesting funding from United States Environmental Protection Agency's (USEPA) Local-Scale Air Toxics Ambient Air Monitoring Program. Funding in the amount of $293,809 is requested for a project titled, "Ambient Air Monitoring and Analysis Plan for Tonawanda Community Air Quality Study." Funding in the amount of $292,305 is requested for a project titled, "Establishing an Ambient Mercury Baseline for New York State." We are proposing Project/Budget periods of October 1, 2005 through September 30, 2007 for the "Ambient Air Monitoring and Analysis Plan for Tonawanda Community Air Quality Study" and April 1, 2006 through March 31, 2008 for the "Ambient Air Monitoring and Analysis Plan for Tonawanda Community Air Quality Study."

We appreciate the assistance that USEPA provides to New York State for its Air Program. Please do not hesitate to contact Tony Zappala at (518) 402-8451 should you have questions or need additional information.

Sincerely,

Nancy W. Lussier, Director
Division of Management & Budget Services

Enclosures

cc: Mazeeda Khan, USEPA Reg. 2

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File: CMA Grant