Queens Clean Air Project

Request for Proposals

May 2004

A collaborative of:

Natural Resources Defense Council

New York Power Authority

New York Public Interest Research Group

New York State Department of Environmental Conservation

Northeast States Center for a Clean Air Future/

Northeast States for Coordinated Air Use Management (NESCCAF/NESCAUM)

Queens Borough President's Office

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Section I. Overview

Clean Air Communities (CAC) is a non-profit enterprise designed to reduce air pollution and advance the goals of environmental justice in urban communities. CAC is intended to serve as a national model for using market-based mechanisms to inspire and implement community-based clean air initiatives. This CAC initiative will support implementation of pollution control strategies in low-income communities and/or communities in northwest Queens that are disproportionately affected by air pollution.

The primary objectives of CAC include:

- implementing strategies that achieve near-term reductions in air pollution;
- designing market-based initiatives to reduce pollution consistent with environmental justice principles;
- advancing long-term, sustainable models for funding clean air projects; and
- building a coalition of diverse partners with a mutual interest in reducing urban air pollution.

Through this RFP process, CAC will administer up to $2.0 million, donated by the New York Power Authority (NYPA), to implement clean air strategies for selected community-based projects in New York City. CAC anticipates supplemental funding by additional corporate and philanthropic donors. In addition, once quantifiable pollution reductions have been achieved, project partners will collectively decide whether to explore emission reduction credit marketing as additional funding.

CAC's objectives for this project are overseen by a six-person steering committee, composed of representatives of the Natural Resources Defense Council (NRDC), NYPA, New York Public Interest Research Group (NYPIRG), New York State Department of Environmental Conservation (NYSDEC), Northeast States Center for a Clean Air Future (NESCCAF)[1], and the Queens Borough President's Office. Northeast States for Coordinated Air Use Management (NESCAUM) provides program administration, technical, and outreach staff support for CAC.

CAC seeks to help build coalitions and improve communication among air quality regulators, community groups, environmental and public health advocates, and the private sector with regard to forwarding environmental justice through market-based mechanisms. With this in mind, the Steering Committee will form an Advisory Group,

[1] NESCCAF is a research and educational organization affiliated with the Northeast States for Coordinated Air Use Management (NESCAUM).

consisting of interested community-based environmental organizations, civic associations, community boards, locally elected officials, as well as individual representatives of the Northwest Queens community. The Advisory Group, serving in a strictly voluntary role, will provide periodic input and direction regarding the program framework, offer program guidance to advance environmental justice and assist with program outreach and communications.

This Request for Proposals (RFP) solicits proposals from interested parties throughout New York City that will forward the goals and objectives of CAC. Qualifying submissions will receive funding from CAC to implement emission reduction strategies that deliver measurable emission reductions to the geographic area defined in the evaluation criteria section of this document. Proposed projects must present a strategy that achieves measurable air pollution reductions.

CAC encourages partnerships between community-based organizations, academic institutions, corporations and others who can advance the goals of environmental justice. Every proposed project must include participation from a community-based organization to be considered. Applicants are encouraged to include elements that advance community education; provide accurate monitoring of the resulting pollution reduction; and improve the understanding of air quality/public health challenges. Proposals that advance cost-effective, replicable reduction strategies within the defined boundaries of the Northwest Queens community will be favored. Rigorous data collection and documentation is required for all projects.

Representatives of organizations whose projects are accepted for funding by CAC will be required to provide quarterly documentation that implementation is proceeding consistent with the proposal, as well as an annual report to CAC summarizing the overall status of the project. Since it is possible that CAC projects will generate pollution reduction credits that could create revenue for future NYC pollution reductions, CAC, in collaboration with community-based organizations, will devote significant attention to issues related to emission trading and environmental justice.

Information about Clean Air Communities and RFP materials are available on the CAC web site:

http://www.cleanaircommunities.org

For Additional Information Contact:

NESCCAF / NESCAUM
101 Merrimac Street, 10th floor
Boston, MA 02114
Phone: 1-866-NESCAUM (toll free)

Clean Air Communities
P.O. Box 186
Bayport, NY 11705
Phone: 631-472-0011

E-mail: coordinator@cleanaircommunities.org

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Section II. Steering Committee Organizations

Natural Resources Defense Council
New York Power Authority
New York Public Interest Research Group
New York State Department of Environmental Conservation
Northeast States Center for a Clean Air Future /Northeast States for Coordinated Air Use Management
Queens Borough President's Office

Section III. Responding to the RFP

All formal responses to the RFP, in the form of a full proposal, are due on June 30, 2004. Because this is a new initiative in Queens, CAC will work with community groups, where appropriate, to offer technical assistance, guidance, and resources to translate viable project concepts into full proposals. All proposals are peer reviewed to ensure meaningful air pollution reductions and/or energy savings. Projects funded by CAC will be based on environmental, technical and economic merit, the basis of the project's ability to educate the affected community, the capability of each project partner to contribute toward project implementation, and important geographic criteria.

Important deadlines for responding to this RFP, as stated above, are as follows:

RFP:	Deadline:	June 30, 2004
	Notification:	Late Summer, 2004
	Submit:	Full-proposal
	Funding:	Up to $2.0 million

This RFP is available electronically on the CAC web site:

www.cleanaircommunities.org

CAC will provide resources, on an as needed basis, to New York City community groups in need of assistance in developing a full proposal and formally responding to the RFP.

Requirements:

Submissions in response to this RFP should be received by CAC at the address below by **5:00 p.m**. on June 30, 2004. Proposals that are not accepted will be returned with a full scoring and evaluation form to provide submitters with information about improvements that could enable future funding.

Respondents should submit two hard copies and an electronic version via e-mail, disk, or CD-ROM to NESCCAF / NESCAUM at the address below.

NESCCAF / NESCAUM

101 Merrimac Street, 10th Floor

Boston, MA 02114

Attn: CAC – QCAP RFP Response Coordinator

coordinator@cleanaircommunities.org

The applicant must commit to documentation of the strategy throughout its implementation. Brief quarterly reports to NESCAUM, identifying progress consistent with expectations for both timing and cost must be submitted. One year after receiving funding from CAC, the funded recipient must submit a comprehensive report detailing the extent of project implementation, related impacts (on air quality, public health, community awareness and other criteria factors), and economic status.

All projects that are awarded CAC funding will be posted on the CAC website with the related RFP submission. In addition, the results of the overall project and the success of individual strategies will be summarized in periodic reports and posted on the project website.

All information resulting from projects funded through CAC is the property of CAC and available for public dissemination.

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Section IV. Request for Proposal Submission Form

Overview:

This form serves as a guide in applying for CAC project funding. Potential strategies should be thoroughly described first in non-technical terms and then supported with technical explanations and data to the extent possible. Please keep your full RFP response to a maximum of 15 typed pages, excluding attachments. You may supplement this form with additional background materials as you deem appropriate and meaningful to the review process. Please contact either NESCCAF / NESCAUM toll-free at 1-866-NESCAUM or Clean Air Communities at 631-472-0011 with any questions or clarifications you may have in completing this proposal application form. Thank you again for your participation.

I. Proposal Summary (two-page, maximum):

Please provide an overview, including the purpose and the subsequent air quality benefits, of your proposed initiative. Also describe how this specific project will help achieve CAC's goals to improve air quality and advance environmental justice in New York City. Describe the community which will benefit from the proposed project. List the total amount of funding requested and, in general terms, how the funding will be used if a grant is awarded.

II. Environmental/Public Health Impacts:

A. Provide a detailed explanation of the environmental and/or public health objectives of the project. This could include identifying:

- the type and quantity of emission reductions that will be achieved
- the affected emission source(s) and the specific area(s) in which it operates
- the methodology for measuring ambient air quality levels, if applicable
- the improved documentation of existing public health problems, if applicable

B. If relevant, explain how the project will deliver other meaningful benefits, such as noise reduction, improved indoor air quality, reduced solid waste, or reduced traffic congestion.

III. Technical Elements

Provide a detailed explanation of the technology or process change that will deliver emission reductions, including the following points:

- Explain the methodology that will be used to measure the emission reduction impact and estimate the emission reduction that will be achieved for each affected pollutant. Describe your method for measuring an emission baseline and your expected emission reductions, for each affected pollutant.

- Identify the timeframe for the installation/execution of the reduction strategy, and the subsequent period over which emission reductions will be realized.

- If technical obstacles are possible, identify possible measures for overcoming them.

- Cite examples of the successful use of this reduction strategy, if known.

IV. Economic Factors:

Describe the cost for implementing the strategy and detail the funding requested by CAC as well as committed matching funds and partnerships that leverage the available resources. Such as:

- What is the total cost for implementing the strategy and the cost to CAC for the proposed project?

- If possible, provide an evaluation of the dollars spent per amount of pollution reduction.

- Describe the extent to which project partners are willing to cost-share or contribute in-kind services.

V. Community Considerations:

Describe how this particular project will directly benefit the local community. Also describe any potential barriers or obstacles anticipated to full implementation. Relate the extent to which the community supports this proposal and the ability to create a replicable model for implementation in additional areas.

- Will the proposed emission reduction impacts deliver benefits in a location consistent with CAC goals?

- Does the proposal include a community education component? Does the proposed project advance the public's awareness of related public health or clean air issues? In what way?

- Will the project continue to deliver benefits long after the period included in the proposal?

- Will the implementation of the proposed project provide leverage (e.g., contribute to economies of scale, improved awareness, improved infrastructure) that will increase the likelihood of similar projects occurring elsewhere in NYC?

VI. Project Management Capabilities:

Describe the project management team and provide examples of previous project management expertise. List the management and administrative resources available in order to complete the project described. For example, include:

- Do the sponsoring organization and the project partners have the internal resources necessary to effectively implement respective portions of the proposed project?

- Describe the contributions of the various project partners to provide the needed management and administrative resources.

- Detail your expected reporting and tracking process for documenting impacts to CAC.

VII. Implementation:

Projects must begin emission reduction efforts within 6 months of receiving funding from CAC. This could include the installment of the pollution control technology and initial emission reduction/air quality measurements. As the result of CAC funding, actual emission reductions should be achieved for as long a period of time as possible. Projects that achieve reductions of one or more target pollutants for at least one year will be receive greater consideration by the Steering Committee than those with shorter periods. Subsequent funding is possible for the extension of projects that have demonstrated success.

- Address these issues in describing your implementation plan.

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Section V. Additional Information

RFP submissions must present strategies that achieve measurable emission reductions within the geographic boundaries established by the project. Preference will be given to projects that include cost-sharing commitments from project partners. Qualified costs to be supported by CAC funding include equipment purchases, emission testing, subcontractors providing technical support, community training and outreach. CAC funding should not be used for an organization's general operational support.

Emission reductions of particular concern to CAC include ozone precursors (commonly referred to as NOx and VOCs), particulate matter (PM), and air toxics, such as benzene and formaldehyde. Brief explanations of these pollutants and their health impacts can be found in the attached "health impacts of air pollutants" fact sheet.

The strategy can address emission reductions from a variety of pollution source categories: stationary sources, area sources, and mobile sources. Stationary sources are those that pollute the air from a fixed location, such as a boiler, a generator or a municipal waste combustor.

The mobile source category is composed of cars and trucks (including personal vehicles and business fleets, such as those operated by taxi companies or delivery companies), as well as lawn mowers, construction equipment, airplanes and anything else that moves and puts pollution into the air. Area sources are typically smaller in size but larger in number than stationary sources. Examples of area sources include dry cleaners and degreasing operations and many consumer products, such as paint, motor oil, and fertilizer.

Emissions can be reduced from the sources described above using strategies that either reduce emission rates or improve efficiency. A third pollution reduction approach relies on the ability of natural sources to remove pollution from the air or prevent the precursor emissions from chemically combining to form pollution. These "sequestration" strategies, like tree planting, are more difficult to align with the RFP requirements because of the difficulty in measuring pollution reductions and air quality improvements.

A strategy will be a good candidate for CAC funding if it identifies a specific source or sources of emissions, explains the negative air impact of the source, and describes a

means for reducing emissions from the source. The air quality benefit of this reduction should be clearly quantified and presented to the extent practicable. The cost of implementing the strategy should be estimated, with as much supporting information as possible to explain the cost.

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Section VI. Evaluation Criteria For Funding

The emission reduction strategies will be selected based on environmental and energy criteria, technical feasibility, cost effectiveness, community benefits, potential for replication, project management experience, and geographic criteria that have been established with input from the Steering Committee. Each criteria is given equal weight in the scoring process. The following outline provides an overview of the key factors the Steering Committee will use in evaluating RFP submissions.

I. ***Environmental and Energy criteria:*** Projects should be able to quantify reductions of target pollutants and/or savings realized from emission reduction, alternative energy and energy efficiency strategies. Typically, a single reduction strategy will reduce multiple pollutants, each of which should be quantified. CAC endorses the use of standard baseline emission levels estimates from existing sources and engineering and design estimates to quantify the potential project emission reductions. In some instances, the ability to quantify emission reductions may require measurement of both baseline emission levels from the target sources, and, after modification to the sources, the new, lower emission levels. A similar process should be followed to document the effectiveness of alternative energy and energy efficiency strategies. The environmental and energy benefit of each project will be reviewed in terms of the total estimated pollution reduction and energy savings realized. Project proposals will be evaluated against CAC's goal of delivering air quality and energy efficiency benefits to people living in communities disproportionately affected by air pollution.

In addition to quantifying actual emission reductions and energy savings, proposed projects could also improve the available information regarding the current adverse air quality or public health levels being experienced by a target population. The ability to eliminate an existing information gap will be advantageous to a proposal.

II. ***Technical feasibility criteria:*** Projects should rely on technologies that have been demonstrated to be effective in achieving the target emission reductions or energy efficiency gains. Technology that is simple to install, operate and maintain will likely provide more reliable benefit to the community over time. It will be important to be able to practically implement the project and realize actual emission reductions and/or energy savings in a timely fashion.

III. ***Economic criteria:*** Projects should achieve cost-effective emission reductions and/or energy efficiency gains. This will be evaluated in three ways. The overall cost-effectiveness of the strategy should be expressed in terms of dollars spent per pound of emission reduced. In other words, if a strategy has incurred a total cost of $5,000 and measured reductions from the strategy equal 1,000 pounds, then the overall cost-effectiveness is equal to ($5,000/1,000 lbs.), or $5 per pound. The lower the cost per pound of reduction achieved, the more cost-effective the strategy. Total anticipated energy efficiency gains over baseline will also be considered (i.e. a 20% reduction in total energy consumption is anticipated). Finally, cost-sharing will also be a key consideration. To the extent that the project includes other partners who are able to provide additional funding (matching funds) or provide equipment or expertise at reduced costs (in-kind contributions), the project becomes more desirable for funding by CAC. Many of CAC's funded projects leverage 50 to 100 percent additional funding in this manner.

IV. ***Community criteria*:** Projects should not only provide environmental and energy efficiency benefits to a target community, they should also be informative for members of the community and forward awareness of air quality and energy issues and transfer knowledge capital to the community at large. Projects can devote resources to informing local residents about the health issues relating to air pollution and the benefits of the particular project. For example, strategies such as energy efficiency improvements could be substantially enhanced by efforts to positively influence individual behavior and purchasing decisions.

V. ***Replicability:*** Projects should generate experience and information that will assist other communities in their efforts to reduce air pollution and improve local health. Applicants should explore the ability to replicate the project, and committed resources, to additional sites.

VI. ***Project management criteria:*** The proposed project team will be evaluated for its ability to deliver the outcome presented in the proposal. All organizations that are relevant to the successful completion of the project should submit a demonstration of their commitment to the project and their ability to execute their respective responsibilities

VII. ***Geographic criteria:*** To be eligible for funding, projects must be situated within the borough of Queens. Projects providing environmental and energy efficiency benefits in northwest Queens will receive highest consideration. For this criteria, northwest Queens shall be defined as an area encompassing a 1, 2, and 5 mile radius from the NYPA Astoria facility. Projects situated that

lie outside this perimeter but within the borough of Queens will be given next highest consideration.

Projects that seek to address emissions from mobile sources (i.e. transit fleets, school buses, refuse vehicles), will be evaluated based upon the location of the fleet depot and primary operating routes. For example, project fleets based in northwest Queens operating within northwest Queens will be viewed upon more favorably by the steering committee than project fleets that spend a significant amount of operating time in other areas of the borough or outside the borough altogether.

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Section VII. Health Impacts of Air Pollutants Fact Sheet

Ozone and its Precursors: NOx and VOCs

Ozone is a form of molecular oxygen that consists of three oxygen atoms linked together. Ozone in the upper atmosphere (the "ozone layer") occurs naturally and protects life on earth by filtering out ultraviolet radiation from the sun. But ozone at ground level is a noxious pollutant. It is the major component of smog and presents this country's most intractable urban air quality problem.

Ozone is a severe irritant. It is responsible for the choking, coughing, and stinging eyes associated with smog. Ozone damages lung tissue, aggravates respiratory disease, and makes people more susceptible to respiratory infections. Children are especially vulnerable to ozone's harmful effects, as are adults with existing disease. But even otherwise healthy individuals may experience impaired health from breathing ozone-polluted air.

Elevated ozone levels also inhibit plant growth and can cause widespread damage to crops and forests. Unhealthy ozone levels are a problem across the United States, with nearly 100 cities exceeding the U.S. Environmental Protection Agency (EPA) National Ambient Air Quality Standard. The standard is based on the highest ozone exposure sensitive persons can tolerate. Nine cities, home to 57 million people, are considered "severely" polluted, experiencing peak ozone levels that exceed the standard by 50% or more.

Ozone is not emitted directly but is formed in the atmosphere through a complex set of chemical reactions involving hydrocarbons, oxides of nitrogen, and sunlight. The rate at which the reactions proceed is related to both temperature and intensity of the sunlight. Because of this, problematic ozone levels occur most frequently on hot summer afternoons.

Hydrocarbons and nitrogen oxides come from a great variety of industrial and combustion processes. In typical urban areas, at least half of those pollutants come from cars, buses, trucks, and off-highway mobile sources such as construction vehicles and boats.

The Clean Air Act of 1970 gives primary responsibility to state and local governments for regulating pollution from power plants, factories, and other "stationary sources."

EPA has primary responsibility for regulating "mobile sources," which include cars, trucks, buses, and aircraft.

The EPA vehicle emission control program has achieved considerable success in reducing both nitrogen oxide and hydrocarbon emissions. Cars coming off today's production lines typically emit 70% less nitrogen oxides and 80% to 90% less hydrocarbons over their lifetimes than their uncontrolled counterparts of the 1960s. The improvement came about in response to stringent regulations, which required auto manufacturers to develop systems capable of capturing excess gasoline vapors and cleansing tailpipe emissions.

Ozone levels in many cities have come down with the introduction of lower volatility gasoline and as newer cars with improved emission control systems replaced older models. But although there has been significant progress since 1970 in reducing emissions per mile traveled, the number of cars on the road -- and the miles they travel almost doubled in the same time frame.

A second reason that ozone levels remain high is that emission control systems do not always perform as designed over the full useful life of the vehicle. Routine aging and deterioration, poor state of tune, and emission control tampering can all increase vehicle emissions. In fact, a major portion of ozone-forming hydrocarbons can be attributed to a relatively small number of "super-dirty" cars whose emission control systems are not working properly.

Unless we dramatically reduce the amount of pollution vehicles emit in actual use, or drastically cut back on the amount we drive, smog-free air will continue to elude many cities.

EPA believes that control of hydrocarbon and nitrogen oxide emissions is the most promising strategy for reducing ozone levels in most urban areas. Toward that end, the federal government will establish more stringent limits on gasoline volatility, control hydrocarbon vapors that evaporate during vehicle refueling, tighten tailpipe emission standards, and require improvements in Inspection and Maintenance programs. EPA also is developing requirements for "warning systems" on all cars to alert drivers when the emission controls malfunction.

In the most polluted cities, however, these measures will not be sufficient. The only way to ensure healthy air is to markedly reduce our use of cars or to switch to fuels that are inherently cleaner than conventional gasoline.

EPA 400-F-92-006 (January 1993)
Fact Sheet OMS-4

Particulate Matter

Particulate matter (PM) is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (larger than 2.5 micrometers) come from a variety of sources including windblown dust and grinding operations. Fine particles (less than 2.5 micrometers) often come from fuel combustion, power plants, and diesel buses and trucks. These fine particles are so small that several thousand of them could fit on the period at the end of this sentence. They are of health concern because they easily reach the deepest recesses of the lungs. Numerous scientific studies have linked particulate matter, especially fine particles (alone or in combination with other air pollutants), with a series of significant health problems, including:

- Premature death
- Respiratory related hospital admissions and emergency room visits
- Aggravated asthma
- Acute respiratory symptoms, including aggravated coughing and difficult or painful breathing
- Chronic bronchitis
- Decreased lung function that can be experienced as shortness of breath; and
- Work and school absences.

Studies estimate that tens of thousands of elderly people die prematurely each year from exposure to ambient levels of fine particles. Studies also indicate that exposure to fine particles is associated with thousands of hospital admissions each year. Many of these hospital admissions are elderly people suffering from lung or heart disease. Breathing fine particles can also adversely affect individuals with heart disease, emphysema, and chronic bronchitis by causing additional medical treatment. Inhaling fine particulate matter has been attributed to increased hospital admissions, emergency room visits and premature death among sensitive populations.

The average adult breathes 13,000 liters of air per day; children breathe 50 percent more air per pound of body weight than adults. Because children's respiratory systems are still developing, they are more susceptible to environmental threats than healthy adults. Exposure to fine particles is associated with increased frequency of childhood illnesses, which are of concern both in the short run, and for the future development of healthy lungs in the affected children. Fine particles are also associated with increased respiratory symptoms and reduced lung function in children, including symptoms such as aggravated coughing and difficulty or pain in breathing. These can result in school absences and limitations in normal childhood activities.

More and more people are being diagnosed with asthma every year. Fourteen Americans die every day from asthma, a rate three times greater than just 20 years ago. Children make up 25 percent of the population, but comprise 40 percent of all asthma cases. Breathing fine particles, alone or in combination with other pollutants, can aggravate

asthma, causing greater use of medication and resulting in more medical treatment and hospital visits.

Particulate matter originates from a variety of sources, including diesel trucks, power plants, wood stoves and industrial processes. The chemical and physical composition of these various particles vary widely. While individual particles cannot be seen with the naked eye, collectively they can appear as black soot, dust clouds, or grey hazes.

Those particles that are less than 2.5 micrometers in diameter are known as "fine" particles; those larger than 2.5 micrometers are known as "coarse" particles. Fine particles result from fuel combustion (from motor vehicles, power generation, industrial facilities), residential fireplaces and wood stoves. Fine particles can be formed in the atmosphere from gases such as sulfur dioxide, nitrogen oxides, and volatile organic compounds. Coarse particles are generally emitted from sources such as vehicles traveling on unpaved roads, materials handling, and crushing and grinding operations, and windblown dust.

Air pollutants called particulate matter include dust, dirt, soot, smoke and liquid droplets directly emitted into the air by sources such as factories, power plants, cars, construction activity, fires and natural windblown dust. Particles formed in the atmosphere by condensation or the transformation of emitted gases such as SO_2 and VOCs are also considered particulate matter. Based on studies of human populations exposed to high concentrations of particles (sometimes in the presence of SO_2) and laboratory studies of animals and humans, there are major effects of concern for human health. These include effects on breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular disease, alterations in the body's defense systems against foreign materials, damage to lung tissue, carcinogenesis and premature death. The major subgroups of the population that appear to be most sensitive to the effects of particulate matter include individuals with chronic obstructive pulmonary or cardiovascular disease or influenza, asthmatics, the elderly and children. Particulate matter also soils and damages materials, and is a major cause of visibility impairment in the United States.

Air Toxics

Toxic air pollutants are also referred to as air toxics or hazardous air pollutants (HAPs). They are generally defined as those pollutants that are known or suspected to cause serious health problems. "Routine" toxic air pollutants are emitted by a variety of industrial sources and motor vehicles.

Toxic air pollutants may exist as particulate matter or as vapors (gases). Toxic air pollutants include metals, other particles, gases adsorbed on to particles, and certain vapors from fuels and other sources. An example of such a pollutant is the chemical benzene, which is in gasoline.

EPA has focused most of its air toxics efforts to date on carcinogens, which are compounds that cause cancer. Non-cancer health effects such as reproductive and neurological problems are also of concern to EPA.

How dangerous are air toxics? It's hard to say. Some air toxics have been proven to cause cancer in humans. However, most air toxics are identified through laboratory experiments in which animals receive very high doses of the compound being studied. People almost never breathe such high doses. But lower exposures may still pose risks.

source: US EPA's website: www.epa.gov

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Section VIII: Example RFP Submission

Described below is sample version of a completed RFP intended to provide guidance regarding appropriate RFP responses. This is only a sample designed as an informational and assistance tool. This is not intended to serve as an ideal submission but simply an example of a positive RFP response.

I. PROPOSAL: 15 pages maximum

A Proposal Summary

Please summarize the purpose of your project. Explain what outcomes you hope to achieve, and how you will spend the funds if a grant is awarded.

Ten diesel garbage trucks operated by private waste hauler company will be modified to reduce their air emissions. Affected trucks operate on one of five routes in [disproportionately affected community] [*actual proposal would include attached map*]. Emission reductions will be achieved through the installation of diesel oxidation catalysts (DOCs) that have been widely shown to reduce emissions of NO_x by 30%, PM by 90%, CO by 80% and VOCs by 20%. These reductions will provide a direct public health benefit to the residents in [disproportionately affected community]. Baseline emission levels will be calculated for the affected vehicles. The resulting reduced emission levels will be recorded after the modifications have been completely implemented. CATALYST MANUFACTURER, a major manufacturer of DOCs, has committed to providing the needed catalysts at-cost and will work with private waste hauler company to complete installation of the catalysts on the ten trucks within a two-month period at no cost. Private testing lab has committed to providing testing of the docs at reduced rates that will result in a 30% savings on the typical cost of this type of testing.

Upon completion of the installation, the converted trucks will be fitted with 2' x 3' signs on both sides, displaying the CAC logo and the names of the four groups participating in this project. This will serve two purposes. First, it will help educate the community about the existence of CAC and this emission reduction strategy. Second, it will provide recognition in the community for the participating groups. Because each of the trucks has an expected remaining useful life of at least seven years and the useful life of the

diesel oxidation catalysts is estimated at ten years, the emission reductions from this strategy can be expected to continue to accrue to the community for at least seven years.

The requested $100,000 will fund the cost of the ten DOCs ($6,000 each), and the cost of producing the signs for the ten trucks ($1,000 each). $20,000 will be used for the testing of the vehicles for two years. The remaining $10,000 will be applied to direct project support costs at non-profit name, inc.

B Environmental/Public Health Impacts

1. *Provide a detailed explanation of the environmental and/or public health objectives of the project. This could include identifying:*
    - *the type and quantity of emission reductions that will be achieved*
    - *the affected emission source(s) and the specific area(s) in which it operates*
    - *the methodology for measuring ambient air quality levels, if applicable*
    - *the improved documentation of existing public health problems, if applicable*

Heavy-duty diesel vehicle use is a highly-visible source of air pollution that affects residents and workers in New York City and many other densely populated urban areas. These vehicles include transit buses, delivery vehicles and garbage trucks. The diesel engines that operate in these sources typically have very long useful lives (i.e. 200,000 to 1,000,000 miles), therefore, requirements from the Environmental Protection Agency (EPA) for cleaner new engines are slow to have a major impact on reducing emissions from the overall fleet. The existing engines typically have relatively high emission rates and operate in very close proximity to pedestrians.

Motor vehicles emit several pollutants that EPA classifies as known or probable human carcinogens. Benzene, for instance, is a known human carcinogen, while formaldehyde, *acetaldehyde, 1,3-butadiene and diesel particulate matter are probable human carcinogens. Studies are underway to determine whether other toxic substances are present in mobile source emissions.

EPA estimates that mobile (car, truck, and bus) sources of air toxics account for as much as half of all cancers attributed to outdoor sources of air toxics. This estimate is not based on actual cancer cases, but on models that predict the maximum number of cancers that could be expected from current levels of exposure to mobile source emissions.

2. *If relevant, explain how the project would deliver other meaningful benefits, such as noise reduction, improved indoor air quality, reduced solid waste, or reduced traffic congestion*

Diesel oxidation catalysts installed in exhaust systems help reduce noise. They either supplement or replace exhaust mufflers.

C Technical Elements

1. *Provide a detailed explanation of the technology or process change that will deliver emission reductions*

A diesel oxidation catalytic converter consists of a stainless steel canister that typically contains a honeycomb-like structure called a substrate or catalyst support. There are no moving parts, just extensive interior surface area on the substrate coated with catalytic precious metals such as platinum or palladium. It is called an oxidizing catalyst because it transforms (catalyzes) pollutants into harmless gases through a chemical reaction (oxidation). In the case of diesel exhaust, the catalyst oxidizes carbon monoxide (CO), gaseous hydrocarbons (HCs), and the liquid hydrocarbons adsorbed on the carbon particles. The liquid hydrocarbons are referred to as the soluble organic fraction (SOF) and make up part of the total particulate matter.

Combining an oxidation catalyst with engine management techniques can be used to reduce NOx emissions from diesel engines. This is achieved by adjusting the engine for low NOx emissions. Although this is typically accompanied by increased CO, HC, and particulate emissions, the DOC will offset these increases, thereby delivering a net reduction in all of the pollutants. A system which uses an oxidation catalyst combined with proprietary ceramic engine coatings and injection timing retard to provide over a 40 percent NOx reduction while maintaining low particulate emissions has been approved under EPA's urban bus rebuild/retrofit program.

2. Cite examples of the successful use of this reduction strategy, if known

Oxidation catalysts have also been installed on over 1.5 million new heavy-duty highway trucks since 1994 in the U.S. These systems have operated trouble free for hundreds of thousands of miles.

Data on emission reductions attributable to oxidation catalysts are available from several sources, including test results that were provided to EPA by emission control manufacturers as part of the Urban Bus Program, and information on catalyst function from engine manufacturers and emission control equipment manufacturers. Four articles have been published in journals of the Society of Automotive Engineering (SAE) that present data on emission reductions achieved by the retrofitting of urban buses and trucks with oxidation catalysts.

The use of DOC technology is increasing. Over 250,000 diesel powered off-road engines worldwide have been equipped with catalysts. Catalysts have been used on forklift trucks and underground mining and construction vehicles among other types of vehicles. Oxidation catalysts have been used on bus engines to meet the urban bus engine standards. Today, virtually all new urban buses are being factory equipped with oxidation catalysts. Mercedes Benz has introduced the 1995 E 300 diesel sedan equipped with a diesel oxidation catalyst which meets the stringent California 0.08 gpm particulate standard. In Europe, over 1,000,000 diesel automobiles annually are being equipped with catalysts. Operating experience with oxidation catalysts on a variety of different vehicles can now be considered mature and the experience has proven the technology to be reliable both from an emissions point of view as well as durability point of view. A growing number of companies are involved in developing and applying catalyst technology to diesel engines. These companies include Corning Incorporated, Degussa Corp., Engelhard, Engine Control Systems, Ltd., Johnson Matthey/Emissionsteknik,

International Catalyst Technology, Inc., NGK-Locke, Walker Manufacturing, Inc. and others.

3. *Explain the methodology that will be used to measure the emission reduction impact of the strategy and estimate the emission reduction that will be achieved for each pollutant affected by the strategy.*

A. Baseline

While it is possible to measure actual baseline emission levels for the ten targeted trucks, the cost of this baseline testing would substantially increase the financial requirements for this project. Therefore, data for these engines generated during EPA Federal Test Procedure (FTP) certification tests will be used as default baseline emission levels. This baseline data will not account for emissions deterioration that may occur over time as vehicles age and thus the baseline emissions levels for these vehicles will be conservative. Current baseline estimates correspond to approximately 31 lbs./year of PM emissions; 1,400 lbs./year of NOx; 15 lbs./year of VOCs; and 62 lbs./year of CO.

B. Emission Reductions

Each catalyst will be tested once a year. Four times each year, the catalysts from a subset of the affected trucks will be removed and sent to a regional testing facility where it will be attached to a test engine for emission testing. (While the catalysts are being tested, replacement catalysts will be installed on the affected trucks so the emission reductions will continue to be achieved.) This test engine will be the same type used by the affected New York City garbage trucks (i.e., a Mack E-7 engine). Emission levels and fuel economy are influenced by a number of factors, such as acceleration rates, braking distance and amount of idle. Taken together, these factors describe the "drive cycle" for an engine. The test engine will be operated to replicate the drive cycle of the New York City garbage trucks, allowing the emissions measurement and data acquisition systems to capture the in-use emissions from the catalyst.

In addition to emissions testing, backpressure measurements will be taken during field testing to ensure that retrofit equipment is not increasing backpressure beyond manufacturer specifications in retrofitted engines.

The same warranty that is required under the EPA Urban Bus Program will be supplied by CATALYST MANUFACTURER. It reads:

> As a condition of certification the retrofit/rebuild equipment certifier shall warrant that if the certified equipment is properly installed and maintained as stated in the written instructions for proper maintenance and use, the equipment will not cause a (vehicle) engine to exceed the emission requirements of this subpart and the emission standards set forth in 40 CFR part 86. This retrofit/rebuild equipment warranty shall extend for (number of miles to be specified). (b) As a condition of certification, the retrofit/rebuild equipment certifier shall provide an

emissions defect warranty that if the certified equipment is properly installed and maintained as stated in the written instructions for proper maintenance and use, the equipment certifier will replace all defective parts, free of charge. This emissions defect warranty shall extend for a period of (number of miles to be specified) miles from when the equipment is installed.

The projected emission reduction impact from this strategy is roughly 248 lbs. of PM; 4,200 lbs. of NOx; 120 lbs. of VOCs; and 496 lbs. of CO.

4. Identify the timeframe for the installation/execution of the reduction strategy, and the subsequent period over which emission reductions will be realized.

Upon receiving approval from CAC for this submission, NON-PROFIT NAME, Inc. will place the order for the ten DOCs with CATALYST MANUFACTURER, and inform PRIVATE WASTE HAULER COMPANY of the need to schedule the ten target vehicles for DOC installation. CATALYST MANUFACTURER has indicated that delivery will follow within four weeks of the order; installation for the ten target vehicles will take two weeks. Therefore, all ten vehicles should be able to begin delivering their respective benefits within six weeks. As indicated above, these benefits should continue to be delivered to the community for ten years.

5. If technical obstacles are possible, identify possible measures for overcoming them.

The sulfur content of diesel fuel is critical to the effectiveness of the catalyst technology. The lower the sulfur content in the fuel, the greater the opportunity to maximize the effectiveness of oxidation catalyst technology. Catalysts used to oxidize the SOF of the particulate can also oxidize sulfur dioxide to form sulfates, which is counted as part of the particulate. This reaction is not only dependent on the level of sulfur in the fuel, but also the temperature of the exhaust gases. The low sulfur fuel (0.05% wt) which was introduced in 1993 throughout the U.S. has facilitated the application of catalyst technology to diesel-powered vehicles. Therefore, sulfur levels in NYC diesel fuel will not interfere with the effectiveness of the DOC strategy.

D Economic Factors

1. What is the total cost for implementing the strategy and the cost to CAC for the proposed project?

Under normal market circumstances, the total cost of this project would equal about $150,000. This includes the retail price of the DOCs, the installation cost to retrofit the 10 trucks, the emission measurement costs for one year, and project management. Due to the cost-sharing and in-kind commitments made by the project participants, the actual cost to CAC for this project will be $100,000.

2. Is the affected source(s) a willing partner?

Yes, both PRIVATE WASTE HAULER COMPANY and CATALYST MANUFACTURER are committed to implementing the project as described in this proposal, as evidenced by the attached statements of intent.

3. *Are project partners willing to cost-share or contribute in-kind services?*

Yes. PRIVATE WASTE HAULER COMPANY is allowing ten of its trucks to be modified with the catalysts and tested, consistent with the methodology described above. CATALYST MANUFACTURER has committed to providing ten diesel oxidation catalysts at-cost. Together, representatives of the two companies will contribute install the catalysts as an in-kind service.

E Community Considerations

1. *Will the proposed emission reduction impacts deliver benefits in a location consistent with CAC goals?*

Yes. The target community's demographic profile places it….[*actual proposal would include statistical information regarding average income, education, unemployment, ethnic mix, and other facts that are relevant to characterizing the community*].

2. *Does the proposal include a community education component? Does the proposed project have the potential to attract significant, positive media attention and visibility?*

People living and working along the affected routes will see the signage on the affected vehicles and will experience the reduced emissions and noise from the affected vehicles. While the project has the potential to attract positive media attention and visibility, these goals are not explicitly part of the strategy.

3. *Will the project continue to deliver benefits long after the period included in the proposal?*

Yes. The trucks that will be receiving the diesel oxidation catalysts will have remaining useful lives of at least seven years; the catalysts themselves have been demonstrated to have lifetimes well in excess of seven years. Therefore, emission reductions can be expected to continue for at least seven years after the installation of the catalysts is complete.

4. *Will the implementation of the proposed project provide leverage (e.g., contribute to economies of scale, improved awareness, improved infrastructure) that will increase the likelihood of similar projects occurring elsewhere in NYC?*

The likelihood of similar projects being implemented as the result of this project will be dependent upon the level of community pressure that could be placed on other operators as the community begins to appreciate the benefits of this strategy.

5. *Is community resistance to implementation likely to be encountered?*

No. The community will benefit from the reduced emissions every day and will therefore be supportive of the project.

6. *Does the proposal advance the public's awareness of related public health or clean air issues?*

The community will benefit from the reduced emissions and noise associated with the operation of these ten trucks. Any direct or indirect benefit to public health (e.g., reduced asthma events) will not be measured as part of this project, so quantitative data will not be presented to the public.

F Project Management Capabilities

1. *Do the sponsoring organization and the project partners have the internal resources necessary to effectively implement their respective portions of the proposed project?*

Yes, see attached financial information [*not attached here; actual submission would include staffing and budget information for each participating organization*].

2. Do all project partners have the internal resources to effectively participate?

Yes, see attached letters of commitment from each of the project partners [*not attached here*].