## 1. PROJECT SUMMARY PAGE:

**a. Title:** St. Louis Air Quality Management Plan

**b. Applicant Info:** Missouri Department of Natural Resources,
Air Pollution Control Program
P.O. Box 176, Jefferson City, MO 65102-0176

**c. State Project Manager:** Jeff Bennett- Telephone number (573) 751-4817
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**d. Funding Requested:** $274,968 (total project cost)

**e. Project Period:** October 1, 2008 to September 30, 2012

## f. Project Abstract/Summary:

Air pollution is one of the major health issues that affect citizens. It causes multiple health concerns for children, the elderly, and individuals with respiratory problems. An estimated two (2) million people live and work in the St. Louis Missouri and Illinois bi-state metropolitan area. This area is currently a nonattainment area for the eight (8) hour Ozone and the annual fine particulate matter (PM 2.5) standards. There is also a lead nonattainment area associated with a lead smelter in Jefferson County, which is one of the counties making up the St. Louis nonattainment area for ozone and PM.

The U.S. Environmental Protection Agency (EPA) recently requested state agencies to volunteer to undertake a pilot project to establish partnerships with EPA and affected local communities to develop an innovative approach to air quality management. The states of Missouri and Illinois have volunteered to undertake this task for the St. Louis area which was selected as one of three areas nationally to participate in this pilot project. The project will explore a new approach for developing and integrating all existing State Implementation Plan (SIP) requirements into one comprehensive Air Quality Management Plan (AQMP). The plan will also look to encompass additional air quality issues not typically addressed during conventional SIP development such as climate change, smart growth planning, energy efficiency, and hazardous air pollutant exposure. The states of Missouri and Illinois in cooperation with EPA's Regions V & VII, St. Louis County, the City of St. Louis and other local stakeholders, are undertaking this project to develop an AQMP in the St. Louis Metropolitan area. Once established, the St. Louis area AQMP will be a useful tool that can then be used as a national model for other state and local agencies to use in the development of future AQMPs.

## g. Statutory Authority and Flexibility:

**Clean Air Act, Section 103 (b) (3) (42 U.S.C. 7403 (b) (3).**

## h. Certification of State Agency Support:

The Director of the Missouri Department of Natural Resources, Mr. Doyle Childers, is aware of and endorses this proposal. If this proposal is selected, a letter of endorsement will be provided with the work plan.

## 2. PRE-PROPOSAL PROJECT NARRATIVE:

### a. Problem Statement:

The current requirements for the submittal of SIPs require many components for each plan. Each of the plan requirements can take many months to develop and, in the past, states have been required to perform similar sets of duplicative tasks for nonattainment areas impacted by more than one pollutant. This problem causes difficulties for each state regulatory agency (limited staff resources and duplication of effort required) and on the regulated community due to uncertain air emission control requirements. The inclusion of air toxics as a component of the AQMP will allow for another evaluation of human exposure that is currently missing in the overall air protection mission in St. Louis. A comprehensive AQMP will allow for considerably less duplication of effort and more effective resource management for each area that utilizes such a plan.

### b. Background:

One of the possible changes to the submittal process that has been recommended by the Clean Air Act Advisory Committee (CAAAC) is to develop an AQMP to include all pollutants of interest for each area. This group is the primary outside advisor to USEPA on matters of Clean Air Act compliance. Each AQMP will prioritize the problems within each state/area and will allow for the affected communities to have a direct impact of the results of the submittals to USEPA. The USEPA Office of Air Quality Planning and Standards requested volunteers to develop pilot AQMPs for three areas in the country. The states of Illinois and Missouri have volunteered to develop one of these pilots for the St. Louis airshed.

The state of Missouri has completed dozens of SIP submittals since the Clean Air Act was passed. Each SIP submittal requires a series of technical steps including the study of previous meteorological events that cause nonattainment in a given area, the development of emission inventory for all relevant sources in the area and beyond, the consideration of regional and local controls that help the area demonstrate compliance with the applicable air quality standard, and the evaluation of ambient air quality monitoring/modeling data to ensure continued compliance with the standard(s). These submittals have required years and years of effort for plans in the St. Louis area and we are very interested in starting a new paradigm for the development of these plans in the St. Louis community.

St. Louis is a bi-state nonattainment area for ozone (O3) and fine particulate matter (PM2.5) that includes 8-counties in the states of Missouri and Illinois: (1) Franklin County, MO; (2) Jefferson County, MO; (3) St. Charles County, MO; (4) St. Louis County, MO; (5) St. Louis City, MO; (6) Madison County, IL; (7) Monroe County, IL; and (8) St. Clair County, IL. There is also a nonattainment area for lead in Jefferson County which is associated with a local lead smelting facility. Both St. Louis County and St. Louis City have local air quality management organizations that are stakeholders in the development of state plans for the St. Louis area. In addition, there are several other stakeholders that have been active in the SIP development process: the East-West Gateway Coordinating Council, the Regional Commerce and Growth Association, the American Lung Association, the Coalition for the Environment, the Missouri and Illinois Departments of Transportation, and others.

In general, the development of SIPs for the St. Louis area follows a very rigorous and technically advanced planning exercise that could be expedited with the inclusion of more than one pollutant during development. Also, the lack of a consistent methodology to conduct public outreach is an on-going problem that will be addressed by this new plan. In addition, the use of a consistent and comprehensive AQMP will allow for all stakeholders to be involved at every point in the process including the EPA Regional Offices.

An on-going study of air toxics in St. Louis is still underway. The St. Louis academic and environmental community started a group in 2004-05 that has conducted monitoring studies of the area. One of these studies produced a report titled "St. Louis Community Air Project Air Toxics Risk Characterization" (CAP Report). The report was a direct result of the region's attempt to address environmental concerns expressed by residents, workers and business owners in St. Louis. Specific air toxics of concern to the community cited in the report included five "priority air toxics of concern": acetaldehyde, arsenic compounds, benzene, chromium compounds and formaldehyde. It also listed a concern with diesel particulate matter.

**c. Project Objectives:**

The development and subsequent use of an AQMP in St. Louis is the overall objective of this project. This means that some of the work necessary to develop this plan including the draft work plan, summary of current status, and the development of a conceptual model for the area will have been completed or near completion by the time of this grant award. However, the bulk of the plan development will take place after October 2008 and funding for the development of tools to use in the AQMP exercises will be necessary. These include the creation of a model-ready criteria pollutant and toxics emission inventory for a future modeling base year (e.g. 2008). This will require the modification of our existing inventory collection system through a contract and the use of contract labor along with state staff resources to develop and manipulate the available inventory data for inclusion in the technical planning documents for future PM2.5 and ozone SIP development. The final outcome of this project will be a series of SIP submittals that consider all the relevant priorities identified in the AQMP development. These will likely include: (1) NAAQS compliance, (2) air toxics exposure, (3) smart growth/land use planning, (4) climate change inventories, and (5) energy planning issues. One other objective is to ensure continued participation from all stakeholders in the area including citizens, industry representatives, local elected officials, and environmental groups.

**d. Methodology or Technical Approach:**

The state of Missouri, in cooperation with the state of Illinois, EPA Regions V and VII, St. Louis County, and the City of St. Louis, is undertaking the development of an AQMP for the St. Louis metropolitan area. The outcomes of this plan will include a new and innovative approach to air quality regulation and will serve as a template that can be used for other multi-state areas. The goals for the plan include:

(1) The completion of all required SIP submittals for compliance with the National Ambient Air Quality Standards (ozone, fine particulates, and lead),
(2) The inclusion of air toxics exposure as a metric for consideration of alternative control requirements for any and all applicable NAAQS,
(3) The incorporation of extensive community involvement in the decision-making process including the regulated and environmental communities,
(4) Consideration of other ancillary air quality issues in the development of SIP submittals including smart growth/transportation planning and climate change.

The following table illustrates the schedule for the development of the St. Louis AQMP and is included for reference purposes.

| Task | Product | Schedule |
|---|---|---|
| 1 | Work Plan | January 15, 2008 |
| 2 | Summary of Current Status | March 2008 |
| 3 | Conceptual Model | July 2008 |
| 4 | Additional Analyses for Efforts Affecting Air Quality | September 2008 |
| 5 | Air Quality Management Plan | December 2009 |
| 6 | Development of Technical Analysis Tools | Dec. 09–Sept. 2012 |

The first steps in the development process are already underway including the development of draft work plans by both Illinois and Missouri. Staff from Missouri has already spent a considerable amount of time developing contacts and establishing close working relationships with interested stakeholders. Using these contacts, one of the primary means to ensure continued participation will be to host a series on meetings to address concerns from all stakeholders during the AQMP development process and continue to hold those meetings as the next generation of SIPs is developed.

After the creation of the AQMP, the first task will be to advance and perfect the current air toxics inventory for area, point, and mobile sources in the state of Missouri. The manipulation of our current facility emission inventory collection system will be a priority for that effort and will need the assistance of a contractor for system code changes. These changes will allow for better quality assurance of the air toxics inventory and enhance the development of model-ready emission files for inclusion in the photochemical modeling analyses. The area and mobile source toxic inventories will rely on current staff and the use of contractors for their development. The new and innovative portions of this methodology include the consideration of multiple pollutants and other ancillary factors come with a price of additional up-front resources and an on-going commitment to accomplish the goals of the plan. The overall methodology does not change from the previous SIP development exercises, but the emphasis and inclusion of many different perspectives will increase the overall efficiency and impact on air quality within the St. Louis area. This project will have an impact not only on the stakeholders, citizens and industries in Missouri but will also provide a template for other states to implement.

**e. Outcomes and Measures:**

The major outputs of the project are: (1) a new air quality planning mechanism for the St. Louis area, (2) experience that will be passed on to other state agencies that have bi-state nonattainment areas for more than one pollutant via the plan and a written report on the efficacy of the project which will include problems and solutions, (3) more transparency through the regulatory process with enhanced participation from stakeholders, and (4) a detailed evaluation of the air toxics exposure to the citizens of the St. Louis area that will be transmitted through technical reports to stakeholders and utilized in the SIP submittal process.

The outcomes of this project will be: (1) new information regarding the overall exposure of citizens to ambient air toxics in the entire St. Louis area (to be compared with on-going air quality measurements in the same area), (2) influencing stakeholders to become more involved in the air quality management process for the betterment of the community (measured by participation in the AQMP implementation), (3) better informed decisions regarding emission control with new information about smart growth/transportation planning, air toxics exposure, climate change inventory information and utilizing a one-atmosphere approach to control that consider all relevant criteria pollutants simultaneously (instead of one by one), and (4) increasing programmatic efficiency with respect to ensuring and maintaining air quality regulations (measured by amount of time necessary to complete and submit SIP products to EPA).

## 3. PRE-PROPOSAL BUDGET SUMMARY:

*Financial Information removed by EPA as confidential business information.*

## 4. ENVIRONMENTAL RESULTS PAST PERFORMANCE:

Under the Performance Partnership Grant, the Missouri Department of Natural Resources (the department) receives Section 105 funding to operate a network of criteria pollutant monitors that report data to the U.S. Environmental Protection Agency (EPA) Air Quality System (AQS). All activities under work plans that are developed in concert with EPA Region VII are a high priority for completion, with all required reporting on the project's progress. Each year the department sends the State and Local Air Monitoring Stations (SLAMS) data certification letter to EPA Region VII and Office of Air Quality Planning and Standards (OAQPS), with supporting documentation from AQS, to verify that the network is operated in accordance with 40 CFR 53 and 58 regulations, and report on any extreme episodes.

The department receives Section 103 grant funds from EPA to operate a network of federal reference method, continuous, and speciation Fine Particulate Matter $PM_{2.5}$ Ambient Air Monitoring Network ($PM_{2.5}$) samplers. Data from these samplers is validated by the department and then uploaded to AQS. Additional $PM_{2.5}$ speciation and continuous $PM_{2.5}$ monitoring is a part of this sampling, with the data reported to AQS. The department has received Section 103 funds from EPA, through a series of grants and amendments, for the St. Louis Community Air Project which includes air toxics monitoring at multiple sites in St. Louis. As the project evolved, it included operation of the Blair Street Station in St. Louis as a National Air Toxics Trends Site (NATTS) site and also includes evaluation of a continuous formaldehyde analyzer and trace level carbon monoxide analyzer. Progress has been reported to EPA by frequent formal and informal communications and in periodic progress reports. Final Reports of the results and conclusions are submitted annually with data uploading to AQS.

## 5. PROGRAMMATIC CAPABILITY

Under the Performance Partnership Grant, criteria pollutant monitoring data has been submitted since the 1970's. Completions of work plan items are a high priority, and we are often in contact with Region VII regarding management and operation of the sampling network. Staff training and attendance at meetings, in which key monitoring issues are a topic, have and will remain a priority of the department. MDNR's $PM_{2.5}$ monitoring network has operated successfully since its inception in 1999. The network has been modified as needed to adapt to new regulations, such as the recent

lowering of the 24-hour standard, and new technology, such as continuous and speciation sampling methods. Beyond this, $PM_{2.5}$ speciation and continuous data have been invaluable in preparing the SIP for the St. Louis nonattainment area. Our ability to maintain this monitoring effectively has allowed us to improve attainment demonstration model performance and more clearly apportion source influences. We are confident that this work will provide a greatly improved Plan. Data completeness, a measure of network reliability, has always been very high, over 90%. Quarterly reporting commitments and the annual data certification have never been late.

Data completeness has also been high for CAP and NATTS monitoring. Results have been documented in several technical reports, and NATTS data have been included in annual UATMP reports. CAP results were a significant part of the efforts of the local Partnership Committee of government, business, and residents to improve St. Louis air quality.