

State of Kansas

2011 – 2012 Ambient Air Monitoring Network Plan



Department of Health and Environment
Division of Environment
Bureau of Air
(785) 296-6024

Proposed Revisions to the Kansas Ambient Air Monitoring Network: 2011 - 2012 Annual Monitoring Plan

The Kansas Department of Health and Environment will submit an annual ambient air quality monitoring plan to the United States Environmental Protection Agency. This notice is provided for the purpose of informing the public of this activity, and to provide an opportunity for interested parties to offer additional relevant information and comments to the Kansas Department of Health and Environment. Written comments must be received by the Bureau of Air no later than the close of business on July 15, 2011, to assure consideration prior to submission of this plan. Comments from the interested public should be addressed to:

Kansas Department of Health and Environment
Bureau of Air
1000 SW Jackson, Suite 310
Topeka, KS 66612-1366
Attention: Mike Martin

Air Monitoring

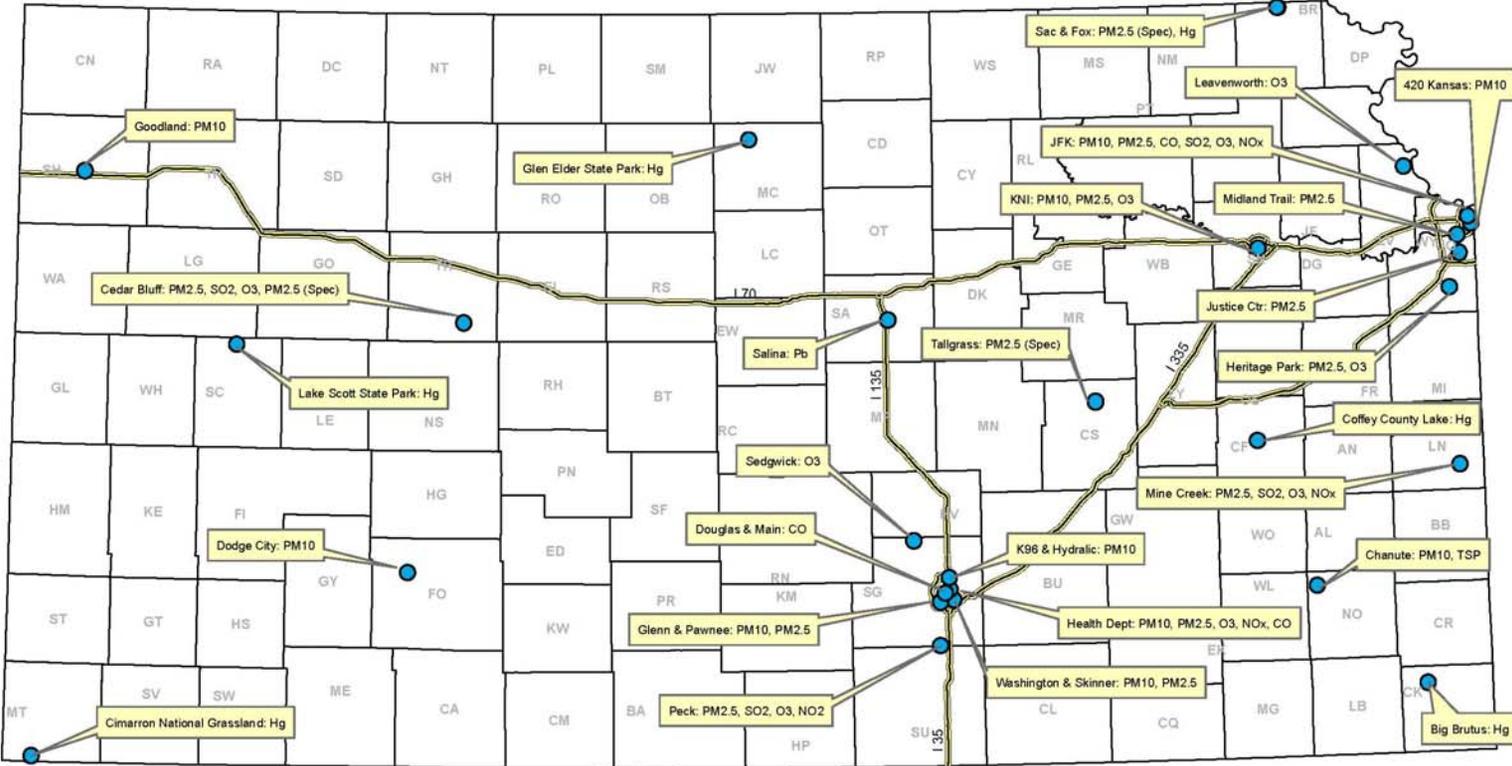
The Bureau of Air's, Air Monitoring and Planning Section administers the air monitoring and modeling program and the emissions inventory program. In cooperation with two local agencies, section staff operates the Kansas Ambient Air Monitoring Network, which provides air quality data from 21 sites across the state (Figure 1). The monitoring data is analyzed to determine compliance with [federal standards for criteria pollutants](#) and to evaluate air quality trends. In addition, the department has 6 mercury wet deposition monitoring sites located across the state. Staff members also conduct an annual emissions inventory of pollutants emitted from permitted facilities and other sources for the entire state. Staff who conduct air quality modeling use the emission inventory data. Modeling helps to better understand the causes of air pollution and to develop pollution reduction strategies in targeted areas. Such pollution reduction strategies are incorporated into state and regional plans to protect the public health, welfare and environment from the negative effects of air pollution.

National Monitoring Network Design

The Environmental Protection Agency (EPA) developed a National Ambient Air Monitoring Strategy (NAAMS). The goal of the strategy is "to improve the scientific and technical competency of existing air monitoring networks to be more responsive to the public, and the scientific and health communities, in a flexible way that accommodates future needs in an optimized resource-constrained environment" (National Ambient Air Monitoring Strategy Document). As part of the Strategy, a network design has been implemented called the [National Core Network \(NCore\)](#). This network will accommodate the overall strategic goals as well as determine air quality trends, report to the public, assess emission reduction strategy effectiveness, provide data for health assessments and help determine attainment / non-attainment status. NCore introduces a new multi-pollutant monitoring component, and addresses the following major objectives:

- **Provide timely reporting of data to the public** through the [AIRNow](#) Web site (www.airnow.gov), air quality forecasting and other public reporting mechanisms;

Kansas Air Monitoring Sites, May 2011



- **Support the development of emission reduction strategies** through air quality model evaluation and other observational methods;
- **Provide accountability of emission reduction strategy progress** through tracking long-term trends of criteria and non-criteria pollutants and their precursors;
- **Support long-term health assessments** that contribute to ongoing review of [National Ambient Air Quality Standards \(NAAQS\)](#);
- **Evaluate compliance with NAAQS** through designation of attainment / non-attainment areas; and
- **Support scientific studies** ranging across technological, health, and atmospheric process disciplines.

The Kansas Department of Health and Environment (KDHE) ambient air quality monitoring program has already accomplished much of the network reconfiguration needed to meet NCore objectives. Since 1999, as a result of implementing a major network reconfiguration associated with promulgation of the National Ambient Air Quality Standard (NAAQS) for PM_{2.5}, the State of Kansas has:

- 1) completed a primary disinvestment in PM₁₀ sampling;
- 2) established five multi-pollutant sites, including one rural background, two rural transport and two urban trends sites;
- 3) expanded the ozone monitoring network in the Kansas City metropolitan area to optimize spatial distribution of monitors, adequately monitor background and transport and provide better coverage for AirNow mapping; and
- 4) added two IMPROVE-protocol (regional haze) sites in cooperation with EPA Region VII and the [Central Regional Air Planning Association \(CENRAP\)](#).

Certain NCore requirements necessitate modification of the Kansas Ambient Air Monitoring Network. In 2009, KDHE prepared a Monitoring Plan for NCore, which included two monitoring locations, one urban and one rural. The two monitoring locations were proposed and accepted by EPA Region VII on October 30, 2009.

NCore Site

20-209-0021; Kansas City:

This site, which currently serves as an urban core multi-pollutant monitoring station, is under further development as an NCore station. The site is located close to Nebraska Ave and North 10th Street, Kansas City, Kansas (N 39.1175; W -94.63555).

Figure 1. Kansas City, KS JFK NCore Site Map

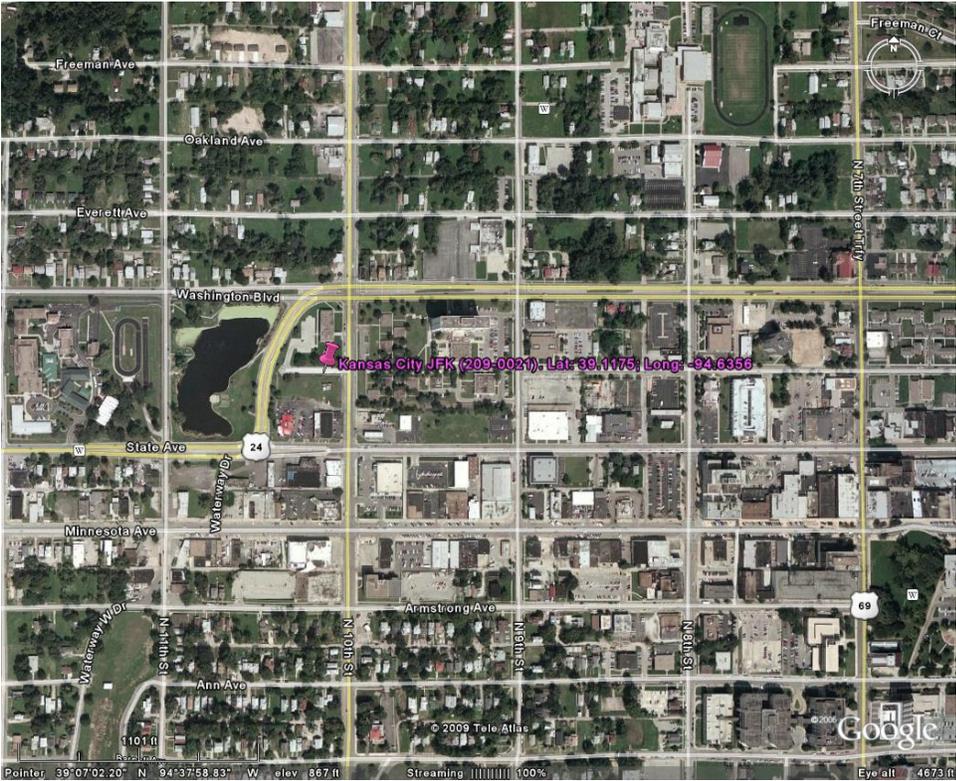


Figure 2. Kansas City, KS JFK NCore Site



IMPROVE Visibility Site

20-017-0001; Tallgrass Prairie National Preserve:

This site, operates as an Interagency Monitoring of Protected Visual Environments (IMPROVE) protocol sampler. Relocation of this site to another part of the Tallgrass Prairie National Preserve is likely, contingent upon pending negotiations with the National Park Service. In 2011, as a result of personnel and funding shortages, the department informed the EPA Region VII office that the Department was no longer interested in developing the rural NCore site at the Tallgrass Prairie National Preserve in Chase County. The site is located at N 38.433611; W -96.55944, northwest of Strong City, Kansas on Highway 177.

Lead (Pb) Monitoring Requirements

Source-oriented Pb Monitoring

According to 40 CFR Part 58, Appendix D, paragraph 4.5(a), state and, where appropriate, local agencies are required to conduct ambient air monitoring for lead (Pb) considering Pb sources that are expected to or have been shown to contribute to a maximum Pb concentration in ambient air in excess of the NAAQS. At a minimum, there must be one source-oriented SLAMS site located to measure the maximum Pb concentration in ambient air resulting from each Pb source that emits one-half (0.5) or more tons per year. A search of reported emissions for 2007 revealed that only one source in Kansas exceeds the one-half ton threshold. This source is located at Salina.

According to 40 CFR Part 58, Appendix D, paragraph 4.5(a), source-oriented monitors are to be sited at the location of predicted maximum concentration in ambient air taking into account the potential for population exposure, and logistics. Typically, dispersion modeling will be required to identify the location of predicted maximum concentration.

Dispersion modeling was performed by KDHE to determine the area of maximum concentration for sampler placement. KDHE prepared a Monitoring Plan for Airborne Lead in 2009.

The Pb site near the Exide Technologies facility at Salina, KS has been designated with AQS site ID 020-169-0004. A high volume (HiVol), total suspended particulate (TSP) sampler is running at the site on a 1/6 day schedule and began sampling on February 2, 2010. The monitoring site is located at the following legal description:

SOUTH INDUSTRIAL AREA, S1, T15, R3, BLOCK 2, ACRES 13.4, LTS 21-30 EXC E 32 LT 30

Figure 3. Salina, KS Pb Source Monitoring Site



Figure 4. Salina, KS Pb Source Monitoring Site



Population based monitoring for lead

EPA is also requiring lead monitoring in large urban areas. These monitors will be located along with multi-pollutant ambient monitoring sites (known as the “NCore network”). Lead monitoring at these sites will begin January 1, 2012. KDHE will locate a high volume (HiVol), total suspended particulate (TSP) sampler at the JFK NCore site in Kansas City, Kansas to fulfill this requirement. It will run at the site on a 1/6 day schedule and will begin sampling by December 27, 2011.

Sulfur Dioxide Monitoring

On June 2, 2010, EPA revoked the primary annual and 24-hour SO₂ standards from 30 ppb and 140 ppb, respectively, to a 1-hour standard of 75 ppb. The new SO₂ rule, published June 22, 2010, also stated the following:

- Any new monitors must be in operation by January 1, 2013.
- Monitoring required in Core Based Statistical Areas (CBSA's) based on population size and SO₂ emissions.
- Additional monitoring would also be required based on the state's contribution to national SO₂ emissions, which could be placed either within or outside a CBSA's.
- Reporting requirement added to include maximum 5-minute block average of each hour.

KDHE currently monitors for SO₂ at the following sites; Cedar Bluff, Peck (Wichita), Mine Creek and JFK (Kansas City). Although originally a site was to be required by EPA in Manhattan based on 2008 NEI and census data, KDHE used 2009 NEI and census data to calculate a new Population Weighted Emissions Index for Manhattan, and found that no new SO₂ monitor will be required. This was caused by significant reductions in SO₂ at the Jeffrey Energy Center with the installation of wet scrubbers on all three units (see table #1).

Table #1

CBSA	County/counties	2008 PWEI	2009 PWEI
Atchison, KS	Atchison	0	0
Coffeyville, KS	Montgomery	36	20
Dodge City, KS	Ford	2	3
Emporia, KS	Chase, Lyon	0	0
Garden City, KS	Finney	80	82
Great Bend, KS	Barton	54	0
Hays, KS	Ellis	0	0
Hutchinson, KS	Reno	2	0
Kansas City, MO-KS	Franklin (KS), Johnson (KS), Leavenworth (KS), Linn (KS), Miami (KS), Wyandotte (KS), Bates (MO), Caldwell (MO), Cass (MO), Clay (MO), Clinton (MO), Jackson (M), Lafayette (MO), Platte (MO), Ray (MO)	162,597	159,338
Lawrence, KS	Douglas	344	322

Liberal, KS	Seward	4	1
Manhattan, KS	Geary, Pottawatomie, Riley	5,786	736
McPherson, KS	McPherson	13	13
Parsons, KS	Labette	4	0
Pittsburg, KS	Crawford	0	0
Salina, KS	Ottawa, Saline	0	0
St. Joseph, MO-KS	Doniphan (KS), Andrew (MO), Buchanan (MO), DeKalb (MO)	468	470
Topeka, KS	Jackson, Jefferson, Osage, Shawnee, Wabaunsee	1,279	1,357
Wichita, KS	Butler, Harvey, Sedgwick, Sumner	934	929
Winfield, KS	Cowley	0	0

<http://www.epa.gov/ttnnaqs/standards/so2/fr/20100622.pdf>

"For any CBSA with a calculated PWEI value equal to or greater than 5,000, but less than 100,000, a minimum of one SO₂ monitor is required within that CBSA.

--> No additional SO₂ monitors required under this section

List of Proposed Changes to the Kansas Ambient Air Monitoring Network

NCore Site

20-209-0021; Kansas City:

This site, which currently serves as an urban core multi-pollutant monitoring station, is under development as an NCore station. The site is located close to Nebraska Ave and North 10th Street, Kansas City, Kansas (N 39.1175; W -94.63555).

Lead (Pb) Site

Population based monitoring for lead for Kansas City, KS will be placed at an existing ambient air monitoring station (NCore) located at the JFK Community Center (AQS site ID: 020-209-0021). KDHE will locate a high volume (HiVol), total suspended particulate (TSP) sampler at this site to fulfill this requirement. It will run at the site on a 1/6 day schedule and will begin sampling by December 27, 2011.

Other Proposed Network Modifications

20-107-0002; Mine Creek:

Termination of the sulfur dioxide (SO₂) monitor at this site is under consideration. This monitor has never measured an exceedance of the NAAQS for SO₂. As part of the Kansas five-year network assessment, movement of this entire site to Chanute is under consideration.

Monitor type: Special Purpose Monitor (SPM)

20-133-0002; Chanute:

Termination of the Total Suspended Particulate Matter sampler (TSP) is under consideration. This pollutant is not a criteria pollutant, and this is the last TSP sampler in the network. The data provided does not enhance the data provided by the PM₁₀ HiVol sampler at this location. Replacement of the PM₁₀ HiVol sampler with a continuous monitor is being

considered. As part of the Kansas five year network assessment, moving the Mine Creek sampling site to this location is also under consideration.

20-173-0008; Wichita:

As part of the Kansas five year network assessment, termination of the PM_{2.5} sampler at this site, which is located at the corner of George Washington Ave. and Skinner (37.659722; -97.297222), is likely. Levels of PM_{2.5} are consistent across the Wichita area because fine particulate matter is a regional-scale pollutant. Termination of this monitor would not adversely affect the distribution of PM_{2.5} samplers in the Wichita area. This sampler has never measured an exceedance of the NAAQS for PM_{2.5}.

As part of the Kansas five year network assessment, termination of the PM₁₀ sampler at this site is also likely.

Monitor type: State or Local Air Monitoring Station (SLAMS)

20-173-0009; Wichita:

As part of the Kansas five year network assessment, termination of the PM_{2.5} sampler at this site, which is located at the corner of Glenn and Pawnee (37.651111; -97.362222), is likely. Levels of PM_{2.5} are consistent across the Wichita area because fine particulate matter is a regional-scale pollutant. Termination of this monitor would not adversely affect the distribution of PM_{2.5} samplers in the Wichita area. This sampler has never measured an exceedance of the NAAQS for PM_{2.5}.

As part of the Kansas five year network assessment, termination of the PM₁₀ sampler at this site is also likely.

Monitor type: State or Local Air Monitoring Station (SLAMS)

20-173-0018; Sedgwick

As part of a request and approval from EPA Region VII, the Park City ozone monitor was terminated in June 2011 and will be replaced by an ozone monitor designated as "Sedgwick". This monitor is located at 12831 W. 117N in Sedgwick County (37.897526, -97.492083).

Monitor type: State or Local Air Monitoring Station (SLAMS)

20-173-1012; Wichita:

Termination of the collocated PM₁₀ HiVol sampler at this site, which is located at Kansas 96 Highway and Hydraulic (37.747222; -97.316389), is likely. The HiVol runs on a one in six day schedule, while the continuous monitor provides the same data on a daily (and hourly) basis. There is no scientific or technical reason for continuation of this duplication of effort.

Monitor type: Special Purpose Monitor (SPM)

20-173-1014; Wichita:

Termination of the CO monitor at this site is recommended since measured pollutant levels are well below the National Ambient Air Quality Standard for CO.

Monitor type: State or Local Air Monitoring Station (SLAMS)

20-177-0013; Topeka:

A continuous PM₁₀ monitor has been installed at this site. KDHE terminated in June 2011 data collection from the PM₁₀ HiVol sampler at this site, which is located at Southwest 25th

Street and Randolph Ave (39.02427; -95.71128), because there was no need for duplication of monitoring effort.

Monitor type: Special Purpose Monitor (SPM)

20-181-0001; Goodland:

As part of the Kansas five year network assessment, termination of the PM₁₀ monitor at this site is under consideration. This monitor has never measured an exceedance of the NAAQS for PM₁₀.

Monitor type: Special Purpose Monitor (SPM)

20-091-0007; Kansas City:

As part of the Kansas five year network assessment, termination of the PM_{2.5} sampler at this site, which is located at the Justice Center (38.974444; -94.686944), is likely. Levels of PM_{2.5} are consistent across the Kansas City area because fine particulate matter is a regional-scale pollutant. Termination of this monitor would not adversely affect the distribution of PM_{2.5} samplers in the Kansas City area. This sampler has never measured an exceedance of the NAAQS for PM_{2.5}.

Monitor type: State or Local Air Monitoring Station (SLAMS)

20-209-0022; Midland Trail, Kansas City:

As part of the Kansas five year network assessment, termination of the PM_{2.5} sampler at this site, which is located at Midland Trail (39.045833; -94.694444), is likely. Levels of PM_{2.5} are consistent across the Kansas City area because fine particulate matter is a regional-scale pollutant. Termination of this monitor would not adversely affect the distribution of PM_{2.5} samplers in the Kansas City area. This sampler has never measured an exceedance of the NAAQS for PM_{2.5}.

Monitor type: State or Local Air Monitoring Station (SLAMS)

20-209-0015; 420 Kansas, Kansas City:

As part of the Kansas five year network assessment, termination of the PM₁₀ sampler at this site, which is located at 420 Kansas (39.087778; -94.621389), is likely. This sampler has never measured an exceedance of the NAAQS for PM₁₀.

Monitor type: State or Local Air Monitoring Station (SLAMS)