NEBRASKA
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DEPT. OF ENVIRONMENTAL QUALITY

Pete Ricketts, Governor

Edward H. Chu
Acting Regional Administrator
US EPA Region 7
11201 Renner Blvd.
Lenexa, KS 66219

RE: Nebraska 2017 Ambient Air Monitoring Network Plan

Dear Mr. Chu:

Enclosed is the *Nebraska 2017 Ambient Air Monitoring Network* (*2016 NP*). This document is submitted pursuant to the requirements set forth in 40 CFR Part 58.10.

The *2017 NP* was made available to the public on the NDEQ web site on or before June 9, 2017. The public comment period ended July 10, 2017. As of July 14, 2017 no comments have been received.

Some changes were made to Attachment D of the *2017 NP* as a result of internal NDEQ review. All changes and comment responses are documented in a memo dated 7/12/17, which is also enclosed. None of the changes impacted Network Review decisions.

Please direct questions or inquiries concerning the *2017 NP* to Jim Yeggy at 402/471-2142 or jim.yeggy@nebraska.gov.

Sincerely,

Kevin Stoner
Administrator
Air Quality Division

Enclosures:
Nebraska 2017 Ambient Air Monitoring Network Plan
Change Documentation Memo July 12, 2017

ecopies w enclosures:
Gregory Crable & Leland Grooms, US EPA Region 7
Russ Haden, DCHD
Jim Fobben & Chris Schroeder, LLCHD

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Nebraska Department of Environmental Quality

2017 Ambient Air Monitoring Network Plan

NDEQ Document #17-005

This document is written to fulfill the requirements of 40 CFR Part 58.10 for an annual monitoring network plan as it pertains to the ambient monitoring conducted by the Nebraska Department of Environmental Quality (NDEQ), the Lincoln-Lancaster County Department (LLCHD) and the Douglas County Health Department (DCHD).

Contents **Page**

Acronyms and Abbreviations

Agencies/Organizations

CASAC - Clean Air Scientific Advisory Committee [(a)]

DCHD - Douglas County Health Department

EPA - United States Environmental Protection Agency

EPA R7 - United States Environmental Protection Agency Region VII

LLCHD - Lincoln/Lancaster County Health Department

NDEQ - Nebraska Department of Environmental Quality

(a) CASAC was established by the Clean Air Act (CAA) Amendments of 1977, and provides independent advice to the EPA Administrator on the technical bases for EPA's national ambient air quality standards.

Regulations

CFR - Code of Federal Regulations

DRR - Data Requirements Rule or 40 CFR Part 51 Subpart BB - Data Requirements for Characterizing Air Quality for the Primary SO_2 NAAQS

NAAQS - National Ambient Air Quality Standards

Title 129 - Nebraska Air Quality Regulations

Site Types

IMPROVE - Interagency Monitoring of Protected Visual Environments (monitoring performed to evaluate regional haze)

MDN - Mercury Deposition Network (a type of NADP site)

NADP - National Atmospheric Deposition Program (analysis of deposition components in precipitation. May include NTN and MDN sites)

NCore - National Core multi-pollutant monitoring stations. Monitors at these sites are required to measure particles ($PM_{2.5}$, speciated $PM_{2.5}$, $PM_{10–2.5}$), O_3, SO_2, CO, nitrogen oxides (NO/NO_y), Pb, and basic meteorology.

NTN - National Trends Network (a type of NADP site that analyzes for acidity, sulfate, nitrate, ammonium, chloride, and base cations (e.g., CA, Mg, K and Na))

SLAMS - State and Local Air Monitoring Stations

Monitor Terminology

AQS - Air Quality System, the name for EPA's air monitoring data base

FRM - Federal Reference Method used for determining compliance with the NAAQS

FEM - Federal Equivalent Method used for determining compliance with the NAAQS

PWEI - Population Weighted Emissions Index (a term defined in 40 CFR Part 58 Appendix D that relates to SO_2 monitoring requirements)

2014 Network Plan – Nebraska's *2014 Ambient Air Monitoring Network Plan*

2015 Network Plan - Nebraska's *2015 Ambient Air Monitoring Network Plan & 5-Year Assessment*

2016 Network Plan - Nebraska's *2016 Ambient Air Monitoring Network Plan* (i.e., this document)

Census Terminology

MSA - Metropolitan Statistical Area

MiSA - Micropolitan Statistical Area

Acronyms and Abbreviations (Continued)

Pollutants

CO - Carbon Monoxide

H_2S - Hydrogen sulfide (typically a major component of TRS)

O_3 - Ozone

Pb - Lead

TSP-Pb - Lead sampled using a TSP sampler

$PM_{2.5}$ - Particulate matter with a diameter equal to or less than 2.5 micrometers or microns (reported as $\mu g/m^3$ with air volumes measures at local conditions)

PM_{10} - Particulate matter with a diameter equal to or less than 10 micrometers or microns (reported as $\mu g/m^3$ with air volumes measures at standard conditions (25º C, 1 atm))

$PM_{10-2.5}$ - The difference between PM_{10} and $PM_{2.5}$ (Both being calculated at local conditions)

SO_2 - Sulfur Dioxide

TRS - Total Reduced Sulfur (H_2S + other reduced sulfur-containing compounds)

TSP - Total Suspended Particulates

Concentration Units

ppb - Parts per billion (a volume/volume concentration unit)

ppm - Parts per million (a volume/volume concentration unit)

mg/m^3 - Milligrams per cubic meter (a mass/volume concentration unit)

$\mu g/m^3$ - Micrograms per cubic meter (a mass/volume concentration unit)

Definitions

in situ - A Latin phrase meaning *in the place*. As used in this report it refers to the formation of pollutants in the atmosphere. For example, ozone is formed *in situ* from the photochemical reaction of pollutant precursors. Ozone is not emitted directly from sources. $PM_{2.5}$ and haze are also formed *in situ*, although they are also emitted by sources. PM_{10} and CO, on the other hand, are largely emitted from sources; *in situ* formation being of minimal importance. NOx and SOx are emitted and then undergo transformations to NO_2 and SO_2; they also can play a role in the *in situ* formation of ozone and $PM_{2.5}$.

Criteria Pollutants – The six pollutants for which National Ambient Air Quality Standards (NAAQS) have been established: carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, particulates and lead.

I. Introduction and Purpose

This 2017 Ambient Air Monitoring Network Plan (hereafter referred to as the "2017 Network Plan") was prepared to meet the federal requirements set forth in 40 CFR Part 58.10. It serves several purposes.

- Describes the current ambient air monitoring network in Nebraska including:
  - The purpose of each monitoring site, and
  - Changes made since January 1, 2016.
- Discusses ambient air quality issues as they relate to the monitoring network.
- Reviews the ambient air monitoring network to determine that the requirements of 40 CFR Part 58 Appendixes A, C, D and E are met.
- Describes planned and possible changes to the ambient air monitoring network through 2018, as best they can be determined at the time this review was conducted.

II. Public Participation

Federal regulations require annual network plans to be made available for public inspection. The NDEQ meets this requirement by posting it on the NDEQ web site (http://deq. ne.gov/) for 30 days. During the 30 day public inspection period, written comments regarding this Network Plan may be submitted to the Nebraska Department of Environmental Quality (NDEQ). Contact information is provided below.

Mail:

Nebraska Department of Environmental Quality
Attn: Jim Yeggy - Air Quality Compliance Section
PO Box 98922
1200 N Street, The Atrium Suite 400
Lincoln, NE 68509

Email:

NDEQ.airquality@nebraska.gov

Informal inquiries may also be directed to Jim Yeggy at 402/471-2142. Non-written comments are not necessarily included or addressed as review comments.

The deadline for written comment submittal can be found on the NDEQ web site.

III. Overview of Current Ambient Air Monitoring Network

Nebraska's current air monitoring network is summarized in Table III-1 below. The network description tables in Attachment A provide more detailed information on the network, including site locations and monitoring objectives.

The network includes monitoring sites for ozone, carbon monoxide, nitrogen oxides, sulfur dioxide, total reduced sulfur, lead, PM_{10}, $PM_{2.5,}$ $PM_{10-2.5}$ and regional haze (i.e., IMPROVE monitor). The network is operated by the Nebraska Department of Environmental Quality and two local agencies: the Douglas County Health Department (DCHD) and the Lincoln-Lancaster County Health Department (LLCHD).

Table III-1: Nebraska Air Monitoring Network on March 31, 2017. (1)					
	DCHD Omaha MSA (2)(3)	NDEQ Cass County (4)	LLCHD Lincoln MSA	NDEQ Other Areas of NE	Total
SLAMS Sites (includes NCore)	10	2	3	3	18
IMPROVE (5)	0	0	0	1	1
NADP (6)	1	0	0	1	2
Total Monitoring Sites	11	2	3	5	21
Sites by Pollutant: SLAMS Sites including NCore (3)					
Ozone	3	0	1	0	4
Carbon Monoxide	2	0	0	0	2
Nitrogen Oxides	1	0	0	0	1
Sulfur Dioxide	3	0	1	0	4
PM_{10}	4	2	0	0	6
$PM_{2.5}$	4	0	1	2	7
$PM_{10-2.5}$	1	0	0	0	1
$PM_{2.5}$ Speciation	1	0	0	0	1
Lead	1	0	0	1	2
Total Pollutant Sites	20 (3)	2	3	3	28

Footnotes:

(1) This table summarizes the number of operating sites as of 3/1/17 in the NE SLAMS network (including NCore) as well as IMPROVE and NADP sites in Nebraska.

(2) The Omaha MSA encompasses 5 NE counties: Cass, Douglas, Sarpy, Saunders, & Washington. DCHD operates sites in Douglas, Sarpy & Washington. NDEQ operates sites in Cass County

(3) There were 3 multi-pollutant monitoring sites in the Omaha MSA in 2016: 1616 Whitmore – SO_2 & Ozone (2 pollutants); 24th & O Sts (South Omaha) : Ozone and PM_{10} (2 pollutants); and NCore (42nd & Woolworth) - CO, NO/NOy, O_3, SO_2, PM, and lead (9 pollutants). The number of monitoring sites by individual pollutant is thus greater than the number of monitoring locations within the Omaha MSA and for the state as a whole.

(4) Cass County has limestone mining and processing facilities, which are subject to the Cass County specific air emission controls set forth in Chapter 21 of the NDEQ Title 129.

(5) IMPROVE – Interagency Monitoring of Protected Visual Environments. These are fine particulate and particulate speciation monitors intended to provide information for studying regional haze that may impact Class I National Park and Wilderness Areas. IMPROVE sites are not part of the SLAMS network. EPA is responsible for the design of the IMPROVE network. Changes to the IMPROVE Network within Nebraska do not need to be included in Nebraska's annual network plan, but the existence of the sites are recognized within the network plans. The NDEQ provides administrative support (with EPA funding) for one IMPROVE site at the Nebraska National Forest near Halsey, NE.

(6) National Atmospheric Deposition Program sites are not part of the SLAMS network. They are not subject to 40 CFR Part 58 requirements, and are not used for NAAQS attainment determinations. They are included in the Network Plan for informational purposes only.

IV. Nebraska Ambient Air Monitoring Network: January 1, 2016 thru March 31, 2017

This section describes Nebraska's Ambient Air Monitoring Network in place from January 1, 2016 thru March 31, 2017, and changes made during that time period. Detailed information on individual monitoring sites, including purpose, scale, monitor specifications and start dates, is contained in Attachment A.

For the most part, this section is organized around the MSAs and MiSAs in which monitoring is conducted. For population and statistical information about the MSAs and MiSAs see Attachment C.

A. Omaha MSA Sites Operated by the DCHD

DCHD operates an ambient air network of 10 sites in Douglas, Sarpy and Washington Counties. Multi-pollutant monitoring is currently conducted at three of the sites:

- The NCore site monitors for 9 pollutant parameters (CO, NOy/NOx, O_3, SO_2, $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, $PM_{2.5}$ speciation & TSP-Pb), meteorological parameters, and atmospheric radiation (RADNET*);
- The South Omaha site has both an ozone and a PM_{10} monitor; and
- The 1616 Whitmore site has both SO_2 and ozone monitors.

Thus the Omaha area monitoring network is more extensive than the 10 site total might indicate; if the pollutants are counted separately, there are 20 pollutant monitoring sites.

* Note: RadNet is a nationwide system that monitors the nation's air, drinking water, precipitation, and pasteurized milk to determine levels of radiation in the environment. RadNet sample analyses and monitoring results provide baseline data on background levels of radiation in the environment and can detect increased radiation from radiological incidents. The RadNet monitor is not subject to the network planning process set forth in 40 CFR Part 58.10. It is recognized above for informational purposes only.

There was one change in the Omaha-DCHD monitoring network since January 1, 2016. A new source-oriented SO_2 monitoring site was set up at OPPD's North Omaha Station on January 1, 2017 to satisfy changes to 40 CFR Part 51 Subpart BB, §51.1200 – §51.1205 (a.k.a. the Data Requirements Rule) finalized on August 21, 2015. These changes set forth additional requirements with respect to demonstrating attainment with the 1-hour SO_2 NAAQS promulgated in 2010. See Section V.A.2 below for further details.

See Attachment A for detailed information on the sites operated by DCHD.

B. Omaha MSA Sites Operated by the NDEQ

The NDEQ operates 2 PM_{10} monitoring sites in the Weeping Water area in Cass County. One is located at the city waste water treatment plant (abbr. WW City site) and one is approximately 1/3 mile northwest of the Weeping Water spur (State Spur 13K) and Highway 50 intersection (abbr. WW Farm site).

Beginning in 2004 the WW City site had primary and collocated R&P 2025 samplers. The collocated sampler suffered an electronic failure near the end of the 1st quarter of 2015. As described in the 2015 Network Plan, the primary and collocated 2025 samplers at the WW City site were designated for replacement with a MetOne BAM sampler sometime in 2016. This replacement took place on October 1, 2016. See Section V.A.1.a below for further details.

C. Lincoln MSA Sites Operated by the LLCHD

LLCHD operates three SLAMS monitoring sites:

- A $PM_{2.5}$ site at 3140 N Street in Lincoln,
- An ozone site in Davey, NE, and
- A source-oriented SO_2 monitoring site at NPPD's Sheldon Station near Hallam, NE.

The Sheldon Station monitor began operation on December 23, 2016 to satisfy changes to 40 CFR Part 51 Subpart BB, §51.1200 – §51.1205 (a.k.a. the Data Requirements Rule) finalized on August 21, 2015. These changes set forth additional requirements with respect to demonstrating attainment with the 1-hour SO_2 NAAQS promulgated in 2010. See Section V.A.2 below for further details.

The N Street $PM_{2.5}$ site has three monitors: a primary filter-based FRM sampler, a collocated filter-based FRM sampler, and a continuous MetOne BAM monitor. Data from the continuous monitor is reported to AirNow, but not to AQS.

D. Sioux City Metropolitan Statistical Area in Dakota and Dixon Counties

In accordance with the 2015 Network Plan, the TRS monitoring site at 501 Pine Street in Dakota City was closed at the end of June, 2016. Currently there are no TRS monitoring sites in Nebraska, and none are planned at this time.

There are monitoring sites in the Iowa and South Dakota portions of the Sioux City MSA:

- A $PM_{10}/PM_{2.5}$ site in Sioux City operated by the IA DNR,
- An SO_2 site in Sargent Bluff operated by the IA DNR, and
- A multi-pollutant site for SO_2, NO_2, O_3, PM_{10} & $PM_{2.5}$ in Union County, SD operated by the SD DENR.

E. Grand Island Metropolitan Statistical Area

The NDEQ operates a $PM_{2.5}$ filter-based FRM sampler at Grand Island Senior High. There were no changes to the monitoring network in the Grand Island MSA from January 1, 2015 thru March 31, 2016.

F. Scottsbluff Micropolitan Statistical Area

The NDEQ operates a $PM_{2.5}$ filter-based FRM sampler at the Scottsbluff Senior High School. The Thermo 2025i sampler at this site was moved approximately 170 m W-SW on 4/15/16 (1st sample date at new location). The move was necessitated by re-construction of athletic fields and at the request of the school. The relocation did not require a new site ID #. The new site uses standard 110-volt AC line power, as the solar and wind power supply previously used was not retained at the relocated site.

G. Fremont Micropolitan Statistical Area

The NDEQ operates a TSP-Pb (lead) monitoring site at 1255 Front Street in Fremont. This site is source-oriented with respect to Magnus-Farley, a brass/bronze foundry. There are two TSP samplers at this site: a primary sampler and a collocated sampler. There were no monitoring network changes in the Fremont MiSA from January 1, 2015 thru March 31, 2016.

H. Lexington Micropolitan Statistical Area

In accordance with the 2015 Network Plan, the PM_{10} monitoring sites at Cozad and Gothenburg were closed March 7, 2016. There are currently no ambient air monitoring sites in the Lexington MiSA.

I. City of Auburn

In accordance with the 2015 Network Plan, the TSP-Pb monitoring site in Auburn was closed June 5, 2016. There are currently no ambient air monitoring sites in the City of Auburn or Nemaha County.

J. IMPROVE Sites

NDEQ provides administrative support for one IMPROVE site at Halsey National Forest in Thomas County. Data collected at this site facilitates regional haze and pollution transport studies.

IMPROVE is the acronym for Interagency Monitoring of Protected Visual Environments. These sites contain fine particulate and particulate speciation monitors intended to provide information for studying regional haze that may impact Class I National Park and Wilderness Areas. There are no Class I National Park and Wilderness Areas in Nebraska; the nearest sites are in Colorado and South Dakota.

K. National Atmospheric Deposition Program (NADP): National Trends Network (NTN) & Mercury Deposition Network (MDN)

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) is a federal, nationwide network of sites that monitor for deposition constituents in precipitation. The deposition parameters examined include acidity, sulfate, nitrate, ammonium, chloride, and base cations (e.g., calcium, magnesium, potassium and sodium).

There are two NADP/NTN sites in Nebraska: one near Mead that has operated since 1978 and one near North Platte that has operated since 1985. These sites are operated by the University of Nebraska, with analytical and data development support from the federal NADP. There were no changes to the NADP/NTN network from January 1, 2016 thru March 31, 2017.

Mercury Deposition Network (MDN) monitoring was initiated at the Mead site on June 26, 2007, and is continuing. At the North Platte site, MDN monitoring was conducted from October 2008 thru October 2010.

The operation of NADP sites is not subject to the provisions of 40 CFR Part 58.10. Their inclusion in this Network Plan is for informational purposes only. More information on the NADP/NTN and the NADP/MDN sites can be found in Attachment A of this network plan. For NADP, NTN and MDN program information see: http://nadp.sws.uiuc.edu/ or http://nadp.sws.uiuc.edu/mdn/.

V. Considerations for Network Planning

A. Federal Regulatory Requirements and Issues

1. EPA Air Monitoring and Network Design Requirements

The Nebraska Ambient Air Quality Network must comply with the applicable requirements of 40 CFR Part 58 Appendices A through E. As the review in Attachment D verifies, the Nebraska ambient air monitoring network, operated by the NDEQ, DCHD and LLCHD, is meeting all the applicable requirements of Appendixes A, C, D & E.

Appendix B applies to Prevention of Significant Deterioration (PSD) sites. PSD required monitoring is generally conducted by the source, not a state or local monitoring agency (i.e., not by NDEQ, DCHD or LLCHD). This is the case at this time. Thus compliance with Appendix B is not addressed in this network plan.

The Elk Creek Resources Corporation is conducting PSD required background monitoring near the planned location for their niobium mining and processing facility to be located near Elk Creek, NE. The monitoring requirements associated with this project are in compliance with Appendix B.

Several site-specific issues related to compliance with Appendix A, C, D & E requirements are discussed below.

a) NDEQ PM_{10} Network Collocation: In March 2015, the collocated FRM monitor at the Weeping Water City site suffered an electronic failure that was not readily repairable. Because the Weeping Water site was to be re-equipped with a continuous MetOne BAM sampler (for which collocation is not required) and closure of the Cozad and Gothenburg sites was being proposed, extra-ordinary measures were not taken to re-establish the collocated PM10 sampling.

The Cozad and Gothenburg monitors were shut down March 8, 2016, and the MetOne BAM sampler was installed at the Weeping Water City site in October 2016, in accordance with the approved 2016 Network Plan. As a result there is no longer a 2025 filter-based sampler network in Nebraska and collocation is not required.

b) Near-Road NOx Monitoring in the Omaha MSA

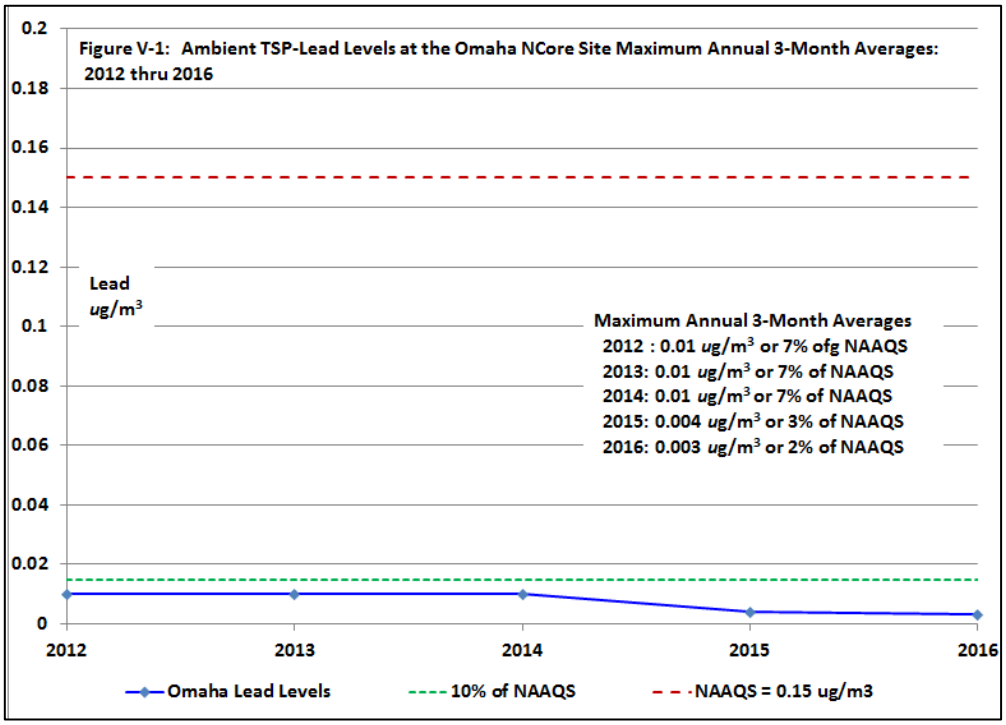
40 CFR Part 58 Appendix D Sec. 4.3.2, as amended March 14, 2013, required one near-road NO_2 monitoring site be implemented in any Core Based Statistical Area with a population of 500,000 or more by January 1, 2017. As Omaha's population falls above this threshold, DCHD, with NDEQ concurrence, proposed putting the near-road NO_2 monitor at the existing CO site at 78th & Dodge. This proposal was included in the 2015 Network Plan.

On December 30, 2016, EPA finalized revisions that narrow the scope of near-road monitoring by removing the requirement for near-road NO_2 monitoring stations in CBSA's with populations between 500,000 and 1 million. Omaha falls into this population range. Therefore, a near-road NO_2 monitoring site is no longer required in Omaha.

The removal of near-road NO_2 monitoring requirements for the smaller CBSA's was based on attainment being demonstrated at near-road NO_2 monitoring sites in the larger CBSA's and at higher traffic-count areas than exist in Omaha. Therefore the NDEQ and

DCHD concur with EPA's removal of the near-road NO_2 monitoring requirement for Omaha, and have no current plans to install a near-road NO_2 monitoring site.

c) NCore Lead Monitoring: The modifications to 40 CFR Part 58 Appendix D effective April 27, 2016 removed the requirement to operate a lead monitor at NCore sites. The Omaha NCore lead monitor is finding very low lead levels as shown in Figure V-1 below. The possibility of closing the NCore Lead monitor was discussed with DCHD. DCHD has opted to continue operating the NCore lead monitor, at least through 2017, in part to address any potential concerns of lead emissions from ongoing residential yard cleanups within the Omaha Lead Superfund Site.



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d) Lead Monitoring Waiver for Nucor Steel in Norfolk: 40 CFR Part 58 Appendix D Sec 4.5, requires source-oriented lead monitoring near lead sources of 0.5 tons per year. A waiver from this monitoring requirement is allowed if it can be demonstrated that ambient lead levels will not exceed 50% of the NAAQS.

Nucor Steel provided modeling that demonstrated ambient lead levels would not exceed 50% of the NAAQS. NDEQ reviewed and concurred with the Nucor submittal. EPA approved the waiver request in April 16, 2014. The waiver is effective for 5 years and thus will expire in April 2019.

2. Data Requirements for Demonstrating SO_2 Attainment:

On August 21, 2015 EPA finalized changes to 40 CFR Part 51 Subpart BB, §51.1200 - §51.1205 (a.k.a. the Data Requirements Rule or DRR) that set forth additional data requirements with respect to demonstrating attainment with the 1-hour SO_2 NAAQS promulgated in 2010.

There are 3 options that SLT agencies can utilize to meet the DRR requirements:

(a) Establish ambient monitoring in the vicinity of applicable sources by January 1, 2017;
(b) Submit air quality modeling analyses by January 13, 2017; or
(c) Establish enforceable emission limits to hold SO_2 emissions below 2000 tpy.

In the 2016 Network Plan, NDEQ proposed to pursue the monitoring option to demonstrate compliance at OPPD's North Omaha Station and NPPD's Sheldon Station near Hallam, NE.

Attachment E of the NDEQ 2016 Network Plan proposed a new SO_2 monitoring site to meet DRR requirements with respect to NPPD's Sheldon Station. This proposal was approved by EPA Region 7, and the SO_2 monitor was installed on December 23, 2016. Details on this monitor site, which is operated by LLCHD, are provided in Attachment A.

Attachment F of the NDEQ 2016 Network Plan proposed to utilize the existing SO_2 monitoring site at 1616 Whitmore Street in Omaha to meet the DRR requirements for the OPPD North Omaha Station. Upon further review and consultation with EPA Region 7, NDEQ issued an Addendum to the 2016 Network Plan that proposed a new source-oriented SO_2 monitoring site at the OPPD ballpark on Pershing Drive, directly adjacent to North Omaha Station. This latter proposal was approved by EPA Region 7, and this monitor began operating on January 1, 2017. Details on this monitor site, which is operated by DCHD, are provided in Attachment A.

The existing SO_2 site at 1616 Whitmore Street, which is approximately ½ mile SE of the new site, was retained.

See Section V.B.1 below for information on Nebraska's attainment status with respect to SO_2.

B. Air Quality and NAAQS Attainment

The monitoring results from all Nebraska monitoring sites, and adjacent state monitoring sites in the Omaha and Sioux City MSAs, for 2014 thru 2016 are in attainment with the NAAQS. See the monitoring data tables in Attachment B for more information on the 2014 thru 2016 monitoring results.

Nebraska has never had a declared non-attainment determination. Nebraska is currently classified as "unclassified/attainment' with respect to the 1-hour NO_2 and SO_2 NAAQS established in 2010. See the Sulfur Dioxide and Nitrogen Dioxide sections below for an explanation as to how this relates to monitoring needs.

1. Sulfur Dioxide (SO_2): The NAAQS for SO_2 was revised in 2010 to establish a 1-hour NAAQS of 75 ppb. Nebraska has an "unclassifiable/attainment" designation with respect to this NAAQS. The "unclassifiable" designation applies to areas near 5 coal-fired electricity generating stations: North Omaha Station in Douglas County, Sheldon Station in Lancaster County, Gerald Gentleman Station in Lincoln County, Nebraska City Station in Otoe County and Whelan Energy Center in Adams County. Source-oriented ambient air monitoring is

being conducted at two of these sites: North Omaha Station and Sheldon Station. At the other 3 sites modeling is being used to satisfy the designation requirements associated with the 1-hour SO2 NAAQS as set forth in 40 CFR Part 51 Subpart BB (a.k.a. Data Requirements Rule or DRR). See Section V.A.2 above (*Data Requirements for Demonstrating SO_2 Attainment*) for information on monitoring that is being conducted as part of this process.

There are 3 SO_2 monitors in Omaha and 2 in adjacent state areas of the Sioux City MSA (one in Sargent Bluff IA and one in Union County, SD). The SO_2 levels being found at these sites are in attainment with the NAAQS. See Attachment B Table B-3. The Whitmore and North Omaha Station sites in Omaha and the Sergeant Bluff, IA site are source-oriented with respect to coal-fired power plants. One–hour SO_2 concentrations at the Whitmore and Sergeant Bluff sites are at 79% and 12% of the NAAQS, respectively.

2. **Nitrogen Dioxide (NO_2)**: The NAAQS for NO_2 was revised in 2010 to establish a 1-hour NAAQS of 100 ppb. An "unclassifiable/attainment" classification currently applies in Nebraska with respect to this standard. The unclassifiable determination was based on the absence of any near-road NO_2 monitoring in Omaha. As set forth in Section V.A.1.(b) above, near-road NO_2 monitoring is no longer required in Omaha. The basis for the removal of this monitoring requirement is the finding of attainment at existing near-road NO_2 monitoring sites in larger metropolitan areas with higher traffic counts. Thus Nebraska anticipates an attainment classification will be determined after further review.

   There is 1 NO_2 monitoring site in Union County, SD within the Sioux City MSA. This is an area background site and is finding 1-hour NO_2 levels at 19% of the NAAQS.

   There is an NOy/NO monitor at the Omaha NCore site. The NOy-NO parameter generally approximates NO_2, with NOy-NO being equal to or possibly higher than NO_2. The 1-hour NOy-NO levels at the Omaha NCore site were at 37% of the 1-hour NO_2 NAAQS in the 2014 thru 2016 time frame.

   See Attachment B Tables B-4a and B-4b for NO_2 and NOy-NO concentration data.

3. **Carbon Monoxide (CO):** There are 2 CO monitors in Nebraska. Both are finding CO levels less than 20% of the 8-hour NAAQS and less than 10% of the 1-hour NAAQS. See Attachment B Table B-2. Vehicle emissions are the primary source of ambient CO. Vehicle emission standards have reduced ambient CO. The 78th & Dodge St site is a near-road, highest concentration site. EPA last reviewed the CO NAAQS in 2011 and determined that the NAAQS were protective and did not need to be changed.

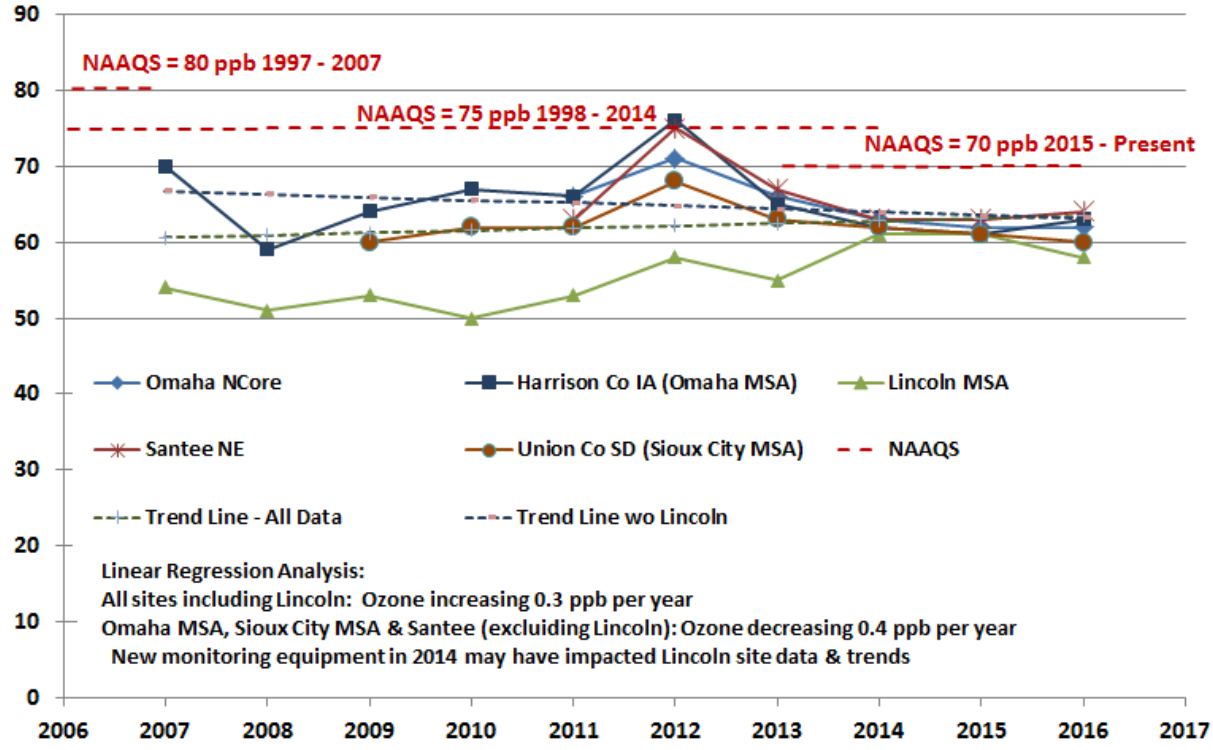
4. **Ozone:** On October 1, 2015, EPA strengthened (lowered) the ozone NAAQS from 0.075 ppm to 0.070 ppm. As shown in Attachment B Table B-1, the 2014-2016 Design Values (DVs) for monitoring sites in Nebraska and adjacent state areas in the Omaha and Sioux City MSAs are in attainment with this standard. Ozone DVs ranged from 84% to 89% of the NAAQS in the 2014-2016 time-frame. The highest ozone levels are being found in the Omaha MSA and near Santee, NE (an EPA CASTNET site).

   As shown in Figure V-2, ozone levels in Nebraska have generally declined over the last 10 years with 2 exceptions:

   - All sites recorded increased ozone levels in 2012; and
   - At Davey, NE (Lincoln MSA site) ozone levels increased from 2013 to 2014.

The Davey site was upgraded with new monitoring equipment starting in 2014 and ozone levels increased with the new monitoring equipment to be closer to those being found in Omaha.

Figure V-2: Annual 4th High Ozone Levels: 2007 thru 2016



Ozone levels over the last 10 years were highest in 2012. The sites with the highest ozne levels were the Harrison County IA site in the Omaha MSA (76 ppb in 2012) and the Santee NE site. (75 ppb in 2012). The NAAQS was not violated as it is evalauted using the 3 year average of the annual 4th high values.

The ozone levels being found at Santee are somewhat surprising. However, ozone data from Nebraska and near-by states indicate that ozone levels similar to those found in Omaha and Santee are ubiquitous to the multi-state area around Nebraska. See Figure V-3 below.

Figure V-3: Three-Year Ozone Design Values (DVs) from 2014 thru 2016 for Locations In and Around Nebraska (1)

Footnotes:

(1) Where there was more than one monitoring site in a locale, the highest ozone DV is shown.

(2) The Torrington WY site began operation in 2016 and recorded a 4th high value of 59 ppb. The DV range shown is an estimate extrapolated using comparison to Cheyenne and Newcastle WY data.

5. **$PM_{2.5}$:** EPA last revised the $PM_{2.5}$ NAAQS in 2012, setting the annual average NAAQS at 12 ug/m^3 (changed from 15 ug/m^3) and retaining the 24-hour NAAQS at 35 ug/m^3. As shown in Table V-1 below and in more detail in Attachment B Tables B-6a and B-6b, all $PM_{2.5}$ sites in Nebraska are in attainment with the NAAQS.

Table V-1: PM2.5 Levels (2014 thru 2016 DVs) as a Percent of the NAAQS (1)

Location	24-Hour Average DV	Annual Average DV
Omaha MSA	60%	73%
Lincoln MSA	49%	57%
Sioux City MSA	57%	67%
Grand Island MSA	40%	50%
Scottsbluff MiSA	57%	43%

Footnote (1): Where there was more than one monitoring site in a locale, the highest DV was used to calculate the % NAAQS value shown above.

The highest $PM_{2.5}$ concentrations were found in the Omaha MSA and the second highest in the Sioux City MSA.

Figure V-4 below shows the DVs for $PM_{2.5}$ sites in and around Nebraska. Unlike ozone, $PM_{2.5}$ concentrations do not appear to be uniformly distributed over large areas of Nebraska.

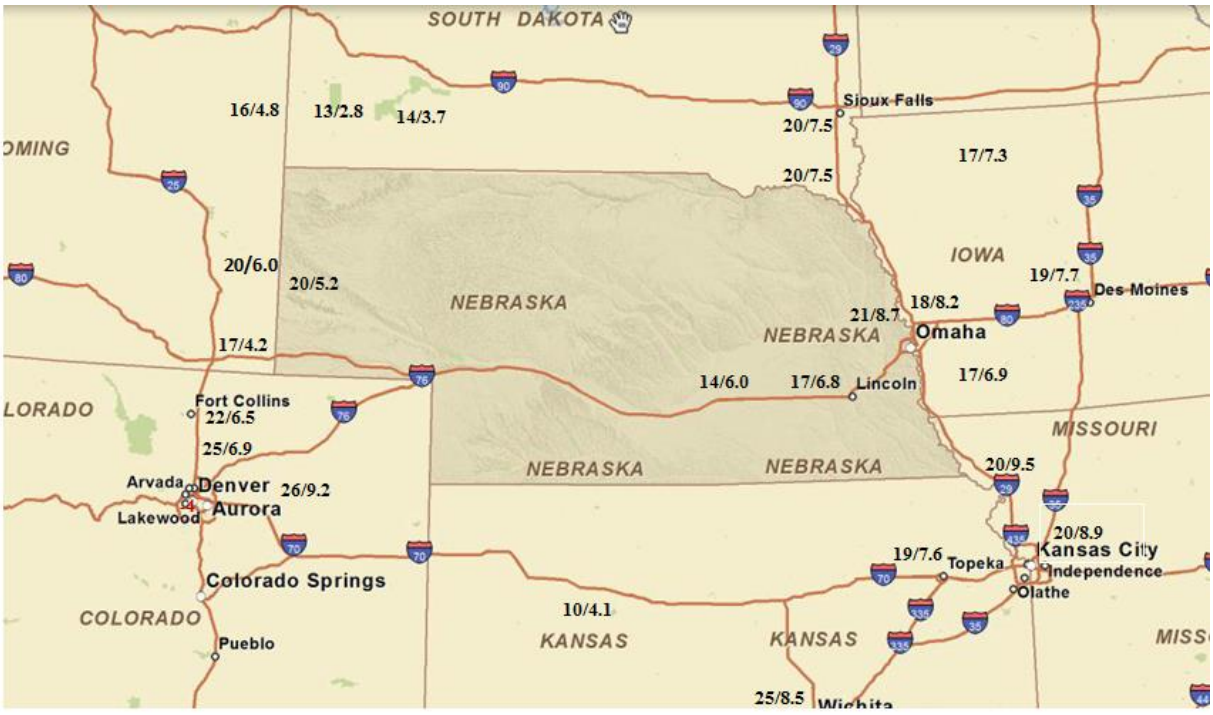
$PM_{2.5}$ levels are generally lower in Grand Island and Scottsbluff than in the larger metropolitan areas in eastern Nebraska. The relatively high 24-hour DV at Scottsbluff appears to be an exception, and it appears that impacts from forest fires in the summers of 2014 & 2015 contributed to the relatively high 24-hour DV at Scottsbluff.

Wildfires as well as prescribed fires impact air quality in eastern Nebraska. Smoke from prescribed fires typically impacts eastern Nebraska in the spring of the year. In 2017 the greatest impact occurred from April 7th through April 14th with Lincoln experiencing *Unhealthy for Sensitive Group* air quality (Orange AQI) on 2 days, April 8th and 12th and *Moderate* air quality (Yellow AQI) on 3 days, April 3rd, 7th and 13th. Omaha experienced *Moderate* air quality on 5 days, April 8th, 9th, 12th, 13th and 14th.

Prescribed burns are used in Nebraska and near-by states for prairie conservation, grazing-land maintenance and CRP maintenance. The Flint Hills area of Kansas and Oklahoma, and areas near the Flint Hills in Kansas, are areas of concentrated use of prescribed fires. Smoke from the prescribed fires in the Flint Hills and near-by areas were a major source of the elevated $PM_{2.5}$ levels experienced in Lincoln and Omaha from April 7th through 14th of 2016.

NDEQ is working with Kansas Department of Health and Environment and EPA Region 7 on strategies to improve air quality in Nebraska during the spring prescribed burn season. To provide up-to-date information to the public regarding prescribed burning, a smoke awareness web page was created in March 2017. During the burn season, current smoke forecast information is provided, along with links to the Kansas Smoke Management Plan, AirNow, and other related information.

Figure V-4: $PM_{2.5}$ 2014-16 Design Values (DVs) for Sites in and around Nebraska (1)(2)



Footnotes:
(1) The first number is the 24 hour average DV and the second number is the annual average DV.
(2) When there was more than one site in a metropolitan area, the highest DVs are shown.

6. **PM_{10}:** EPA last modified the PM_{10} NAAQS in 2006 when the 50 *u*g/m^3 annual average standard was dropped and the 150 *u*g/m^3 24-hour standard was retained. PM_{10} is more source-oriented and remains more localized to its point of origin than $PM_{2.5}$. As shown by the data in Attachment B Table B-5a, all the monitors in Nebraska are demonstrating attainment with the PM_{10} NAAQS over the 2014 thru 2016 time-frame.

   Two areas where there have been high PM_{10} levels in the past, Weeping Water and 46th & Farnam in Omaha, have improved. These are discussed below.

   The PM_{10} NAAQS is interpreted such that there cannot be more than three PM_{10} 24-hour average values of 155 *u*g/m^3 or more over the latest 3-year time frame. This means the 4th high value over the most recent 3 years needs to be below 155 *u*g/m^3.

   a) **Weeping Water:** The Weeping Water area has several limestone mining and processing facilities. There are two PM_{10} monitoring sites in the Weeping Water area. One is at the city wastewater treatment facility (Weeping Water City site) and one is approximately 2 miles west of the city (Weeping Water Farm site).

      The Weeping Water City site has detected relatively low PM_{10} levels (i.e., maximum 24-Hour PM_{10} levels ~30% of the NAAQS) since Martin Marietta closed down their limestone processing facility on the west edge of Weeping Water. They developed a new site ~ 2 miles SW of the city.

      Higher PM_{10} levels are detected at the Weeping Water Farm site. The Kerford Limestone and Iowa Limestone processing facilities are located ~ ¼ mile west of this monitoring site. These facilities are aware of their air quality responsibilities and challenges. Their environmental contact will call to check on PM_{10} levels being detected by the continuous monitor at this site when he suspects additional controls may be needed. In the 2014 thru 2016 time frame, one 24-hour PM_{10} value met or exceeded 155 *u*g/m^3, a 166 *u*g/m^3 value on 3/11/15. The 4th highest value for the 2014 thru 2016 time frame was 137 *u*g/m^3 or 91% of the NAAQS.

   b) **46th & Farnam, Omaha:** The PM_{10} site at 46th and Farnam was source-oriented with respect to Omaha Steel, a PM_{10} emission source. The Omaha Steel facility was closed in 2014. In 2015 thru 2016 demolition and re-development activities were being undertaken. As can be seen in Attachment B table B-5.a, the highest 24-hour average value in the 2014-2016 time period was 153 *u*g/m^3 and the 4th highest value was 106 *u*g/m^3 or 71% of the NAAQS.

7. **Lead:** The lead NAAQS was last changed in 2008, when it was tightened from 1.5 *u*g/m^3 to 0.15 *u*g/m^3. At the beginning of 2016 there were 3 lead monitoring sites in Nebraska: Fremont, Auburn and Omaha NCore. All three demonstrated attainment with the NAAQS (see Attachment B Table B-7).

   a) Omaha NCore Site: The 2014-2016 Design Value (DV) for this site was 3% of the NAAQS. The Part 58 revisions effective April 27, 2016 no longer require lead monitoring at NCore sites. However, DCHD has elected to continue monitoring for lead at the Omaha NCore site, in part to address any concerns about potential lead emissions from ongoing residential yard cleanups within the Omaha Lead Superfund Site. This decision may be re-evaluated in the future if there are continued findings of low lead levels at this site.

   b) Auburn Site: This site is source-oriented with respect to Magnolia Metals, a bronze

foundry. In 2012 and 2013, Magnolia Metals implemented a series of pollution-control upgrades that significantly lowered ambient lead levels and dropped their lead emissions to 0.1 tpy, below the 0.5 tpy threshold for requiring lead monitoring. The 2013 to 2015 DV was 20% of the NAAQS, and 2014 and 2015 levels were at or below 5% of the NAAQS. This site was closed in June 2016 in accordance with the 2015 Network Plan.

c) Fremont Site: This site is source-oriented with respect to Magnus-Farley, a bronze and brass casting facility. In 2012 the maximum 3-month average ambient lead level was 0.14 *u*g/m^3 or 93% of the NAAQS. In 2014 thru 2016 the maximum 3-month average lead concentrations were lower at 59%, 51% and 41% of the NAAQS, respectively. Facility awareness and diligence, coupled with NDEQ feedback on ambient air lead concentrations appear to have facilitated the air quality improvements. See Attachment B Table B- 7 for the 2014 thru 2016 ambient air quality summary data.

8. **Total Reduced Sulfur (TRS):** There is no NAAQS for TRS. Nebraska established ambient air quality standards for TRS in Title 129 Chapter 4: a 1-minute average standard of 10 ppm and 30-minute average standard of 0.10 ppm. There was one TRS site operating in Nebraska in 2016 on east Pine Street in Dakota City. As shown in Attachment B Table B-8, TRS levels at this site were meeting the Nebraska standards in the 2014 thru 2016 time-frame. This site was closed June 30, 2016 in accordance with the 2015 Network Plan.

C. Population Trends and Network Design

Population related data is reviewed as part of the network planning process because:

- Population growth may be associated with pollution source growth;
- High population density generally correlates with high air pollution potential; and
- Some 40 CFR Part 58 requirements are based on population and/or federally defined metropolitan statistical definitions.

Attachment C contains a review of population growth and growth trends in Nebraska. The data in Attachment C is based on 2010 census and 2015 survey estimate data.

Overall growth trends in Nebraska appear basically unchanged from those described in previous annual Network Plans. Most of the population growth is occurring in Nebraska's 3 most populous and densely populated counties: Douglas, Lancaster, and Sarpy (i.e., the Omaha and Lincoln MSAs).

The basic design of the Nebraska ambient air monitoring network is consistent with these population trends: 83% of the monitoring sites and 89% of the pollutant monitors are located within the Omaha and Lincoln MSAs. The Omaha MSA network contains 67% of the monitoring sites in Nebraska and 79% of the monitors.

D. Funding

Air monitoring is supported by a combination of federal, cash, state, and local funding sources. Table V-2 below provides a summary of the primary funding sources used for air monitoring.

Federal CAA §103 funding is used to operate $PM_{2.5}$ and IMPROVE monitors. Funding for April 2016 through March 2017 was maintained at the same level as the previous year.

Current funding levels are adequate to continue the operation of the existing Nebraska air monitoring network, provided major new equipment purchases are not required.

Table V-2: Primary Funding Sources used to Support Air Monitoring in Nebraska	
Nebraska Department of Environmental Quality (NDEQ)	
Funding Source	**Comments**
State General Funds	At a minimum must be sufficient to meet minimum federal match requirements
State Title V Funds	Fees paid by major sources based on the quantity of air pollutants they emit. NDEQ collects Title V fees for sources throughout Nebraska, except those regulated by LLCHD and Omaha Air Quality Control. Title V funds cannot be used for state/local match.
CAA §105 Funds	Federal grant funds used for air monitoring activities set forth in a bi-annually negotiated EPQA-NDEQ work plan. Requires a 40% state/local match. A portion of this grant funding is passed on to DCHD and LLCHD.
CAA §103 Funds	Federal grant funds used for air monitoring activities set forth in a bi-annually negotiated EPQA-NDEQ work plan. This money is currently limited to funding $PM_{2.5}$ and IMPROVE monitoring, and sometimes for specified equipment purchases and/or special monitoring studies. Requires no state/local match. A portion of this grant funding is passed on to DCHD and LLCHD.
Douglas County Health Department (DCHD)	
Local County Funds	At a minimum must be sufficient to meet minimum federal match requirements
City of Omaha Title V funds	See *State Title V Funds* comments above. The Omaha Air Quality Control regulates air emission sources in the City of Omaha, including the collection of Title V fees from major sources. A portion of the Omaha Title V funds are directed to DCHD to support air monitoring. Title V funds cannot be used for state/local match.
CAA §105 Funds	NDEQ passes-through a portion of the Federal §105 funds to DCHD for activities described in an NDEQ/DCHD work plan. DCHD is required to meet the 40% state/local match requirement.
CAA §103	NDEQ passes-through a portion of the federal §103 funds to DCHD for activities described in an NDEQ/DCHD work plan, primarily $PM_{2.5}$ related monitoring activities. There is no state/local match requirement.
Metropolitan Area Planning Assoc. (MAPA) Funds	Typically federal grant funds obtained by MAPA are for specific purposes such as transportation or homeland security related activities. Historically they have been used for equipment purchases and site set-up, not network operating costs.
Lincoln Lancaster County Health Department (LLCHD)	
Local County Funds	At a minimum must be sufficient to meet minimum federal match requirements
Lancaster County Title V funds	See *State Title V Funds* comments above. LLCHD regulates air emission sources in Lancaster County, including the collection of Title V fees from major sources. A portion of the Title V funds are used to support air monitoring activities performed by LLCHD. Title V funds cannot be used for state/local match.
CAA §105 Funds	NDEQ passes-through a portion of the Federal §105 funds to LLCHD for activities described in an NDEQ/LLCHD work plan. LLCHD is required to meet the 40% state/local match requirement.
CAA §103	NDEQ passes-through a portion of the federal §103 funds to LLCHD for activities described in an NDEQ/LLCHD work plan, primarily $PM_{2.5}$ related monitoring activities. There is no state/local match requirement.

VI. Anticipated Nebraska Air Monitoring Network Modifications

There is one definitive change proposed to the Nebraska Air Monitoring Network, and 2 potential future monitor or site closures as explained below.

A. Omaha Ozone: Permanent Relocation of 30th & Fort Ozone Site to 1616 Whitmore Street

The 30th and Fort monitoring site had to be relocated starting in 2015 due to demolition and redevelopment at the site. The site was moved to 1616 Whitmore beginning in 2015 and continuing through 2017.

Permanent relocation is proposed based upon 4 factors:

1) The availability of the 30th & Fort location after redevelopment is completed remains an unknown;
2) The 1616 Whitmore site is in an economically depressed area;
3) The use of the Whitmore site for both ozone and SO_2 monitoring provides operational and efficiency advantages; and
4) Most importantly the evidence indicates that ozone levels at 1616 Whitmore are higher than those at 30th & Fort, as discussed in detail below.

Table VI-1 compares annual 4th high ozone levels at the 30th & Fort, Whitmore, Omaha NCore and Harrison County IA sites from 2007 through 2016. The annual 4th high levels at the 30th and Fort site were consistently lower than those at the NCore or Harrison County sites, except in 2012.

Table VI-1: Annual 4th High Ozone Levels: Comparing Ozone Levels at the 30 & Fort and the Whitmore sites to those at the Harrison County IA and Omaha NCore Sites

Site/Stats	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Harrison Co, IA	70	59	64	67	66	76	65	62	61	63
Omaha NCore	nd	nd	nd	nd	66	71	66	63	62	62
30th & Fort	61	58	61	64	59	77	61	60	nd	nd
1616 Whitmore	nd	nd	nd	nd	nd	nd	nd	nd	64	63
30th & Fort/Whitmore as % of Harrison Co	87%	98%	95%	96%	89%	101%	94%	97%	105%	100%
30th & Fort/Whitmore as % of Omaha NCore	na	na	na	na	89%	108%	92%	95%	103%	102%

Abbreviations: nd = no data collected na = no data for statistical analysis

There is reason to suspect the 2012 data from 30 & Fort was subject to positive bias. In 2012 as ambient temperatures rose in June and July, the 30th & Fort Street site was demonstrating atypically high ozone levels as compared to other Omaha sites. There was discussion that volatile emissions from electricians tape used to attach an inverted funnel to the inlet as a rain-guard were causing positive bias. The tape was removed and replaced with a different product. Subsequently, ozone levels dropped to more typical levels in comparison to the other sites. It was felt that was not sufficient evidence to discount the data prior to the tape replacement, so it was retained.

Table VI-1 also compares 2015 and 1016 data from the Whitmore, NCore and Harrison Co sites. The Whitmore site has recorded the highest ozone levels of all of the ozone sites in the Omaha

MSA in 2015 and recorded levels equal to or greater than those from all Omaha MSA sites in 2016. See Attachment B Table B-1 for more detail as verification.

B. Potential Discontinuance of Lead Monitoring at the Omaha NCore Site

As discussed in Section V.7.a. above, 40 CFR Part 58 no longer requires lead monitoring at NCore sites where attainment has been demonstrated. Table VI-2 below shows that lead levels at the Omaha NCore site have always been less than 5% of the NAAQS and are dropping. The maximum 24-hour value ever detected was only 14% of the 3-month average NAAQS.

As discussed in the previous Section V.7.a, DCHD has elected to continue monitoring for lead at the Omaha NCore site, in part to address any concerns about potential lead emissions from ongoing residential yard cleanups within the Omaha Lead Superfund Site.

Based on the data collected to date, there is ample evidence to support discontinuance of lead monitoring. Thus it is proposed that discontinuance of lead monitoring prior to the finalization of the 2018 Network Plan (i.e., the next network plan) be up to the discretion of the DCHD.

Table VI-2: Lead Levels at the Omaha NCore Site and Comparison to the 3-Month Average NAAQS of 0.15 *u*g/m^3

	2012	2013	2014	2015	2016
Max Annual 3-Month Average (*u*g/m^3)	0.006	0.006	0.006	0.003	0.003
Max Annual 3-Month Average (% NAAQS)	4%	4%	4%	2%	2%
Max 24-Hour Average (*u*g/m^3)	0.021	0.013	0.016	0.009	0.008

C. Potential Closure of the PM_{10} Site at 46th & Farnam

The PM_{10} site at 46th and Farnam was established as a source-oriented monitor with respect to Omaha Steel, a PM_{10} emission source. The Omaha Steel facility closed in 2014. Starting in 2015 and continuing into 2017, re-development of the site is being undertaken to establish housing, retail stores, and businesses compatible with the adjacent UNMC medical and research campus. Once re-development is completed, this area will not contain significant PM_{10} sources that require a source-oriented monitoring site.

DCHD opted to continue monitoring during the redevelopment process, primarily to address any fugitive dust concerns from construction activities. As discussed previously in Section V.6.b, and as shown in Attachment B Table B-5a, monitoring has demonstrating compliance/attainment with the NAAQS during the redevelopment process through 2016. Activities creating the greatest potential for fugitive dust emissions are anticipated to be concluded in 2017. Thus it is proposed that DCHD be allowed to use their discretion in determining whether to close the 46 & Farnam PM10 site during or at the conclusion of the 2017 calendar year.

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See Attachment D for a compliance review with respect to 40 CFR Part 58 Appendixes A through E.

Omaha NCore Site Operated by DCHD

Site Name: Omaha NCore [1]	AIRS ID: 31-055-0019 [1]
Location: 4102 Woolworth St., Omaha	Latitude: 41.246792º Longitude: -95.973964º
Operating Agency: Douglas County Health Department	
Purpose: NCore	Scale: Neighborhood
Monitor/Pollutant: Carbon Monoxide (CO) - Trace Level	
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Thermo 48i-TLE	EPA Method: RFCA-0981-054 (AQS 554)
Start-Up Date: 1/20/11	Closure Date: Currently operating
Data used for NAAQS comparison: Yes	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Monitor/Pollutant: Ozone (O_3)	
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Thermo 49i	EPA Method: EQOA-0880-047
Start-Up Date: 4/1/11	Closure Date: Currently operating
Data used for NAAQS comparison: Yes	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Monitor/Pollutant: Nitrogen Oxides (NO/NO_y)	
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Thermo 42i $NO/NO_2/NOx$	EPA Method: RFNA-1289-074
Start-Up Date: 1/20/11	Closure Date: Currently operating
Data used for NAAQS comparison: Not Applicable. Monitors for NO & NOy, but not NO_2	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Monitor/Pollutant: Sulfur Dioxide (SO_2) – Trace Level	
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Thermo 43i-TLE	EPA Method: EQSA-0486-060 (AQS 560)
Start-Up Date: 1/20/11	Closure Date: Currently operating
Data used for NAAQS comparison: Yes	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Monitor/Pollutant: $PM_{2.5}$ [2]	
Type/POC: Primary Continuous / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Met One BAM-1020 [2]	EPA Method: EQPM-0308-170
Start-Up Date: 2/1/04 [2]	Closure Date: Currently operating
Data used for NAAQS comparison: Yes	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Monitor/Pollutant: $PM_{2.5}$ [2]	
Type/POC: Collocated / POC 002	Monitoring Frequency: Once every 6 days
Analyzer/Sampler: 2025 Sequential [2]	EPA Method: RFPS-0498-118
Start-Up Date: 1/1/99 [2]	Closure Date: Currently operating
Data used for NAAQS comparison: Only when POC 1 data is not available.	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Monitor/Pollutant: $PM_{2.5}$ Speciation [3]	
Type/POC: Speciation / POC 005 [3]	Monitoring Frequency: Once every 3 days
Analyzer/Sampler: $PM_{2.5}$ Speciation	Sampler Type: SASS and a 3000 URG [3]
Start-Up Date: 5/25/01	Closure Date: Currently operating
Data used for NAAQS comparison: Not applicable	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Continued on next page	

Omaha NCore Site Operated by DCHD - continued

Site Name: Omaha NCore AIRS ID: 31-055-0019 (See Comment 1)
Location: 4102 Woolworth St., Omaha Latitude: 41.246792º Longitude: -95.973964º
Operating Agency: Douglas County Health Department (continued from previous page)

Monitor/Pollutant: PM_{10} – STP & Local Conditions

Type/POC: Continuous [3] / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Met One BAM-1020 [4]	EPA Method: EQPM-0798-122
Start-Up Date: 1/1/11 [4]	Closure Date: Currently operating

Data used for NAAQS comparison: Local conditions data only
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable

Monitor/Pollutant: $PM_{10-2.5}$ – Local Conditions

Type/POC: Continuous [3] / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Met One BAM-1020 [4]	EPA Method: EQPM-0709-185
Start-Up Date: 1/1/11 [4]	Closure Date: Currently operating

Data used for NAAQS comparison: Yes
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable

Monitor/Pollutant: Lead (Pb) – Non-source oriented

Type/POC: Primary / POC 1	Monitoring Frequency: Once every 6 days
Analyzer/Sampler: Hi-Vol TSP-Pb (ICP-MS)	EPA Method: EQL-0310-189
Start-Up Date: 12/1/12	Closure Date: Currently operating

Data used for NAAQS comparison: Yes
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable

Meteorological Parameters – Manufacturer & Model – Start Date
Wind Direction & Velocity – MetOne 50.5 Sonic - 5/13/11
Temperature - MetOne Model 083D – 4/12/11
Barometric Pressure – MetOne Model 090D – 4/12/11
Relative Humidity – MetOne 083D – 4/12/11
Solar Radiation – MetOne Model 096-1 – 4/12/11
Closure Date: Currently operating

Atmospheric Radiation – RadNet Air Monitor
RadNet is a nationwide system that monitors the nation's air, drinking water, precipitation, and pasteurized milk to determine levels of radiation in the environment. RadNet sample analyses and monitoring results provide baseline data on background levels of radiation in the environment and can detect increased radiation from radiological incidents. The RadNet monitor is not subject 40 CFR Part 58 requirements. It is recognized in this Network Plan for informational purposes only. The RadNet monitor began operating at the Woolworth site in June 2006.

Comments:

1. Site History: Site 31-055-0019 was referred to as the "Woolworth site" through 12/31/10. The Woolworth site was a PM monitoring site with $PM_{2.5}$ filter-based, continuous and speciation monitors located on the roof of Douglas County Hospital. To accommodate NCore monitoring, more space was required and the site was moved approximately 550 ft north to the roof of an adjacent/attached building. The move was initiated in December 2010 with the moving of the $PM_{2.5}$ monitors. Gaseous and meteorological monitorts began operation in 2011 and lead in 2012.
2. On 1/1/99 $PM_{2.5}$ sampling was initiated using primary and collocated R&P 2025 filter-based FRM samplers. A continuous monitor was first operated at this site 2/1/04. The initial continuous monitor was an R&P TEOM, which was not an FRM/FEM. It was used for AirNow reporting, but was not used for NAAQS comparison. It was replaced by a MetOne BAM FEM monitor on 1/6/09. The MetOne BAM was operated as an auxiliary monitor to the primary and collocated R&P 2025 FRM samplers through September 2009. Beginning 10/1/09, the MetOne BAM was designated the primary sampler and an R&P 2025 FRM sampler was retained as the collocated sampler.
3. The POC 5 speciation monitor is comprised two speciation samplers: a SASS and a 3000 URG. The speciation data derived from both samplers are reported as POC 005 results.

Carbon Monoxide Sites in the Omaha MSA Operated by DCHD

Site Name: 78th & Dodge – Omaha	AIRS ID: 31-055-0056
Location: 78th St and W Dodge Rd, Omaha	Latitude: 41.259175º Longitude: -96.028628º
Operating Agency: Douglas County Health Department	
Monitor Information	**Pollutant: Carbon Monoxide (CO)**
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Thermo 48c	EPA Method:
Purpose: Highest Concentration	Scale: Microscale
Start-Up Date: 10/01/07	Closure Date: Currently operating
Data used for NAAQS comparison: Yes	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Comments: None	

Combined Sulfur Dioxide & Ozone Site in the Omaha MSA Operated by DCHD

Site Name: Whitmore – Omaha	AIRS ID: 31-055-0053
Location: 1616 Whitmore St, Omaha (1)	Latitude: 41.297778º Longitude: -95.937500º
Operating Agency: Douglas County Health Department	
Monitor Information	**Pollutant: Sulfur Dioxide (SO_2)**
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Thermo 43c-tle	EPA Method: EQSA-0486-060
Purpose: High Conc. & Population Oriented (1)	Scale: Neighborhood (1)
Start-Up Date: 7/1/99	Closure Date: Currently operating*
Data used for NAAQS comparison: Yes	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Monitor Information	**Pollutant: Ozone (O_3) (2)**
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Thermo 49C	EPA Method: EQOA-0880-047
Purpose: Population Oriented (1)	Scale: Neighborhood (1)
Start-Up Date: 4/1/15	Closure Date: Currently operating
Data used for NAAQS comparison: Yes	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Comments:	
(1) This site is in a socioeconomically disadvantaged area.	
(2) The ozone monitor from the 30th & Fort Street site was re-located to this site in 2015 & 2016 due to demolition/construction activities.	

Temporarily Closed(1) Ozone Site in the Omaha MSA Operated by DCHD

Site Name: 30th & Fort - Omaha	AIRS ID: 31-055-0035
Location: 30th & Fort Sts., Omaha	Latitude: 41.306111º Longitude: -95.960278º
Operating Agency: Douglas County Health Department	
Monitor Information	**Pollutant: Ozone (O_3)**
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Thermo 49C	EPA Method: EQOA-0880-047
Purpose: Population Oriented	Scale: Neighborhood
Start-Up Date: 5/1/81	Closure Date: 11/1/14
Data used for NAAQS comparison: NA (not operating)	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: NA (site temporarily closed) (1)	
Comment: (1) This site was closed due to demolition/construction activity. The monitor was re-located to 1616 Whitmore St for the 2015 & 2016 monitoring seasons. The future availability of the 30th & Fort St site is uncertain. Data from 2015 indicates that the 1616 Whitmore site may have higher ozone levels than 30th & Fort. A determination as to the permanent location for this monitor will be made at the end of 2016.	

Combined Ozone & PM_{10} Site in the Omaha MSA Operated by DCHD

Site Name: South Omaha – Ozone	AIRS ID: 31-055-0028
Location: 2411 O Street, Omaha	Latitude: 41.207500º Longitude: -95.947500º
Operating Agency: Douglas County Health Department	
Monitor Information	**Pollutant: Ozone (O_3)**
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Thermo 49C	EPA Method: EQOA-0880-047
Purpose: Population Oriented	Scale: Neighborhood
Start-Up Date: 7/1/78	Closure Date: Currently operating
Data used for NAAQS comparison: Yes	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Monitor Information	**Pollutant: PM_{10}**
Type/POC: Primary / POC 001	Monitoring Frequency: Once every 6 days
Analyzer/Sampler: Hi-Vol Filter	EPA Method: RFPS 1287-063
Purpose: Population & Source Oriented	Scale: Neighborhood
Start-Up Date: 6/1/06 (1)	Closure Date: Currently operating
Data used for NAAQS comparison: Only when there is no primary data	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Comments:	
(1) The PM_{10} sampler was initially set-up as a SPAM at 25th & L Sts and then moved to 2411 O St on 8/22/07.	

PM_{10} Sites in the Omaha MSA Operated by DCHD

Site Name: 19th & Burt, Omaha	AIRS ID: 31-055-0054
Location: 19th & Burt Sts., Omaha	Latitude: 41.267770º Longitude: -95.940830º
Operating Agency: Douglas County Health Department	
Monitor Information	**Pollutant: PM_{10}**
Type/POC: Primary / POC 001	Monitoring Frequency: Once every 6 days
Analyzer/Sampler: Hi-Vol Filter	EPA Method: RFPS 1287-063
Purpose: Population & Source Oriented	Scale: Middle
Start-Up Date: 6/1/01	Closure Date: Currently operating
Data used for NAAQS comparison: Yes	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Monitor Information	**Pollutant: PM_{10}**
Type/POC: Collocated / POC 002	Monitoring Frequency: Once every 6 days (1)
Analyzer/Sampler: Hi-Vol Filter	EPA Method: RFPS 1287-063
Purpose: Population & Source Oriented	Scale: Middle
Start-Up Date: 6/1/01	Closure Date: Currently operating
Data used for NAAQS comparison: Only when there is no primary data	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Comments: None	

PM_{10} sites continued on next page

PM_{10} Sites in the Omaha MSA Operated by DCHD - continued

Site Name: 46th & Farnam, Omaha	AIRS ID: 31-055-0045
Location: 46th & Farnam Sts, Omaha	Latitude: 41.257500º Longitude: -95.976111º
Operating Agency: Douglas County Health Department	
Monitor Information	**Pollutant: PM_{10}**
Type/POC: Primary Continuous / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Thermo FH 62 C14	EPA Method: EQPM-1102-150
Purpose: Source Oriented	Scale: Middle
Start-Up Date: 1/1/93 (1)	Closure Date: Currently operating
Data used for NAAQS comparison: Yes	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Comments:	
(1) This site utilized a Hi-Vol sampler on a once every 6 day sampling schedule until 1/1/08, when a continuous sampler was installed.	

$PM_{2.5}$ Sites in the Omaha MSA Operated by DCHD

Site Name: Berry Street Omaha	AIRS ID: 31-055-0052
Location: 9225 Berry Street, Omaha	Latitude: 41.333056º Longitude: -96.099722º
Operating Agency: Douglas County Health Department	
Monitor Information	**Pollutant: $PM_{2.5}$**
Type/POC: Primary / POC 001	Monitoring Frequency: Once every 3 days
Analyzer/Sampler: 2025 Sequential	EPA Method: RFPS-0498-118
Purpose: Population & Source Oriented	Scale: Neighborhood
Start-Up Date: 1/1/99	Closure Date: Currently operating
Data used for NAAQS comparison: Yes	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Monitor Information	**Pollutant: $PM_{2.5}$**
Type/POC: Collocated / POC 002	Monitoring Frequency: Once every 6 days
Analyzer/Sampler: 2025 Sequential	EPA Method: RFPS-0498-118
Purpose: Population & Source Oriented	Scale: Neighborhood
Start-Up Date: 10/1/14	Closure Date: Currently operating
Data used for NAAQS comparison: Only when there is no primary data	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Comments: None	

Site Name: Bellevue	AIRS ID: 31-153-0007
Location: 2912 Coffey Ave., Bellevue	Latitude: 41.166944º Longitude: -95.923889º
Operating Agency: Douglas County Health Department	
Monitor Information	**Pollutant: $PM_{2.5}$**
Type/POC: Primary Continuous / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Met One BAM-1020 (1)	EPA Method: EQPM-0308-170
Purpose: Population & Source Oriented	Scale: Neighborhood
Start-Up Date: 3/1/99	Closure Date: Currently operating
Data used for NAAQS comparison: Yes	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Comments: (1) This site was operated with a 2025 sequential sampler from 3/1/99 thru 6/30/10 (RFPS-0498-118). On 7/1/10 a Met One BAM monitor began operating.	

$PM_{2.5}$ Sites in the Omaha MSA Operated by DCHD - continued

Site Name: Blair	AIRS ID: 31-177-0002
Location: 2242 Wright St., Blair	Latitude: 41.551136º Longitude: -96.146753
Operating Agency: Douglas County Health Department	
Monitor Information	**Pollutant: $PM_{2.5}$**
Type/POC: Primary / POC 001	Monitoring Frequency: Once every 3 days
Analyzer/Sampler: 2025 Sequential	EPA Method: RFPS-0498-118
Purpose: Population & Source Oriented	Scale: Neighborhood
Start-Up Date: 4/6/09	Closure Date: Currently operating
Data used for NAAQS comparison: Yes Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Comments: None	

Sulfur Dioxide Site in the Omaha MSA Operated by DCHD

Site Name: OPPD North Omaha Station	AIRS ID: 31-055-0057
Location: 7288 John Pershing Drive	Latitude: 41.325579º Longitude: -95.946297º
Operating Agency: Douglas County Health Department	
Monitor Information	**Pollutant: Sulfur Dioxide (SO_2)**
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Thermo 43i	EPA Method: EQSA-0486-060
Purpose: Population & Source Oriented	Scale: Microscale
Start-Up Date: 01/01/17	Closure Date: Currently operating
Data used for NAAQS comparison: Yes Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Comments: This site was established to satisfy requirements of the Data Requirements Rule (DRR) in 40 CFR Part 51	

PM_{10} Sites in the Weeping Water Area* Operated by NDEQ

* The Weeping Water Area is in Cass County, which is part of the Omaha MSA. This is a relatively non-urbanized area of the county with limestone mining and processing activities. The PM_{10} monitoring conducted here is for evaluation of air quality in the vicinity of Weeping Water, and not the Omaha MSA as a whole.

Site Name: Weeping Water City (1)	AIRS ID: 31-025-0002
Location: 102 P Street, Weeping Water	Latitude: 40.866228 Longitude: -96.137678
Operating Agency: Nebraska Department of Environmental Quality	
Monitor Information	**Pollutant: PM_{10}**
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Met One BAM (2)	EPA Method: EQPM-0798-122
Purpose: Population & Source Oriented	Scale: Neighborhood
Start-Up Date: 01/01/85	Closure Date: Currently operating
Data used for NAAQS comparison: Yes Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes. See Section V.A.1.a. App B not applicable	
Comments: (1) Site is located at the city waste water treatment facility. (2) This site was operated with a primary 2025 sequential monitor from 8/12/2004 to 9/30/2016. A MetOne BAM continuous monitor began operating on 10/1/2016. A collocated 2025 sequential monitor at the site suffered a major electronic breakdown and last sampled on 3/25/15. With the installation of the continuous monitor, collocation is no longer required. See Section V.A.1.a for more detail.	

Site Name: Weeping Water Farm	AIRS ID: 31-025-0009
Location: 5102 Hwy 50, Cass Co.	Latitude: 40.873309º Longitude: -96.183359º
Operating Agency: Nebraska Department of Environmental Quality	
Monitor Information	**Pollutant: PM_{10}**
Type/POC: Primary Continuous / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: R&P TEOM	EPA Method: RFPS 1090-079
Purpose: Source Oriented	Scale: Neighborhood
Start-Up Date: 4/8/05	Closure Date: Currently operating
Data used for NAAQS comparison: Yes Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Comments: None	

Sites in the Lincoln MSA Operated by LLCHD

Site Name: Davey	AIRS ID: 31-109-0016
Location: 1st & Maple Sts., Davey	Latitude: 40.984722º Longitude: -96.677222º
Operating Agency: Lincoln Lancaster County Health Department	
Monitor Information	**Pollutant: Ozone**
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Teledyne API 400E	EPA Method: EQOA-0992-087
Purpose: Population Oriented	Scale: Urban
Start-Up Date: 1/1/85	Closure Date: Currently operating
Data used for NAAQS comparison: Yes	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Comments: This site was upgraded at the beginning of the 2014 ozone season with the Teledyne API 400E analyzer replacing the Dasibi 1003 AH analyzer.	

Site Name: LLCHD Building	AIRS ID: 31-109-0022
Location: 3140 N St., Lincoln	Latitude: 40.812590º Longitude: -96.683020º
Operating Agency: Lincoln Lancaster County Health Department	
Monitor Information	**Pollutant: $PM_{2.5}$**
Type/POC: Primary / POC 001	Monitoring Frequency: Once every 3 days
Analyzer/Sampler: R&P 2025 Seq. Filter	EPA Method: RFPS 0498-118
Purpose: Population Oriented	Scale: Neighborhood
Start-Up Date: 1/1/99	Closure Date: Currently operating
Data used for NAAQS comparison: Yes	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Monitor Information	**Pollutant: $PM_{2.5}$**
Type/POC: Collocated / POC 002	Monitoring Frequency: Once every 6 days
Analyzer/Sampler: R&P 2025 Seq. Filter	EPA Method: RFPS 0498-118
Purpose: Population Oriented	Scale: Neighborhood
Start-Up Date: 1/1/99	Closure Date: Currently operating
Data used for NAAQS comparison: Only when primary data is not available.	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Monitor Information	**Pollutant: $PM_{2.5}$**
Type/POC: Continuous / POC 003(1)	Monitoring Frequency: Continuous
Analyzer/Sampler: Met One BAM-1020	EPA Method: EQPM-0308-170
Purpose: Population Oriented	Scale: Neighborhood
Start-Up Date: 7/1/06	Closure Date: Currently operating
Data used for NAAQS comparison: No. Reports to AirNow, but not AQS (1)	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	

Comment:

(1) The MetOne BAM monitor reported data to AirNow , but not AQS. Data from the MetOne BAM is not used for NAAQS comparison. The MetOne BAM data typically demonstrates a positive bias when compared to same day FRM data. In 2015, there was a 39% bias on same-day annual average data, and a 17% positive bias for the same-day 98th percentile.

Sites in the Lincoln MSA Operated by LLCHD - continued

Site Name: Sheldon Station	AIRS ID: 31-109-0025
Location: SW 42nd St ~0.2 mi N of W Pella Rd	Latitude: 40.554722º Longitude: -96.780278º
Operating Agency: Lincoln-Lancaster County Health Department	
Monitor Information	**Pollutant: Sulfur Dioxide (SO_2)**
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Teledyne API T100	EPA Method: EQSA-0495-100
Purpose: Highest Concentration	Scale: Microscale
Start-Up Date: 12/23/16	Closure Date: Currently operating
Data used for NAAQS comparison: Yes Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Comments: This site was established to satisfy requirements of the Data Requirements Rule (DRR) in 40 CFR Part 51	

$PM_{2.5}$ Sites Operated by NDEQ

Site Name: Grand Island Senior High	AIRS ID: 31-079-0004
Location: 2124 N Lafayette Ave, Grand Island	Latitude: 40.942099º Longitude: -98.364967º
Operating Agency: Nebraska Department of Environmental Quality	
Monitor Information	**Pollutant: $PM_{2.5}$**
Type/POC: Primary FRM/ POC 1	Monitoring Frequency: Once every 3 days
Analyzer/Sampler: R&P 2025 Sequential	EPA Method: RFPS-0498-118
Purpose: Transport & Population Oriented	Scale: Regional & Neighborhood
Start-Up Date: 5/7/04	Closure Date: Currently operating
Data used for NAAQS comparison: Yes Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Comments: None	

Site Name: Scottsbluff Senior High School	AIRS ID: 31-157-0004
Location: Hwy 26 & 5th Ave, Scottsbluff (1)	Latitude: 41.87609º Longitude: -103.6587º
Operating Agency: Nebraska Department of Environmental Quality	
Monitor Information	**Pollutant: $PM_{2.5}$**
Type/POC: Primary FRM/ POC 1	Monitoring Frequency: Once every 3 days
Analyzer/Sampler: Thermo 2025i Sequential	EPA Method: RFPS-0498-118
Purpose: Background & Population Oriented	Scale: Regional & Neighborhood
Start-Up Date: 5/13/09	Closure Date: Currently operating
Data used for NAAQS comparison: Yes Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable	
Comments: (1) The sampler was moved ~170 m W-SW on 4/15/16 (1st sample date at new location). The move was necessitated by re-construction of athletic fields and at the request of the school. The site ID # was retained. The new site uses standard 110 v AC line power, as the solar and wind power supply used at the old location was not retained.	

Source-Oriented Lead (Pb) Sites Operated by NDEQ

Site Name: Fremont	AIRS ID: 31-053-0005	
Location: 1255 Front St., Fremont, NE	Latitude: 41.90583º	Longitude: -97.31583º
Operating Agency: Nebraska Department of Environmental Quality		
Monitor Information	**Pollutant: Lead (Pb)**	
Type/POC: Primary / POC 1	Monitoring Frequency: Once every 6 days	
Analyzer/Sampler: Hi-Vol TSP-Pb (ICP-MS)	EPA Method: EQL-0310-189	
Purpose: Source-Oriented (1)	Scale: Micro-scale	
Start-Up Date: 3/9/10	Closure Date: Currently operating	
Data used for NAAQS comparison: Yes Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable		
Monitor Information	**Pollutant: Lead (Pb)**	
Type/POC: Collocated / POC 2	Monitoring Frequency: Once every 6 days	
Analyzer/Sampler: Hi-Vol TSP-Pb (ICP-MS)	EPA Method: EQL-0310-189	
Purpose: Source Oriented	Scale: Micro-scale	
Start-Up Date: 3/9/10	Closure Date: Currently operating	
Data used for NAAQS comparison: Only if primary sampler data is not available Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable		
Comments: (1) Source-oriented with respect to Magnus Farley.		

Site Name: Auburn	AIRS ID: 31-127-0002	
Location: RR2, Auburn, NE	Latitude: 40.40254º	Longitude: -95.84164º
Operating Agency: Nebraska Department of Environmental Quality		
Monitor Information	**Pollutant: Lead (Pb)**	
Type/POC: Primary / POC 1	Monitoring Frequency: Once every 6 days	
Analyzer/Sampler: Hi-Vol TSP-Pb (ICP-MS)	EPA Method: EQL-0310-189	
Purpose: Source Oriented (1)	Scale: Micro-scale	
Start-Up Date: 5/8/10	Closure Date: 6/5/2016 (2)	
Data used for NAAQS comparison: Yes Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Yes, App B not applicable		
Comments: (1) Source-oriented with respect to Magnolia Metals. (2) This site was closed June 5, 2016 in accordance with the 2015 Network Plan. Magnolia Metals has installed pollution control equipment that dropped their Pb emissions below the 0.5 tpy threshold for requiring monitoring.		

Source-Oriented Lead Monitoring Waivers pursuant to 40 CFR Part 58 Section 4.5(ii)

(1) Nucor Steel in Norfolk, NE: Waiver approved by the EPA R7 Administrator in April 2014 and is effective through April 2019, unless revoked or extended.

Total Reduced Sulfur (TRS) Sites operated by NDEQ

Site Name: Pine Street – Dakota City	AIRS ID: State SPM, AIRS ID not assigned
Location: 501 Pine St, Dakota City	Latitude: 42.421867º Longitude: -96.403031º
Operating Agency: Nebraska Department of Environmental Quality	
Monitor Information	**Pollutant: Total Reduced Sulfur (TRS)**
Type/POC: State TRS monitor	Monitoring Frequency: Continuous
Analyzer/Sampler: API 102A w TOX	Method: NDEQ T129 Chap 4.007
Purpose: Source Oriented	Scale: Neighborhood
Start-Up Date: 9/15/97	Closure Date: 6/30/2016 (1)
Data used for NAAQS comparison: Not applicable. Compared to Nebraska TRS standards	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Not applicable	
Comments:	
(1) Closed in accordance with the 2015 Network Plan.	

Interagency Monitoring of Protected Visual Environments (IMPROVE) Sites *

* Interagency Monitoring of Protected Visual Environments (IMPROVE) monitors are operated to evaluate regional haze that may impact Federal Class I areas in National Parks and Wilderness Areas. Fine particulate and particulate speciation monitoring is conducted at these sites. They do not have an AIRS ID, are not subject to 40 CFR Part 58 requirements, and are not used for NAAQS attainment determinations.

Site Name: NE National Forest IMPROVE	AIRS ID: Not applicable, See Comments
Location: Nebraska National Forest, Thomas Co.	Latitude: 41.8888º Longitude: -100.3387º
Operating Agency: Nebraska Department of Environmental Quality / US Forest Service	
Monitor Information	**Pollutant: IMPROVE** (See Comments)
Type/POC: IMPROVE	Monitoring Frequency: Continuous
Method Description: : IMPROVE	EPA Method: Not applicable
Purpose: Background & Transport	Scale: Regional
Start-Up Date: 2002	Closure Date: Currently operating
Data used for NAAQS comparison: Not applicable.	
Meets applicable provisions of 40 CFR Part 58 Appendixes A thru E: Not applicable	
Comments: None	

National Atmospheric Deposition Program (NADP) Sites**

** The NADP site information below is included in the Network Plan for informational purposes only. They are not subject to 40 CFR Part 58 requirements, nor used for NAAQS attainment determinations.

Site Name: Mead NADP	AIRS ID: Not applicable, See Comments
Location: U of NE Field Lab, Saunders Co.	Latitude: 41.1528º Longitude: -96.4912
Operating Agency: University of Nebraska	
Monitor Information	**Pollutant: TNT/MDN**
Type/POC: NTN/MDN	Monitoring Frequency: Continuous
Method Description: NTN/MDN	EPA Method: Not applicable
Purpose: Background & Transport	Scale: Regional
Start-Up Date: 7/25/78	Closure Date: Currently operating

Comments: The Mead and North Platte National Atmospheric Deposition Program (NADP) sites are operated by the University of Nebraska with analytical and data processing support from the NADP. NADP sites are not subject to review under the provisions of 40 CFR Part 58.10, and thus are not subject to review under this Network Plan. They are included herein for informational purposes only.

- Monitoring methods are specific to this program and are not Federal Reference or Equivalent Methods (FRM/FEM).
- The National Trends Network (NTN) sites collect deposition data on acidity, sulfate, nitrate, ammonium, chloride, and base cations (e.g., calcium, magnesium, potassium and sodium).
- Mercury Deposition Network (MDN) sites collect mercury deposition data.
- The NADP oversees both NTN and MDN sites, and provides analytical and data processing support.
- The Mead site initiated operation as an NTN site in 1978 and began MDN operations in June 2007. NDEQ provides financial support for MDN operations at this site through Title V fees.

Site Name: North Platte NADP	AIRS ID: Not applicable, See Comments
Location: U of Ne Ag Station, Lincoln, Co.	Latitude: 41.0592º Longitude: -100.7464º
Operating Agency: University of Nebraska	
Monitor Information	**Pollutant:** NTN
Type/POC: NTN	Monitoring Frequency: Continuous
Method Description: NTN	EPA Method: Not applicable
Purpose: Background & Transport	Scale: Regional
Start-Up Date: 9/24/85	Closure Date: Currently operating

Comments: The Mead and North Platte National Atmospheric Deposition Program (NADP) sites are operated by the University of Nebraska with analytical and data processing support from the NADP. NADP sites are not subject to review under the provisions of 40 CFR Part 58.10, and thus are not subject to review under this Network Plan. . They are included herein for informational purposes only.

- Monitoring methods are specific to this program and are not Federal Reference or Equivalent Methods (FRM/FEM).
- The National Trends Network (NTN) sites collect deposition data on acidity, sulfate, nitrate, ammonium, chloride, and base cations (e.g., calcium, magnesium, potassium and sodium).
- Mercury Deposition Network (MDN) data was collected at this site from October 2009 thru October 2011 using Nebraska Environmental Trust funding.
- The NADP oversees both NTN and MDN sites, and provides analytical and data processing support.

Nebraska 2017 Ambient Air Monitoring Network Plan

Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

This attachment compares ambient air quality data from 2014 thru 2016 to the NAAQS. The annual data and estimated Design Values (DVs) presented below were retrieved from the EPA AQS database. The 2016 data was not yet certified and could be subject to change.

Table B-1: Ozone Data

Comparison of 3-Year Design Values for 8-hour Ozone to NAAQS (1)						
Site	**Site Operator**	**2014**	**2015**	**2016**	**~ DV**	**% NAAQS**
Omaha MSA and Near-By Montgomery Co., IA (4)						
Omaha NCore	DCHD	0.063	0.062	0.062	0.062	89%
2411 O St., Omaha	DCHD	0.059	0.055	0.063	0.059	84%
30th & Fort, Omaha	DCHD	0.060	nd	nd	na	na
1616 Whitmore St, Omaha	DCHD	nd	0.064	0.063	0.062	89%
Harrison Co, IA	IA DNR	0.062	0.061	0.063	0.062	89%
Pisgah, IA	IA DNR	0.063	0.061	0.063	0.062	89%
Montgomery County, IA (2)	IA DNR	0.059	0.060	0.062	0.060	86%
Lincoln MSA						
First & Maple, Davey	LLCHD	0.061	0.061	0.058	0.060	86%
Sioux City MSA						
31986 475th Ave, Union Co, SD	SD DEP	0.062	0.061	0.060	0.061	87%
Nebraska Non-MSA						
Santee Indian Reservation	US EPA	0.063	0.063	0.064	0.063	90%
Sites in Surrounding States						
Emmetsburg, IA	IA DNR	0.063	0.064	0.058	0.061	87%
Savanah, MO	MO DNR	0.064	0.064	0.062	0.063	90%
Kansas City Metro (Max DV site)	MO DNR	0.066	0.068	0.069	0.067	96%
Topeka KS	KS DHE	0.064	0.062	0.063	0.063	90%
Cedar Bluffs KS	KS DHE	0.068	0.063	0.058	0.063	90%
Denver CO Metro (Max DV site)	CO DPHE	0.074	0.081	0.078	0.077	110%
Greeley CO	CO DPHE	0.070	0.073	0.067	0.070	110%
Cheyenne WY (Max DV site)	WY DEQ	0.065	0.063	0.061	0.063	90%
Newcastle WY	WY BLM	0.059	0.061	0.060	0.060	86%
Wind Cave NP Custer Co SD	SD DEP	0.057	0.059	0.060	0.058	83%
Badlands NP Jackson Co SD	SD DEP	0.057	0.057	0.060	0.058	83%

Notes and Explanations: (EPA AQS data retrieval 4/6/17) Additional notes on next page

(1) Concentrations are in units of ppm. The Design Value (DV) is the truncated 3-year average of the 4th highest max for each year. The NAAQS = 0.070 ppm (promulgated 10/1/2015).

(2) The Montgomery County, IA site is located outside the Omaha MSA at Viking Lake State Park;~18 miles east of the Mills-Montgomery County line and ~ 45 miles SE of the I-29/I-80 intersection.

Table B-2: Carbon Monoxide Data

Comparison of 3-Year Maximum Value for 1-Hour Carbon Monoxide to NAAQS (1) (2)					
Site	**2014**	**2015**	**2016**	**Design Value** (2)	**% NAAQS**
Omaha MSA					
78th & Dodge Sts, Omaha	1.8	2.2	1.8	2.2	6%
Omaha NCore (4)	2.2	0.97	.74	2.2	6%
Comparison of 3-Year Maximum Value for 8-Hour Carbon Monoxide to NAAQS (1) (3)					
Site	**2014**	**2015**	**2016**	**Design Value** (3)	**% NAAQS**
Omaha MSA					
78th & Dodge Sts., Omaha	1.5	1.7	1.5	1.7	19%
Omaha NCore (4)	1.0	0.7	0.5	1.0	11%

Notes and Explanations:

(1) The CO NAAQS were last revised in 1984. The latest review was concluded in August 2011 when EPA determined no changes in the CO NAAQS were warranted.

(2) The 1-hour NAAQS = 35 ppm. The Design Value is the highest annual 2nd highest maximum value over the last 3 years. The annual values shown are the annual 2nd highest maximum values. Concentrations are in units of ppm.

(3) The 8-hour NAAQS = 9 ppm. The Design Value is the highest annual 2nd highest maximum value over the last 3 years. The annual values shown are the 2nd highest 8-hour maximum values. Concentrations are in units of ppm.

(4) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

Table B-3: Sulfur Dioxide Data

Comparison of 1-Hour Sulfur Dioxide Levels to the Primary NAAQS (1)					
Site	**2014**	**2015**	**2016**	**Design Value** (1)	**% NAAQS**
Omaha MSA					
1616 Whitmore St., Omaha	0.054	0.057	0.065	0.059	79%
Omaha NCore (2)	0.021	0.038	0.024	0.027	36%
Sioux City MSA Sites					
1221 260th St. Sergeant Bluff, IA (3)	0.011	0.010	0.006	0.009	12%
31986 475th Ave, Union Co, SD (4)	0.004	0.005	0.003	0.004	5%

Notes and Explanations: (EPA AQS data retrieval 4/10/17)

(1) The 1-hour NAAQS is 75 ppb or 0.075 ppm. The Design Value is the three-year average of the annual 99th percentile values. This NAAQS was promulgated on June 22, 2010. The annual values shown are annual 99th percentile values in ppm units.

(2) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

(3) The Sergeant Bluff IA site began operation 7/1/12 and is operated by the IA DNR.

(4) The Union Co., SD sites are operated by the South Dakota Department of Environment & Natural Resources.

Table B-4a: Nitrogen Dioxide Data

Comparison of 1-Hour Maximum Levels of Nitrogen Dioxide to NAAQS (1)(2)(3)					
Site	**2014**	**2015**	**2016**	**Design Value**	**% NAAQS**
Sioux City MSA					
31986 475th Ave, Union Co, SD (4)	0.021	0.021	0.016	0.019	19%
Comparison of 3-Year Maximum Annual Average Value for Nitrogen Dioxide to NAAQS					
Site	**2014**	**2015**	**2016**	**Design Value (2)**	**% NAAQS**
Sioux City MSA					
31986 475th Ave, Union Co, SD (4)	0.003	0.003	0.002	0.003	6%

Notes and Explanations:

(1) All concentrations expressed in ppm units.

(2) The 1-hour NO_2 NAAQS is 0.100 ppm (promulgated Feb. 2010). NAAQS attainment is achieved if the 3-year average of the annual 98th percentile of the daily maximum 1-hour values does not exceed 0.100 ppm.

(3) The Annual Average NO_2 NAAQS is 0.053 ppm not to be exceeded in a calendar year. It was promulgated 1971, and retained in the 1996 and 2010 reviews. The Design Value is the highest annual average over the 3-year comparison period.

(4) The Union Co., SD site is operated by the South Dakota Department of Environment & Natural Resources

Table B-4b: Nitrogen Oxide Data from the Omaha NCore Site (1)(2)

Parameter	**2014**	**2015**	**2016**	**Approx. DV (3)**	**Max % NAAQS**
1-Hour Data: 98th Percentile					
NOy-NO (3)(4)(5)	0.039	0.037	0.0336	0.037	37%
Annual Average Data					
NOy-NO	0.007	0.007	0.0058	0.0066	12%

Footnotes:

(1) All concentrations expressed in ppm units.

(2) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

(3) NOy – Reactive oxides of nitrogen, which includes NO, NO_2 and other nitrogen oxides, including organic nitrogen oxide compounds.

(4) NO – Nitrogen oxide

(5) NOy-NO provides an approximation of nitrogen dioxide (NO_2), with some possibility of over-estimating the true NO_2 concentration. For this reason, the NOy-NO parameter can be used to demonstrate attainment, but not non-attainment.

Table B-5a: PM_{10} - Maximum 24-Hour Data [(1) (2)]

Site	2014	2015	2016	Design Value [(1)]	% NAAQS
Omaha MSA & Montgomery Co., IA [(6)]					
Omaha NCore, 4102 Woolworth St. [(3)]	75	60	81	71	47%
2411 O St, Omaha	74	56	50	49	33%
46th & Farnam Sts, Omaha [(4)]	115	153	66	106	71%
19th & Burt Sts, Omaha	49	52	43	47	31%
3130 C Ave, Council Bluffs, IA [(5)]	53	50	53	52	35%
Montgomery Co., IA (outside Omaha MSA) [(5) (6)]	50	42	41	38	25%
Weeping Water City [(7)]	49	45	51	46	31%
Weeping Water Farm [(7)]	145	166	151	137	91%
Sioux City MSA Sites					
821 30th St, Sioux City, IA [(5)]	51	49	86	49	33%
31986 475th Ave, Union Co, SD [(8)]	77	91	61	88	59%

Notes and Explanations:

(1) NAAQS = 150 *u*g/m3, not to be exceeded more than once per year on average over 3 years, where exceedence is defined as a value of 155 *u*g/m3 or more. The Design Value is the 4th highest 24-hour value found in the 3-year design period. Concentrations are in units of μg/m^3 at standard temperature (25º C) and pressure (760 mm Hg) conditions.

(2) NAAQS History: The primary 24-hour NAAQS was initially set at 150 *u*g/m3 in 1987, and was retained at this level in the 1997, 2006 and 2012 PM NAAQS reviews.

(3) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

(4) The 46th & Farnam site recorded three PM10 values above 150 in 2012: 199 *u*g/m3 on 5/14/12, 181 *u*g/m3 on 6/5/12, and 159 *u*g/m3 on 1/5/12. The primary PM source in the area relocated and ceased operations in the area in 2014.

(5) The Council Bluffs, Montgomery Co., and Sioux City IA sites are operated by the IA DNR

(6) The Montgomery County, IA site is located outside the Omaha MSA at Viking Lake State Park;~18 miles east of the Mills-Montgomery County line and ~ 45 miles SE of the I-29/I-80 intersection.

(7) Weeping Water is a limestone mining and processing area in Cass County, which is located 15 to 20 miles south of the main urbanized area within the Omaha MSA.

(8) The Union Co., SD site is operated by the South Dakota Department of Environment & Natural Resources

Table B-5b: PM_{10} - Annual Average Data [1]

Site	2014	2015	2016	3-Year Average	% Old Std
Omaha MSA and Montgomery Co., IA [4]					
Omaha NCore, 4102 Woolworth St. [2]	21.8	20.9	21.2	21.3	43%
2411 O St, Omaha	25.1	23.0	24.2	24.1	48%
46th & Farnam Sts, Omaha	24.3	18.6	16.5	19.8	40%
19th & Burt Sts, Omaha	20.8	19.4	20.4	20.2	40%
3130 C Ave, Council Bluffs, IA [3]	22.1	20.5	20.2	20.9	42%
Montgomery Co., IA (outside Omaha MSA) [3][4]	17.3	15.9	16.0	16.4	33%
Weeping Water City [5]	19.7	18.4	19.5	19.2	38%
Weeping Water Farm [5]	28.3	31.0	28.9	29.4	59%
Sioux City MSA					
821 30th St, Sioux City, IA [3]	17.6	16.6	20.3	18.2	36%
31986 475th Ave, Union Co, SD [6]	18.0	17.9	16.5	17.5	35%

Notes and Explanations:

(1) There is currently no NAAQS for the annual average PM_{10} concentration. An annual average NAAQS of 50 $\mu g/m^3$ was established in 1987, and then rescinded on December 18, 2006. Comparison to the rescinded NAAQS is provided for informational purposes only. Concentrations are in units of $\mu g/m^3$.

(2) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

(3) The Council Bluffs, Montgomery Co., Emmetsburg and Sioux City IA sites are operated by the IA DNR

(4) The Montgomery County, IA site is located outside the Omaha MSA at Viking Lake State Park;~18 miles east of the Mills-Montgomery County line and ~ 45 miles SE of the I-29/I-80 intersection.

(5) Weeping Water is a limestone mining and processing area in Cass County, which is located 15 to 20 miles south of the main urbanized area within the Omaha MSA.

(6) The Union Co., SD site is operated by the South Dakota Department of Environment & Natural Resources.

Table B-6a: $PM_{2.5}$ - 98th Percentile, 24-Hour Data (1) (2)

Site	2014	2015	2016	Design Value (1)	% NAAQS
Omaha MSA & Montgomery Co., IA (5)					
Omaha NCore (3)	23.1	22.0	18.1	21	60%
9225 Berry St.; Omaha	19.5	17.1	15.0	17	49%
2912 Coffey Ave., Bellevue	22.3	21.7	16.2	20	57%
2242 Wright St., Blair	16.9	16.0	14.0	16	46%
3130 C Ave., Council Bluffs, IA (4)	19.6	18.8	17.0	18	51%
Montgomery Co., IA (outside Omaha MSA) (4) (5)	18.4	18.5	15.5	17	49%
Lincoln MSA					
3140 N Street, Lincoln	19.9	14.7	16.0	17	49%
Sioux City MSA					
821 30th St, Sioux City, IA (4)	24.5	19.1	nd	22	63%
901 Floyd Blvd, Sioux City, IA (4)	nd	nd	15.4	15	43%
31986 475th Ave, Union Co, SD (6)	23.1	19.9	17.3	20	57%
Other Nebraska Sites					
Grand Island Senior High	13.9	14.8	12.2	14	40%
Scottsbluff (7)	20.4	24.9	14.6	20	57%

Notes and Explanations:

(1) The Design Values are the 3-year average of the annual 98th percentile values. To determine attainment status, the Design Values are compared to the 35 $\mu g/m^3$ NAAQS. Concentrations are in units of $\mu g/m^3$.

(2) NAAQS History: The 24-hour $PM_{2.5}$ NAAQS was initially established at 65$\mu g/m^3$ in 1997. It was lowered to 35 mg/m^3 in 2006 and retained at the 35 $\mu g/m^3$ level in 2012.

(3) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

(4) The Council Bluffs, Montgomery Co., and Sioux City IA sites are operated by the IA DNR

(5) The Montgomery County, IA site is located outside the Omaha MSA at Viking Lake State Park;~18 miles east of the Mills-Montgomery County line and ~ 45 miles SE of the I-29/I-80 intersection.

(6) The Union Co., SD site is operated by the South Dakota Department of Environment & Natural Resources

(7) Scottsbluff Data Completeness: Q4-2014 = 71% & CY2014 = 80%.
Q1-2015 = 74%, Q4-2015 = 60%, CY2015 =81%. Q1-2016 = 32%, Q2-2016 = 73%, CY2016 = 71%.
Data loss issues were associated with power losses and monitor malfunctions.

Table B-6b: $PM_{2.5}$ - Annual Average Data [1] [2]

Site	2014	2015	2016	Design Value [1]	% NAAQS
Omaha MSA & Montgomery Co., IA [4]					
Omaha NCore [3]	8.8	9.2	8.0	8.7	73%
9225 Berry St.; Omaha	8.1	7.0	6.4	7.2	60%
2912 Coffey Ave., Bellevue	8.7	8.4	7.9	8.3	69%
2242 Wright St., Blair	7.4	6.7	6.4	6.9	58%
3130 C Ave., Council Bluffs, IA [4]	9.1	8.3	7.2	8.2	68%
Montgomery Co., IA (outside Omaha MSA) **[4] [5]**	7.7	6.9	6.1	6.9	58%
Lincoln MSA					
3140 N Street, Lincoln	7.8	6.4	6.1	6.8	57%
Sioux City MSA					
821 30th St, Sioux City, IA [4]	8.4	7.5	nd	8.0	67%
901 Floyd Blvd, Sioux City, IA [4]	nd	nd	7.3	7.3	61%
31986 475th Ave, Union Co, SD [6]	8.6	8.2	5.8	7.5	63%
Other Nebraska Sites					
Grand Island Senior High	6.5	6.2	5.4	6.0	50%
Scottsbluff [7]	5.2	5.5	4.9	5.2	43%

Notes and Explanations:

(1) The Design Values are the 3 year average of the annual average values. To determine attainment status, the Design Values compared to the 12 $\mu g/m^3$ NAAQS. Concentrations are in units of $\mu g/m^3$.

(2) NAAQS History: The annual average $PM_{2.5}$ NAAQS was initially established in 1997 at15$\mu g/m^3$. It was retained at this level in the 2006 review and then lowered to 12 $\mu g/m^3$ in December 2012.

(3) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.

(4) The Council Bluffs, Montgomery Co., and Sioux City IA sites are operated by the IA DNR

(5) The Montgomery County, IA site is located outside the Omaha MSA at Viking Lake State Park;~18 miles east of the Mills-Montgomery County line and ~ 45 miles SE of the I-29/I-80 intersection.

(6) The Union Co., SD site is operated by the South Dakota Department of Environment & Natural Resources

(7) Scottsbluff Data Completeness: Q4-2014 = 71% & CY2014 = 80%
Q1-2015 = 74%, Q4-2015 = 60%, CY2015 =81%. Q1-2016 = 32%, Q2-2016 = 73%, CY2016 = 71%.
Data loss issues were associated with power losses and monitor malfunctions.

Table B-7: Lead in Total Suspended Particulate (TSP-Pb)

Comparison of 3-Year Maximum Values of 3-Month Average Values (1) (2)					
Site	**2014**	**2015**	**2016**	**DV** (1)	**% NAAQS**
Auburn (3)	0.008	0.004	0.003	0.008	5%
Fremont	0.088	0.077	0.061	0.088	59%
Omaha NCore	0.006	0.003	0.003	0.006	4%

Notes and Explanations:

(1) Concentrations are in units of $\mu g/m^3$. The 3-month average NAAQS = 0.15 $\mu g/m^3$. The DV or Design Value is the highest 3 month average in the last 3 years.

(2) NAAQS History: The initial NAAQS was promulgated in 1978 and was set at 1.5 $\mu g/m^3$ calendar quarter average. In 2008, it was modified to 0.15 $\mu g/m^3$ 3-month running average.

(3) The Auburn lead monitor was closed in June 2016.

Table B-8: Total Reduced Sulfur (TRS) Data

Comparison of 3-Year Maximum Value for 1-Minute TRS to the State Standard (1) (2)					
Site	**2014**	**2015**	**2016**(4)	**Maximum Value**	**% NE Std**
Sioux City MSA					
501 Pine St. Dakota City	0.163	0.075	0.099	0.163	2%

Comparison of 3-Year Maximum Value for 30-Minute TRS to the State Standard (1) (3)					
Site	**2014**	**2015**	**2016**(4)	**Maximum Value**	**% NE Std**
Sioux City MSA					
501 Pine St. Dakota City	0.088	0.035	0.057	0.088	88%

Notes and Explanations:

(1) Concentrations are in units of ppm.

(2) The 1-minute Nebraska Air Quality Standard is 10 ppm.

(3) The 30-minute Nebraska Air Quality Standard is 0.10 ppm.

(4) 2016 data includes only January through June. Max values have historically occurred in the spring of the year. The Dakota City TRS monitor was closed in June 2016 in accordance with the 2016 Network Plan.

Attachment C: Population Dynamics

Population related data is reviewed as part of the network planning process because:

- Population growth may be associated with pollution source growth;
- High population density generally correlates with high air pollution potential; and
- Some 40 CFR Part 58 requirements are based on population and/or Federally defined metropolitan statistical definitions.

Population trends within Nebraska have remained fairly constant over the last 2 decades. This population dynamics analysis is updated through 2015.

U.S. Census Bureau & U.S. Office of Management and Budget Basics

The U.S. Census Bureau conducts a comprehensive population census every 10 years referred to as a decennial census. The last decennial census was completed in 2010. In addition, the US Census Bureau conducts annual surveys to provide annual population estimates for each interim year.

The U.S. Office of Management and Budget (OMB) uses the decennial census data to categorize urbanized areas by population and business inter-connections. These urban categories are used to define some Federal program applications, including, in some instances, air monitoring requirements. Four such categories are:

- Metropolitan Statistical Areas (MSAs), which contain an *urbanized area* (a densely settled territory delineated by the US Census Bureau that contains 50,000 or more people);
- Micropolitan Statistical Areas (MiSAs), which contain an *urban cluster* with a population of 10,000 to 49,999, where an *urban cluster* is a densely settled territory delineated by the US Census Bureau that contains at least 2,500 people, but fewer than 50,000 people;
- Combined Statistical Areas (CSAs), which are adjacent MSAs and MiSAs with social and economic ties;
- Core-Based Statistical Areas (CBSA), which are geographic areas defined by the Office of Management and Budget (OMB) that center on an urban center of at least 10,000 people and adjacent areas that are socioeconomically tied to the urban center by commuting. Both MSAs and MiSAs are CBSAs.

These designations are important from an ambient monitoring perspective because:

- They are sometimes used in defining minimum monitoring requirements, and
- They are often used as the default boundary when defining non-attainment areas.

Figure C-1 (below) shows the location and boundaries of MSAs and MiSAs in Nebraska as revised by the Office of Management and Budget in February 2013 based on the 2010 decennial census. There are also two CSAs within NE:

- Omaha-Council Bluffs-Fremont NE-IA CSA, which is the Omaha MSA plus Dodge County, NE;
- Sioux City-Vermillion IA-NE-SD CSA, which is the Sioux City MSA plus Clay County, SD.

Population Demographics and Growth Trends

Most of the area of Nebraska is rural and used for agricultural production (farming and ranching). Conversely, most of the population of Nebraska (59%) resides in the Omaha and Lincoln MSAs, and 82% of the population resides within the boundaries of designated MSAs and MiSAs (see Table C-1). Even within the MSAs and MiSAs, agricultural usage is the predominant land use except for the two most densely populated counties of Douglas and Sarpy.

Figure C-1: Nebraska Metropolitan Statistical Areas (MSAs) and Micropolitan Statistical Areas (MiSAs)

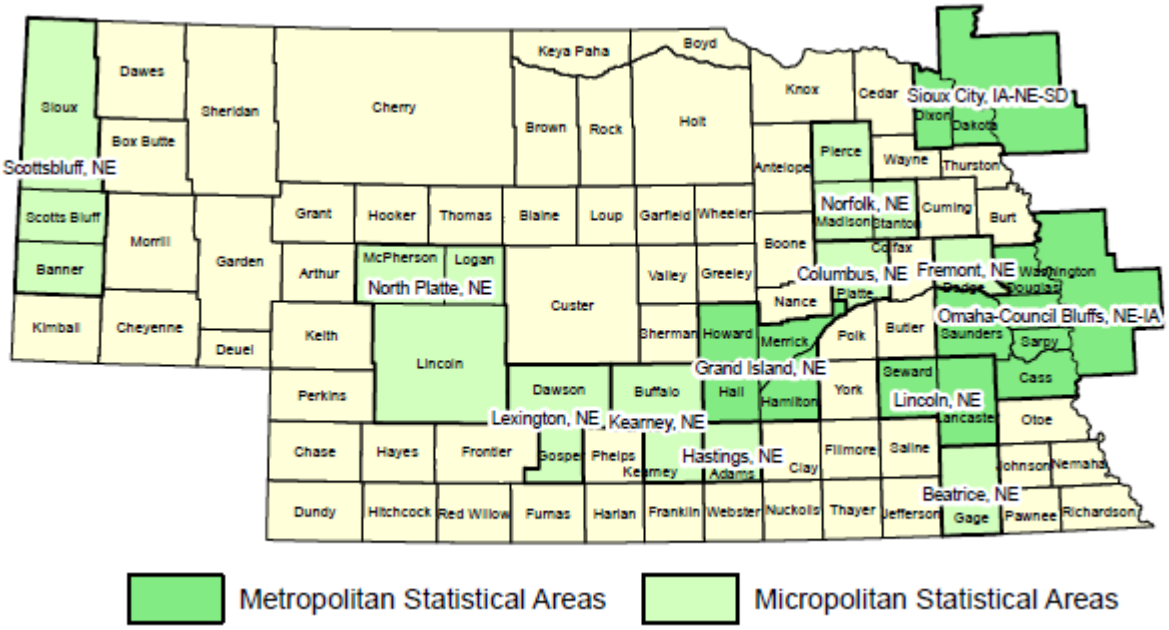


Table C-1: 2015 Population within Nebraska's MSAs and MiSAs [a]			
Area	Population	% NE [c]	Cum % NE [d]
Nebraska	1,896,190	100%	na
Omaha MSA [b]	792,532	42%	42%
Lincoln MSA	323,578	17%	59%
Grand Island MSA	85,066	4%	64%
Sioux City MSA [b]	26,578	1%	65%
Kearney MiSA	55,448	3%	68%
Norfolk MiSA	48,184	3%	70%
Hastings MiSA	38,309	2%	72%
Scottsbluff MiSA	36,908	2%	74%
North Platte MiSA	36,706	2%	76%
Fremont MiSA	32,847	2%	78%
Columbus MiSA	31,587	2%	80%
Lexington MiSA	25,859	1%	81%
Beatrice MiSA	21,900	1%	82%

(a) Estimated population on 7/1/2015 from U.S. Census Bureau.
(b) Only Nebraska residents within the Omaha and Sioux City MSAs were used in the population counts shown in this table.
(c) ***% NE*** refers to the percent of Nebraska residents residing in each MSA or MiSA.
(d) ***Cum % NE*** refers to the cumulative sum of the ***% NE*** column. Thus 59% of Nebraska's residents live in the Omaha and Lincoln MSAs, while 82% live in an MSA or MiSA.

Table C-2 lists the top ten Nebraska counties with respect to 2015 population, 2010 to 2015 population growth, and 2010 to 2015 percent population growth rate. As shown in Table C-2, the

five most populated counties (Douglas, Lancaster, Sarpy, Hall and Buffalo counties) also have the fastest growth rate, and they are also among the top seven counties for percent population growth. The population of these five counties accounts for 60% of Nebraska's population, and their 2010 to 2015 annual population growth exceeds the population growth of the entire state by 1,400 people per year (because 64 of Nebraska's 93 counties lost population, see Table C-6).

Also shown in Table C-2, the three most populated and fastest growing counties (Douglas, Lancaster and Sarpy Counties) dominate within these categories with 54% of Nebraska's residents living in these 3 counties and a combined annual population growth rate of 13,523 people per year. The 2010-15 annual population growth in these three counties exceeds the population growth of the entire state by 300 people (because 64 of Nebraska's 93 counties lost population, see Table C-6).

Douglas and Sarpy Counties are in the Omaha MSA and have a combined population of approximately 725,750. This is 79% of the population in the entire MSA (including the IA counties) and 91% of the population within the Nebraska portion of the Omaha MSA. Both of these counties are highly urbanized, and along with Council Bluffs, IA form the urban core of the Omaha MSA. See Figure C-2 for additional information on the Omaha MSA.

Lancaster County is in the Lincoln MSA and includes 95% of the Lincoln MSA population. The City of Lincoln is the urbanized core of the Lincoln MSA with a population of approximately 277,000 or 86% of the MSA population. See Figure C-3 for additional information on the Lincoln MSA.

Table C-3 contains population and growth data pertaining to Nebraska's 16 most populated counties in 2000, 2010 and 2015. The counties listed for 2000, 2010 and 2015 did not change and there were only minor ranking changes during the 2000 thru 2015 time frame. These 16 counties include the most highly populated counties from each of the four MSAs and the nine MiSAs. This table illustrates the fact that the population of Nebraska is located predominantly in the core urbanized areas, a pattern that has not changed since 2000.

Additional population and population growth data on the Omaha, Lincoln, Sioux City, and Grand Island MSA's can be found in Figures C-2 thru C-5.

Table C-4 provides population and population growth information on Nebraska's MiSAs.

Table C-5 provides population and population growth information on nine additional counties with populations greater than 10,000 and that are outside of the designated MSAs and MiSAs.

Table C-6 provides 2010 thru 2015 population and population growth data on all 93 Nebraska counties. The counties are ranked using their 2010 thru 2015 population growth with the fastest growing counties at the top of the table.

Table C-6 also has a column for population density which ranges from a high of 1,675 persons per square mile in Douglas County to less than one person per square mile in seven counties. There are also 49 counties (53% of Nebraska's 93 counties) with a population density of less than ten persons per square mile. This is indicative of the rural nature of most of Nebraska.

Table C-2: Top Ten Nebraska Counties for Population and Population Growth, 2010 to 2015

2015 Population				Population Growth: 2010-2015					Annualized Percent Population Growth				
Rank	County	Estimated 2015 Population	% State Pop	Rank	County	Estimated 2015 Population	Pop. Growth per Year	Annual% Pop. Growth	Rank	County	Estimated 2015 Population	Annual % Pop. Growth	Pop. Growth per Year
1	**Douglas**	550,064	29%	1	**Douglas**	550,064	6,280	1.2%	1	Banner	788	2.6%	18
2	**Lancaster**	306,468	16%	2	**Lancaster**	306,468	4,056	1.4%	2	**Sarpy**	175,692	2.0%	3,187
3	**Sarpy**	175,692	9%	3	**Sarpy**	175,692	3,187	2.0%	3	**Lancaster**	306,468	1.4%	4,056
4	**Hall**	61,680	3%	4	**Hall**	61,680	573	1.0%	4	**Douglas**	550,064	1.2%	6,280
5	**Buffalo**	48,863	3%	5	**Buffalo**	48,863	537	1.2%	5	**Buffalo**	48,863	1.2%	537
6	Dodge	36,706	2%	6	Platte	32,847	110	0.3%	6	Thomas	684	1.0%	7
7	Scotts Bluff	36,261	2%	7	Seward	17,110	62	0.4%	7	**Hall**	61,680	1.0%	573
8	Lincoln	35,656	2%	8	Adams	31,587	50	0.2%	8	Grant	641	0.9%	5
9	Madison	35,039	2%	9	Cass	25,512	50	0.2%	9	Blaine	487	0.6%	3
10	Platte	32,847	2%	10	Otoe	15,984	44	0.3%	10	Cherry	5,848	0.5%	29
NA	Nebraska	1,896,190	100%	NA	Nebraska	1,896,190	13,233	0.7%	NA	Nebraska	1,896,190	0.7%	13,233

Observations from the data above and from additional data in Table C-3:

(1) The five counties identified with **Bold font** and the orange highlight appear in the top 10 for population, population growth, and annualized % growth. They are **Buffalo, Douglas, Hall, Lancaster, and Sarpy** counties.

(2) The five counties with the highest population are **Buffalo, Douglas, Hall, Lancaster, and Sarpy** counties. 60% of Nebraska's population lives in these counties.

(3) The five counties with highest aggregate population growth from 2010 to 2015 area also **Buffalo, Douglas, Hall, Lancaster, and Sarpy** counties. The total population growth in these five counties was 73,170, which was 111% of Nebraska's total population gain from 2010 through 2015. (This value is greater than 100% because 64 of the state's 93 counties lost population, a total of 10,217 people). The five top-growth counties also accounted for nearly 96% of the population growth in the 29 counties that had net population gains.

(4) Nebraska's three most populated counties, Douglas, Lancaster, and Sarpy, have a total population of 1,032,224, or 54.4% of the state population. These three counties also had 102% of the state's population growth and 90% of the growth in the state's ten fastest-growing counties.

(5) Banner, Thomas, Grant, Blaine, and Cherry counties had high annualized growth rates between 2010 and 2015. These are very rural counties with low populations and low population densities (i.e., 0.7 to 1 person per square mile). The population gains in these counties therefore are not likely to contribute to a decrease in air quality in Nebraska.

The population data used in this table were obtained from the U.S. Census Bureau. Population estimates were used for 2010 and 2015.

Table C-3: Sixteen Most Populated Nebraska Counties: 2000, 2010, & 2015 [(a) (b)]

2000			2010			2015					
Rank	County	Estimated Population 7/1/2000	Rank	County	Estimated Population 7/1/2010	Rank	County	Estimated Population 7/1/2015	% State Pop.	Cum. % State Pop.	MSA or *MiSA*
1	Douglas	464,829	1	Douglas	518,664	1	Douglas	550,064	29%	29%	Omaha
2	Lancaster	251,549	2	Lancaster	286,187	2	Lancaster	306,468	16%	45%	Lincoln
3	Sarpy	123,248	3	Sarpy	159,755	3	Sarpy	175,692	9%	54%	Omaha
4	Hall	53,559	4	Hall	58,814	4	Hall	61,680	3%	58%	Grand Island
5	Buffalo	42,336	5	Buffalo	46,177	5	Buffalo	48,863	3%	60%	*Kearney*
6	Scotts Bluff	37,021	6	Scotts Bluff	37,074	6	Dodge	36,706	2%	62%	*Fremont*
7	Dodge	36,214	7	Dodge	36,661	7	Scotts Bluff	36,261	2%	64%	*Scotts Bluff*
8	Madison	35,233	8	Lincoln	36,262	8	Lincoln	35,656	2%	66%	*North Platte*
9	Lincoln	34,649	9	Madison	34,935	9	Madison	35,039	2%	68%	*Norfolk*
10	Platte	31,547	10	Platte	32,298	10	Platte	32,847	2%	70%	*Columbus*
11	Adams	31,180	11	Adams	31,338	11	Adams	31,587	2%	71%	*Hastings*
12	Dawson	24,439	12	Cass	25,263	12	Cass	25,512	1%	73%	Omaha
13	Cass	24,374	13	Dawson	24,335	13	Dawson	23,886	1%	74%	Lexington
14	Gage	22,945	14	Gage	22,294	14	Gage	21,900	1%	75%	Beatrice
15	Dakota	20,313	15	Dakota	21,033	15	Saunders	21,016	1%	76%	Omaha
16	Saunders	19,811	16	Saunders	20,862	16	Dakota	20,781	1%	77%	Sioux City, IA
NA	Nebraska	1,713,279	NA	Nebraska	1,830,025	NA	Nebraska	1,896,190	100%	NA	NA

Footnotes:

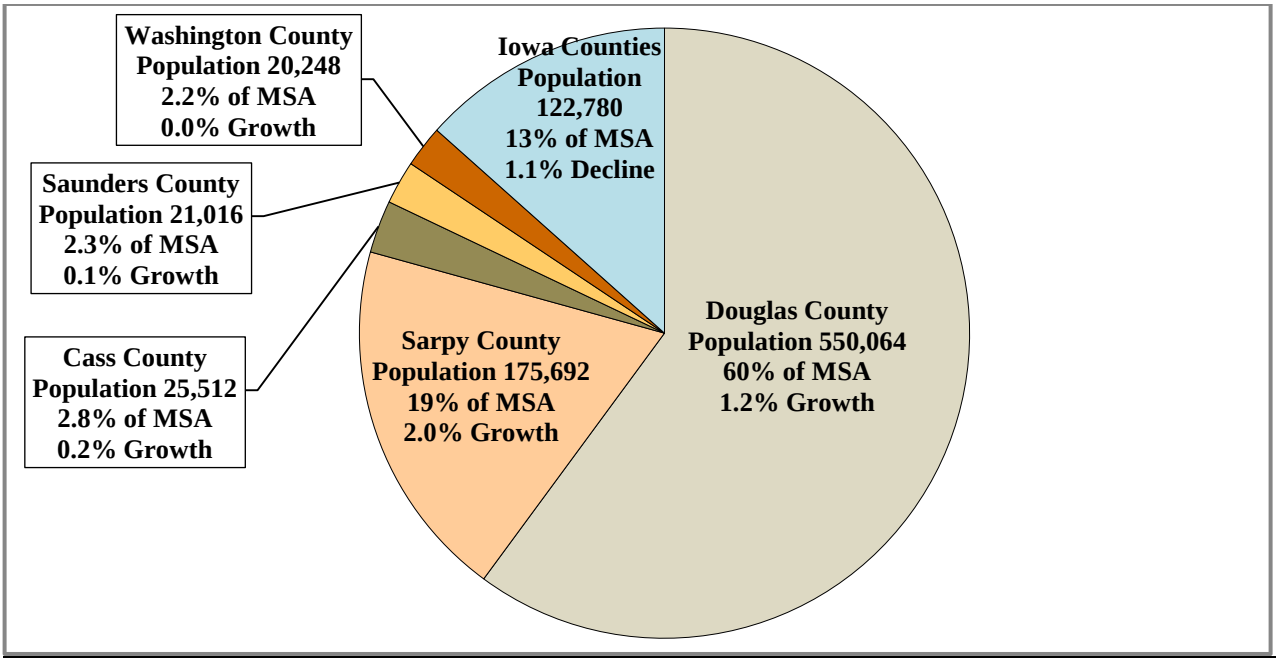
(a) The 16 most populated counties shown in this table are within Metropolitan and Micropolitan Statistical Areas (MSAs/MiSAs) that are wholly or partially within Nebraska. Counties within 13 of Nebraska's MSAs/MiSAs are represented in this table, although not all of the counties within these MSAs/MiSAs are in this table.

(b) The absence of orange highlight indicates a ranking switch from the previous time period.

Observations:

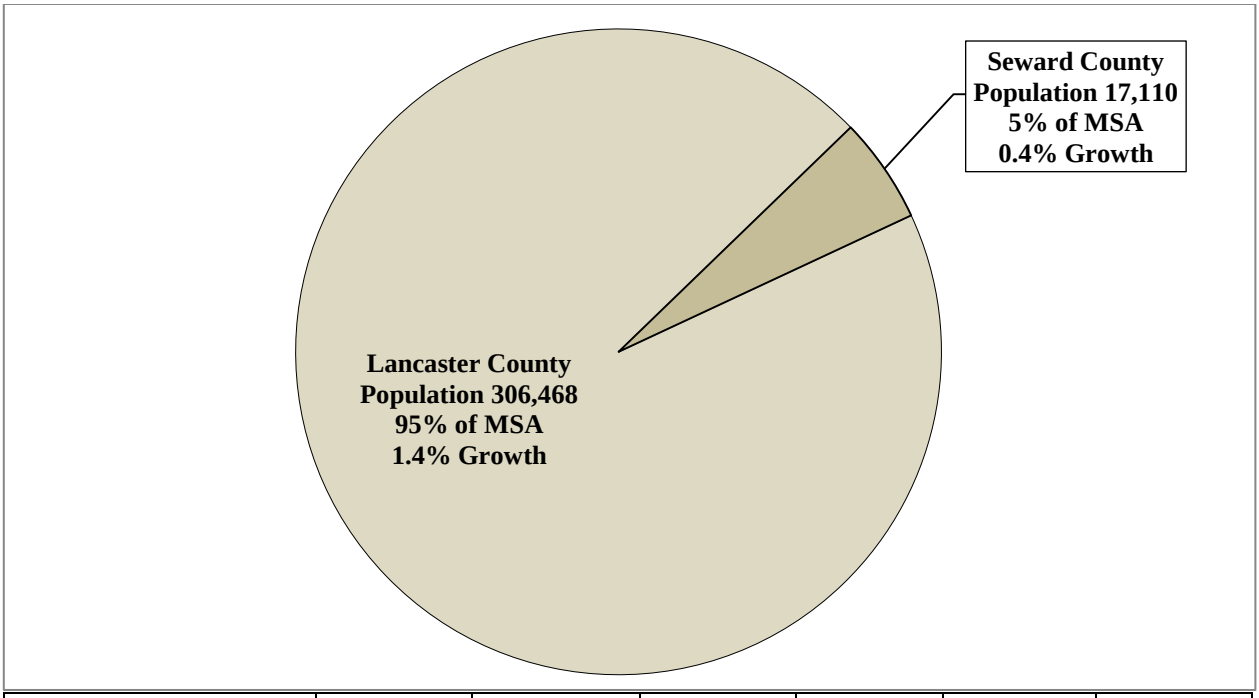
- Over half (54%) of the people in Nebraska live in its 3 most populated counties, 60% live in the 5 most populated counties, and over 75% live in the 16 most populated counties.
- The 16 most populated counties were the same in 2015 as they were in 2010 and 2000.
- There have been only minor ranking changes within this group of 16 counties from 2000 thru 2015.

Figure C-2: Omaha-Council Bluffs MSA Population Distribution Chart and Table



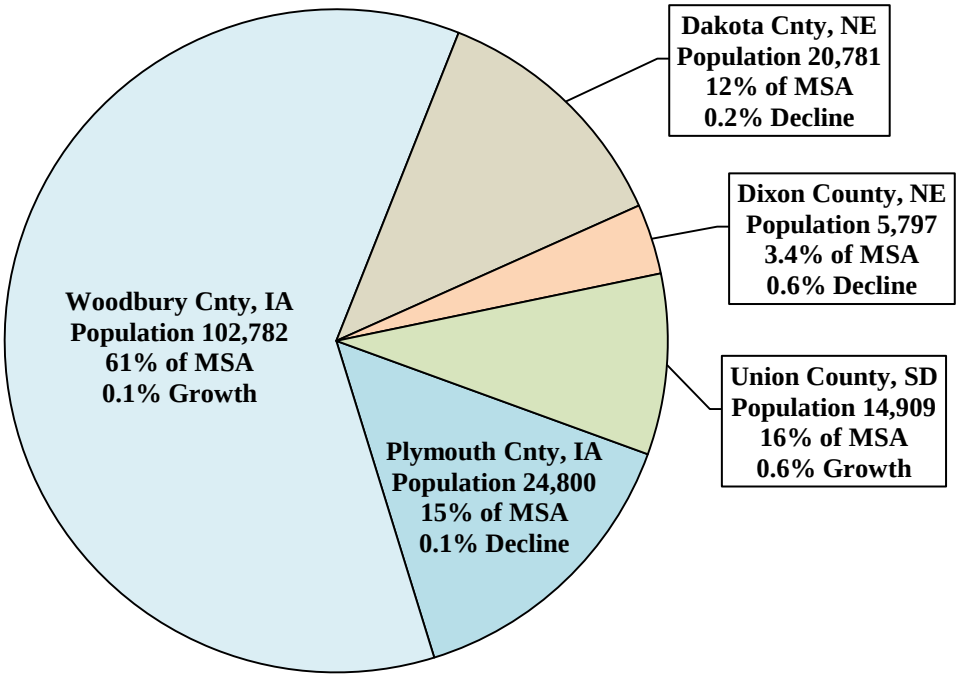
	2000 Population	2010 Population	2015 Population	% MSA Population 2015	Avg. Ann. Growth 2010-2015	Avg. Ann. % Growth 2010-2015
Omaha-C. B. MSA	**769,117**	**868,170**	**915,312**	**100%**	**9,428**	**1.1%**
NE Counties	**650,905**	**744,819**	**792,532**	**87%**	**9,543**	**3.5%**
Douglas County	464,712	518,664	550,064	60%	6,280	1.2%
Omaha (city)	390,007	432,672	443,885	48%	2,243	0.5%
Sarpy County	123,157	159,755	175,692	19%	3,187	2.0%
Bellevue (city)	44,382	51,753	55,510	6.0%	751	1.5%
Papillion (city)	16,363	19,184	19,510	2.1%	65	0.3%
La Vista (city)	11,699	16,663	16,921	1.8%	52	0.3%
Cass County	24,394	25,263	25,512	2.8%	50	0.2%
Plattsmouth (city)	6,887	6,503	6,462	0.7%	-8	-0.1%
Saunders County	19,852	20,862	21,016	2.3%	31	0.1%
Wahoo (city)	3,942	4,525	4,511	0.5%	-3	-0.1%
Washington County	18,790	20,275	20,248	2.2%	-5	0.0%
Blair (city)	7,512	8,005	7,975	0.9%	-6	-0.1%
Iowa Counties	**118,212**	**123,351**	**122,780**	**13%**	**-114**	**-1.1%**
Pottawatamie County	87,966	93,368	93,671	10.2%	61	0.1%
Council Bluffs (city)	58,268	62,376	62,597	6.8%	44	0.1%
Carter Lake (city)	3,248	3,792	3,791	0.4%	0	0.0%
Mills County	14,555	15,056	14,844	1.6%	-42	-0.3%
Glenwood (city)	5,358	5,270	5,253	0.6%	-3	-0.1%
Harrison County	15,691	14,927	14,265	1.6%	-132	-0.9%
Missouri Valley (city)	2,992	2,832	2,695	0.3%	-27	-1.0%
Observation: Most of the population growth is in Douglas and Sarpy Counties, Nebraska.						

Figure C-3: Lincoln MSA Population Distribution Chart and Table



	2000 Population	2010 Population	2015 Population	% MSA Population 2015	Avg. Ann. Growth 2010-2015	Avg. Ann. % Growth 2010-2015
Lincoln MSA	**267,955**	**302,985**	**323,578**	**100**	**4,119**	**1.4%**
Lancaster County	251,425	286,187	306,468	95%	4,056	1.4%
Lincoln (city)	225,581	259,152	277,348	86%	3,639	1.4%
Waverly (city)	2,448	3,292	3,739	1.2%	89	2.7%
Seward County	16,530	16,798	17,110	5%	62	0.4%
Seward (city)	6,319	6,986	7,167	2.2%	36	0.5%
Observation: Most of the population and growth is in Lancaster County and the City of Lincoln.						

Figure C-4: Sioux City MSA Population Distribution Chart and Table

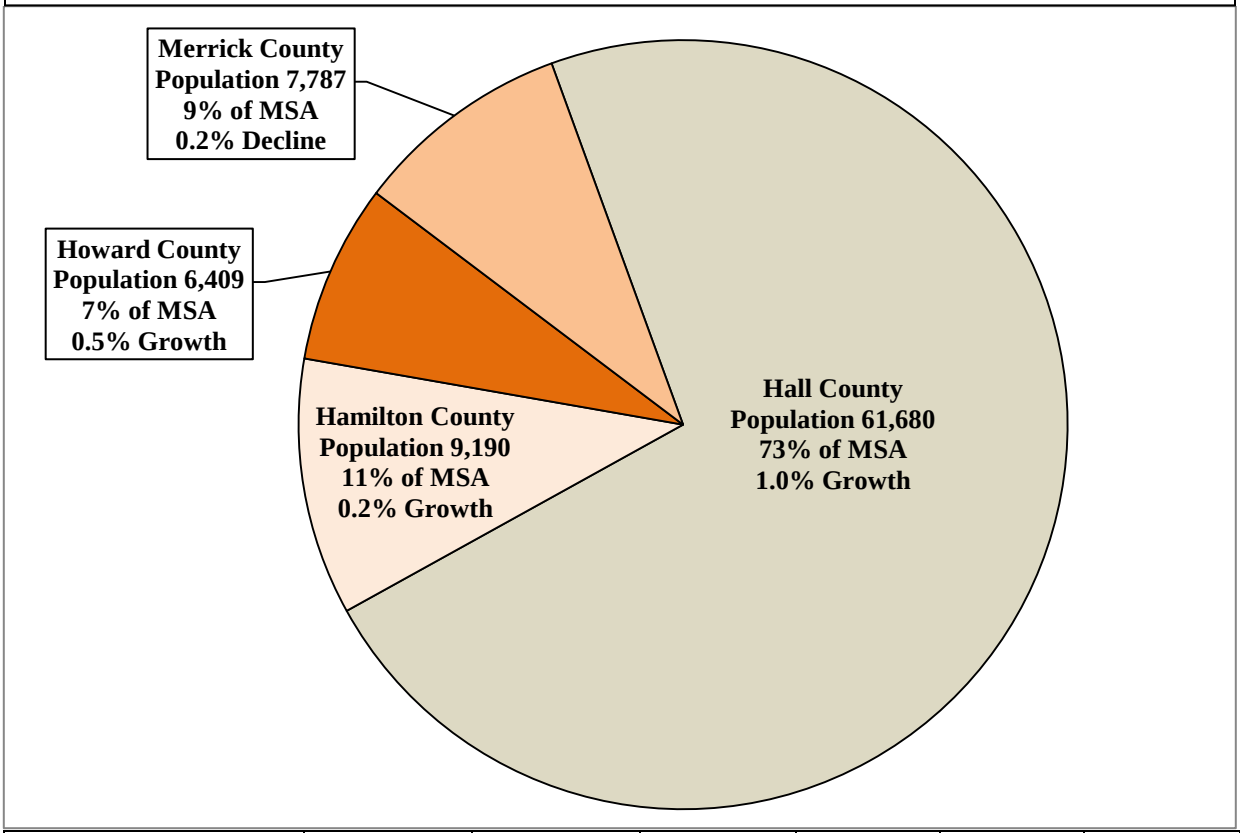


	2000 Population	2010 Population	2015 Population	% MSA Population 2015	Avg. Ann. Growth 2010-2015	Avg. Ann. % Growth 2010-2015
Sioux City MSA	**16,671**	**168,832**	**169,069**	**100%**	**47**	**0.0%**
Iowa Counties	**128,771**	**127,333**	**127,582**	**75%**	**50**	**0.0%**
Woodbury County	103,786	102,364	102,782	61%	84	0.1%
Sioux City	85,000	82,834	82,821	50%	-3	0.0%
Sergent Bluff (city)	3,411	4,235	4,520	2.7%	57	1.3%
Plymouth County	24,879	24,969	24,800	15%	-34	-0.1%
Le Mars (city)	9,258	9,817	9,761	5.8%	-11	-0.1%
Nebraska Counties	**26,542**	**27,011**	**26,578**	**16%**	**-87**	**-0.3%**
Dakota County	20,296	21,033	20,781	12%	-50	-0.2%
South Sioux City	12,004	13,377	13,319	8%	-12	-0.1%
Dakota City	1,820	1,921	1,906	1.1%	-3	-0.2%
Dixon County	6,246	5,978	5,797	3.4%	-36	-0.6%
Wakefield (city)	1,150	1,447	1,403	0.8%	-9	-0.6%
South Dakota Counties	**12,564**	**14,488**	**14,909**	**16%**	**84**	**0.6%**
Union County	12,564	14,488	14,909	16%	84	0.6%
North Sioux City	2,237	2,536	2,731	1.6%	39	1.5%
Elk Point (city)	1,701	1,976	1,874	1.1%	-20	-1.0%
Beresford (city)	1,566	2,012	1,976	1.2%	-7	-0.4%

Observations:

- Most of the population is in Woodbury County, Iowa and Sioux City, Iowa
- There was minimal overall population growth in the Sioux City MSA from 2010 to 2015. Growth occurred primarily in Union County, South Dakota, North Sioux City, South Dakota, and in Sergent Bluff, Iowa.

Figure C-5: Grand Island MSA Population Distribution Chart and Table



	2000 Population	2010 Population	2015 Population	% MSA Population 2015	Avg. Ann. Growth 2010-2015	Avg. Ann. % Growth 2010-2015
Grand Island MSA [(a)]	**77,708 [(b)]**	**82,057**	**85,066**	**100%**	**602**	**0.7%**
Hall County	53,534	58,814	61,680	73%	573	1.0%
Grand Island (city)	42,940	48,823	51,440	60%	523	1.1%
Hamilton County	9,403	9,120	9,190	11%	14	0.2%
Aurora (city)	4.225	4,483	4,496	5.3%	3	0.1%
Howard County	6,567	6,267	6,409	7%	28	0.5%
St. Paul (city)	2,218	2,303	2,358	2.8%	11	0.5%
Merrick County	8,204	7,856	7,787	9%	-14	-0.2%
Central City	2,998	2,937	2,886	3.4%	-10	-0.3%

Footnotes:

(a) In 2000, Grand Island was a Micropolitan Statistical Area (MiSA) encompassing three counties: Hall, Howard, and Merrick.

(b) For comparison with later dates, the 2000 population of the "Grand Island MSA" includes the population of Hamilton County, although it was not part of the Grand Island MiSA in 2000.

Observations: Most of the population of the Grand Island MSA is in Hall County and the City of Grand Island. Population growth is also fastest within these areas.

Table C-4: Micropolitan Statistical Area (MiSA) Population Data: 2010 thru 2015

MiSA	Counties & Cities	2010 Population	2015 Population	Avg. Ann. Population Growth	Annual Percent Growth	Percent of MiSA
Kearney MiSA		52,662	55,448	557	1.1%	100%
	Buffalo County	46,177	48,863	537	1.2%	88%
	Kearney (city)	30,860	33,021	432	1.4%	60%
	Kearney County	6,485	6,585	20	0.3%	12%
Norfolk MSA		48,323	48,184	-28	-0.1%	100%
	Madison County	34,935	35,039	21	0.1%	73%
	Norfolk (city)	24,253	24,366	23	0.1%	51%
	Pierce County	7,254	7,208	-9	-0.1%	15%
	Stanton County	6,134	5,937	-39	-0.6%	12%
Scottsbluff MiSA		39,084	38,309	-155	-0.4%	100%
	Scotts Bluff County	37,074	36,261	-163	-0.4%	95%
	Scottsbluff (city)	15,082	14,802	-56	-0.4%	41%
	Gering (city)	8,524	8,334	-38	-0.4%	23%
	Banner County	697	788	18	2.6%	2%
	Sioux County	1,313	1,260	-11	-0.8%	3%
North Platte MiSA		37,569	36,908	-132	-0.4%	100%
	Lincoln County	36,262	35,656	-121	-0.3%	97%
	North Platte (city)	24,712	24,194	-104	-0.4%	66%
	Logan County	770	777	1	0.2%	2%
	McPherson County	537	475	-12	-2.3%	1%
Fremont MiSA		36,661	36,706	9	0.0%	100%
Part of Omaha CSA	Dodge County	36,661	36,706	9	0.0%	100%
	Fremont (city)	26,396	26,474	16	0.1%	72%
Columbus MiSA		32,298	32,847	110	0.3%	100%
	Platte County	32,298	32,847	110	0.3%	100%
	Columbus (city)	22,237	22,797	112	0.5%	69%
Hastings MiSA		31,338	31,587	50	0.2%	100%
	Adams County	31,338	31,587	50	0.2%	100%
	Hastings (city)	25,186	24,924	-52	-0.2%	79%
Lexington MiSA		26,379	25,859	-104	-0.4%	100%
	Dawson County	24,335	23,886	-90	-0.4%	92%
	Lexington (city)	10,233	10,075	-32	-0.3%	39%
	Cozad (city)	3,990	3,863	-25	-0.6%	15%
	Gothenburg (city)	3,571	3,514	-11	-0.3%	14%
	Gosper County	2,044	1,973	-14	-0.7%	8%
Beatrice MiSA		22,294	21,900	-79	-0.4%	100%
	Gage County	22,294	21,900	-79	-0.4%	100%
	Beatrice (city)	12,635	12,388	-49	-0.4%	57%

Observation: Four of these 9 MiSAs experienced population growth from 2010 to 2014: Kearney, Hastings, Fremont & Columbus. Only the Kearney MiSA had an annual population gain $\geq$ 1%.

Table C-5: Nebraska Counties Outside of MSAs and MiSAs that have Populations Greater Than 10,000

Counties & Cities	2010 Population	2015 Population	Avg. Ann. Population Growth	Annual Percent Growth	Percent of Cnty
Otoe County	15,766	15,984	47	0.3%	100%
Nebraska City	7,303	7,335	6	0.1%	46%
Otoe County is adjacent to the Omaha and Lincoln MSAs.					
Saline County	14,225	14,282	11	0.1%	100%
Crete (city)	6,989	7,037	10	0.1%	49%
Saline County lies southwest of and is adjacent to the Lincoln MSA					
York County	13,654	13,806	30	0.2%	100%
York (city)	7,763	7,864	20	0.3%	57%
York County lies between and adjoins the Lincoln and Grand Island MSAs.					
Box Butte County	11,277	11,337	12	0.1%	100%
Alliance (city)	8,468	8,522	11	0.1%	75%
Alliance is the largest Nebraska city outside of an MSA or MiSA. Box Butte County is adjacent to the Scottsbluff MiSA.					
Red Willow County	11,052	10,829	-45	-0.4%	100%
McCook (city)	7,695	7,580	-23	-0.3%	70%
Custer County	10,915	10,806	-22	-0.2%	100%
Broken Bow (city)	3,554	3,551	-1	-0.0%	33%
Custer County is adjacent to the North Platte, Lexington, and Kearney MiSAs.					
Colfax County	10,537	10,520	-3	-0.0%	100%
Schuyler (city)	6,226	6,171	-11	-0.2%	59%
Colfax County lies between and abuts the Columbus, Fremont, and Norfolk MiSAs.					
Holt County	10,449	10,313	-27	-0.3%	100%
O'Neill (city)	3,709	3,653	-11	-0.3%	35%
Atkinson (city)	1,247	1,241	-1	-0.1%	12%
Cheyenne County	9,971	10,167	39	0.4%	100%
Sidney (city)	6,739	6,942	41	0.6%	68%
Cheyenne County is adjacent to the southeast corner of the Scottsbluff MiSA.					

Observations:

- Five of these nine counties experienced population growth between 2010 and 2015: Otoe, Saline, York, Box Butte & Cheyenne. Population growth rates were < 1% per year.
- Micropolitan Statistical Areas (MiSAs) have a core urban area with a population of 10,000 to 49,999. None of these counties appear to be approaching this threshold.
- Colfax, Otoe, Saline and York Counties are adjacent to other MSAs and or MiSAs.

Table C-6: Population and Population Growth Data for Nebraska and Nebraska Counties Ordered by Population Growth 2010 to 2015[a]

Rank	County	Estimated Population 7/1/2010	Estimated Population 7/1/2015	Population Growth 2010-2015	Annual % Growth 2010-2015	Population Growth 2014-2015	Annual % Growth 2014-2015	Pop. Density[b] 2015
	Nebraska	1,830,025	1,896,190	66,165	0.72%	13,210	0.70%	24.68
1	Douglas	518,664	550,064	31,400	1.21%	6,079	1.12%	1,674.68
2	Lancaster	286,187	306,468	20,281	1.42%	3,726	1.23%	365.91
3	Sarpy	159,755	175,692	15,937	2.00%	3,401	1.97%	735.14
4	Hall	58,814	61,680	2,866	0.97%	171	0.28%	112.91
5	Buffalo	46,177	48,863	2,686	1.16%	515	1.07%	50.47
6	Platte	32,298	32,847	549	0.34%	113	0.35%	48.73
7	Seward	16,798	17,110	312	0.37%	12	0.07%	29.94
8	Adams	31,338	31,587	249	0.16%	168	0.53%	56.08
9	Cass	25,263	25,512	249	0.20%	16	0.06%	45.77
10	Otoe	15,766	15,984	218	0.28%	96	0.60%	25.96
11	Cheyenne	9,971	10,167	196	0.39%	47	0.46%	8.50
12	Saunders	20,862	21,016	154	0.15%	84	0.40%	28.01
13	York	13,654	13,806	152	0.22%	-103	-0.74%	24.11
14	Cherry	5,705	5,848	143	0.50%	88	1.53%	0.98
15	Howard	6,267	6,409	142	0.45%	43	0.68%	11.26
16	Phelps	9,187	9,296	109	0.24%	95	1.03%	17.22
17	Madison	34,935	35,039	104	0.06%	-130	-0.37%	40.79
18	Kearney	6,485	6,585	100	0.31%	-3	-0.05%	12.76
19	Thurston	6,970	7,064	94	0.27%	103	1.48%	17.95
20	Banner	697	788	91	2.61%	40	5.35%	1.06
21	Hamilton	9,120	9,190	70	0.15%	81	0.89%	16.93
22	Box Butte	11,277	11,337	60	0.11%	3	0.03%	10.54
23	Saline	14,225	14,282	57	0.08%	-56	-0.39%	24.88
24	Dodge	36,661	36,706	45	0.02%	-19	-0.05%	69.43
25	Harlan	3,417	3,452	35	0.20%	-26	-0.75%	6.24
26	Thomas	650	684	34	1.05%	-3	-0.44%	0.96
27	Grant	614	641	27	0.88%	21	3.39%	0.83
28	Blaine	472	487	15	0.64%	-14	-2.79%	0.69
29	Logan	770	777	7	0.18%	25	3.32%	1.36
30	Hooker	735	732	-3	-0.08%	6	0.83%	1.02
31	Chase	3,963	3,956	-7	-0.04%	-17	-0.43%	4.42

Footnotes:
(a) This table contains population estimates for 7/1/2010, 7/1/2014, and 7/1/2015 published by the U.S. Census Bureau.
(b) Pop. Density is the 2015 population divided by the county surface area in square miles: persons/square mile.

Table C-6: Population and Population Growth Data for Nebraska and Nebraska Counties Ordered by Population Growth 2010 to 2015[a]

Rank	County	Estimated Population 7/1/2010	Estimated Population 7/1/2015	Population Growth 2010-2015	Annual % Growth 2010-2015	Population Growth 2014-2015	Annual % Growth 2014-2015	Pop. Density[b] 2015
32	Arthur	464	456	-8	-1.72%	2	0.44%	0.64
33	Garfield	2,040	2,028	-12	-0.59%	33	1.65%	3.56
34	Hitchcock	2,896	2,883	-13	-0.45%	-7	-0.24%	4.06
35	Deuel	1,937	1,921	-16	-0.83%	-15	-0.77%	4.37
36	Colfax	10,537	10,520	-17	-0.16%	-26	-0.25%	25.56
37	Keya Paha	821	804	-17	-2.07%	0	0.00%	1.04
38	Washington	20,275	20,248	-27	-0.13%	-17	-0.08%	51.92
39	Hayes	961	932	-29	-3.02%	0	0.00%	1.31
40	Cuming	9,156	9,125	-31	-0.34%	102	1.13%	15.99
41	Perkins	2,979	2,944	-35	-1.17%	52	1.80%	3.33
42	Loup	626	585	-41	-6.55%	-2	-0.34%	1.03
43	Pierce	7,254	7,208	-46	-0.63%	12	0.17%	12.57
44	Johnson	5,220	5,173	-47	-0.90%	-1	-0.02%	13.76
45	Sioux	1,313	1,260	-53	-4.04%	-49	-3.74%	0.61
46	Thayer	5,220	5,163	-57	-1.09%	-65	-1.24%	9.00
47	Sherman	3,149	3,091	-58	-1.84%	19	0.62%	5.46
48	McPherson	537	475	-62	-11.55%	-26	-5.19%	0.83
49	Merrick	7,856	7,787	-69	-0.88%	20	0.26%	16.06
50	Gosper	2,044	1,973	-71	-3.47%	12	0.61%	4.31
51	Wheeler	824	750	-74	-8.98%	-15	-1.96%	1.30
52	Furnas	4,952	4,862	-90	-1.82%	-21	-0.43%	6.76
53	Boyd	2,102	2,006	-96	-4.57%	-21	-1.04%	3.72
54	Custer	10,915	10,806	-109	-1.00%	63	0.59%	4.20
55	Valley	4,263	4,154	-109	-2.56%	-57	-1.35%	7.31
56	Pawnee	2,770	2,659	-111	-4.01%	-33	-1.23%	6.17
57	Greeley	2,542	2,429	-113	-4.45%	-52	-2.10%	4.26
58	Dawes	9,174	9,055	-119	-1.30%	-34	-0.37%	6.48
59	Kimball	3,820	3,689	-131	-3.43%	-1	-0.03%	3.88
60	Rock	1,512	1,381	-131	-8.66%	-32	-2.26%	1.37
61	Frontier	2,756	2,624	-132	-4.79%	-90	-3.32%	2.69
62	Knox	8,676	8,543	-133	-1.53%	45	0.53%	7.71

Footnotes:
(a) This table contains population estimates for 7/1/2010, 7/1/2014, and 7/1/2015 published by the U.S. Census Bureau.
(b) Pop. Density is the 2015 population divided by the county surface area in square miles: persons/square mile.

Table C-6: Population and Population Growth Data for Nebraska and Nebraska Counties Ordered by Population Growth 2010 to 2015[a]

Rank	County	Estimated Population 7/1/2010	Estimated Population 7/1/2015	Population Growth 2010-2015	Annual % Growth 2010-2015	Population Growth 2014-2015	Annual % Growth 2014-2015	Pop. Density[b] 2015
63	Holt	10,449	10,313	-136	-0.26%	-77	-0.74%	4.27
64	Nance	3,733	3,595	-138	-0.74%	40	1.13%	8.14
65	Garden	2,080	1,918	-162	-1.56%	6	0.31%	1.13
66	Nuckolls	4,506	4,329	-177	-0.79%	-37	-0.85%	7.53
67	Dixon	5,978	5,797	-181	-0.61%	14	0.24%	12.17
68	Morrill	5,037	4,854	-183	-0.73%	4	0.08%	3.41
69	Polk	5,388	5,202	-186	-0.69%	-75	-1.42%	11.87
70	Boone	5,502	5,315	-187	-0.68%	-36	-0.67%	7.74
71	Webster	3,816	3,625	-191	-1.00%	-43	-1.17%	6.31
72	Stanton	6,134	5,937	-197	-0.64%	-144	-2.37%	13.87
73	Nemaha	7,246	7,046	-200	-0.55%	-108	-1.51%	17.30
74	Brown	3,149	2,946	-203	-1.29%	5	0.17%	2.41
75	Dundy	2,008	1,799	-209	-2.08%	-90	-4.76%	1.96
76	Red Willow	11,052	10,829	-223	-0.40%	-31	-0.29%	15.10
77	Sheridan	5,455	5,220	-235	-0.86%	-48	-0.91%	2.14
78	Clay	6,545	6,309	-236	-0.72%	-17	-0.27%	11.02
79	Wayne	9,606	9,367	-239	-0.50%	-24	-0.26%	21.15
80	Franklin	3,232	2,985	-247	-1.53%	-65	-2.13%	5.18
81	Dakota	21,033	20,781	-252	-0.24%	64	0.31%	78.64
82	Jefferson	7,516	7,263	-253	-0.67%	-40	-0.55%	12.74
83	Antelope	6,668	6,414	-254	-0.76%	11	0.17%	7.48
84	Cedar	8,818	8,564	-254	-0.58%	-42	-0.49%	11.57
85	Fillmore	5,876	5,619	-257	-0.87%	-15	-0.27%	9.77
86	Butler	8,373	8,115	-258	-0.62%	-123	-1.49%	13.87
87	Burt	6,847	6,585	-262	-0.77%	-5	-0.08%	13.40
88	Richardson	8,362	8,094	-268	-0.64%	-57	-0.70%	14.67
89	Keith	8,363	8,063	-300	-0.72%	-46	-0.57%	7.60
90	Gage	22,294	21,900	-394	-0.35%	238	1.10%	25.72
91	Dawson	24,335	23,886	-449	-0.37%	-138	-0.57%	23.58
92	Lincoln	36,262	35,656	-606	-0.33%	-67	-0.19%	13.91
93	Scotts Bluff	37,074	36,261	-813	-0.44%	-202	-0.55%	49.04

Footnotes:
(a) This table contains population estimates for 7/1/2010, 7/1/2014, and 7/1/2015 published by the U.S. Census Bureau.
(b) Pop. Density is the 2015 population divided by the county surface area in square miles: persons/square mile.

Attachment D: Compliance Verification with 40 CFR Part 58

This attachment reviews compliance with applicable requirements in 40 CFR Part 58 Appendices A through E, including revisions effective 3/31/17. Nebraska Ambient Monitoring activities and network are in compliance with these requirements.

I. Appendix A Review

40 CFR Part 58 Appendix A sets forth quality assurance requirements for the collection, calculation and reporting of air monitoring data. The *Quality Assurance Project Plan (QAPP) for the Nebraska Ambient Air Monitoring Program for Criteria Pollutants, NCore Parameters, PM2.5 Speciation, and Total Reduced Sulfur* (EPA approved November 2014) was developed to comply with Part 58 requirements and the provisions of the EPA *Quality Assurance Handbook for Air Pollution Measurement Systems Volume II* (May 2013). The DCHD, LLCHD and NDEQ all use this QAPP. Actual procedures for operating monitors, as well as for collecting, reviewing and submitting data, are set forth in Standard Operating Procedures (SOPs) that comply with the QAPP.

40 CFR Part 58 Appendix A also sets forth requirements specifying the number of collocated monitors required for $PM_{2.5,}$ $PM_{10,}$ $PM_{10\text{-}2.5}$ and Lead (Pb) monitors. Table D-1 summarizes the collocated sites in Nebraska. All PM and Pb sub-networks operated by DCHD, LLCHD and NDEQ currently meet collocation requirements.

In March 2015, the collocated PM_{10} monitor at the Weeping Water City site in the Omaha MSA suffered an electronic failure that was not readily repairable. This site was re-equipped with a continuous MetOne BAM sampler in June 2016, for which collocation is not required. In addition, PM_{10} sites at Cozad and Gothenburg with filter-based sequential monitors were closed in March 2016. Thus there are no remaining 2025 filter-based samplers in Nebraska requiring collocation.

II. Appendix C Review

Appendix C contains requirements for approved ambient air monitoring methodologies. Any monitor that is used to evaluate NAAQS compliance must be a Federal Reference Method (FRM) or a Federal Equivalent Method (FEM) or an alternatively approved method as defined in Appendix C. The network description tables in Attachment A of the network plan identify the monitoring method used by each monitor in the Nebraska ambient air monitoring network. All monitors used to evaluate compliance with the NAAQS are FRM or FEM certified. The only monitors that are not FRM/FEM certified are those not subject to 40 CFR Part 58 requirements; i.e., TRS, NADP, IMPROVE, RadNet, etc.

Table D-1: Compliance Summary: PM Monitor Collocation Requirements of Appendix A[1]

Parameter	Method	Percent Collocation Required	NDEQ/LLCHD [2]			DCHD [2]		
			# of Sites	# Collocated	% Collocated	# of Sites	# Collocated	% Collocated
PM_{10}	Hi-Vol Sampler	15%	0	0	na	2	1	50%
PM_{10}	Sequential 2025 Sampler	15%	0	0	na	0	0	na
PM_{10}	Continuous Monitor	None	2	0	(3)	1	0	(3)
$PM_{2.5}$	Sequential 2025 Sampler	15%	3	1	33%	2	1	50%
$PM_{2.5}$	Met One BAM Method [5]	15%	1	1	100% [4]	2	1	50%
$PM_{10-2.5}$	Met One BAM Method	None	0	0	na	1	0	(5)
TSP-Lead	Hi-Vol Sampler	15% except NCore	1	1	100%	1	0	(6)

Footnotes:

(1) Collocation Requirements: Appendix A requires 15% of the sites in each parameter/method category to have collocated monitors with certain exceptions and additional requirements.

(2) Collocation requirements apply to each Primary Quality Assurance Organization (PQAO) separately. There are two PQAO's in Nebraska: DCHD and NDEQ/LLCHD.

(3) Collocated monitors are not required for continuous PM_{10} monitors.

(4) LLCHD operates a MetOne BAM $PM_{2.5}$ sampler for AirNow and AQI reporting. It is collocated with the primary and collocated sequential samplers at the site.

(5) DCHD operates 2 MetOne BAM samplers at the NCore site. One is set-up to sample $PM_{2.5}$ and the other samples PM_{10}. $PM_{10-2.5}$ is calculated using the results from these 2 samplers. There is a sequential $PM_{2.5}$ collocated sampler at the NCore site, but not a collocated PM_{10} sampler. Collocated PM_{10} samplers are not required in Appendix A for continuous PM_{10} samplers. EPA has designated some NCore sites to have collocated samplers for $PM_{10-2.5}$; the Omaha NCore site is not one of them.

(6) Collocated TSP-Lead monitoring is not required at NCore sites unless specifically required by EPA; and EPA has not designated the Omaha NCore site to have a collocated TSP-Lead sampler.

Network Descriptions

NDEQ Continuous PM_{10}: Weeping Water City and Weeping Water Farm (collocation not required)

NDEQ TSP-Lead: Fremont (collocated)

NDEQ & LLCHD Sequential 2025 $PM_{2.5}$: Lincoln (collocated), Grand island & Scottsbluff

DCHD Hi-Vol PM_{10}: 19& Burt (collocated) and South Omaha

DCHD Continuous PM_{10}: 46th & Farnam (collocation not required)

DCHD Sequential 2025 $PM_{2.5}$: Berry St & Blair (collocation at NCore)

DCHD MetOne BAM $PM_{2.5}$: NCore (collocated) & Bellevue

DCHD Met MetOne BAM $PM_{10-2.5}$: NCore (collocation not required)

DCHD TSP-Lead: NCore (collocation not required)

III. Appendix D Review

Appendix D sets forth monitoring objectives and minimum monitoring site requirements that must be met. The review that follows demonstrates that the Nebraska ambient air monitoring network meets the Appendix D requirements in effect on February 28, 2013.

EPA periodically re-evaluates the NAAQS and monitoring requirements. Regulatory modifications may impact the minimum monitoring requirements in one of two ways:

- Appendix D minimum monitoring requirements may be changed (i.e., more or less monitoring could be required); or
- Monitoring needs may change as a result of a NAAQS modification (e.g., when the annual average $PM_{2.5}$ NAAQS was lowered from 15 *u*g/m^3 to 12 *u*g/m^3, the 85% of NAAQS threshold set forth in 40 CFR Part 58 Appendix D Sec. 4.7 Table D.5 was crossed, and the minimum number of $PM_{2.5}$ monitoring sites for the Omaha MSA increased from 1 to 2).

III.A: Appendix D - Objectives Review

Appendix D Section 1.1 sets forth 3 objectives that ambient air monitoring networks must be designed to meet:

- Provide air pollution data to the general public in a timely manner.
- Support compliance with ambient air quality standards and emissions strategy development.
- Support for air pollution research studies.

Each of these objectives is discussed below.

1. Timely Dissemination of Data - Met

Air monitoring data is made available to the public and other parties in several ways.

a. Ambient air monitoring data is reviewed quarterly and entered into the national EPA-operated AQS database. The AQS database is available to federal, state and local monitoring agency personnel, as well as some other public agencies and researchers. AQS data cannot be directly accessed by the general public, but the NDEQ does respond to data requests.

b. The Air Quality Index is calculated by DCHD and is made available on their website.

c. Monitoring data from continuous particulate, ozone and CO monitors in the Omaha and Lincoln MSAs report directly to the EPA AirNow system. The general public can access air quality index information on-line at www.airnow.gov. LLCHD maintains a link to the EPA AirNow site on their website.

d. The NDEQ publishes an annual Air Quality Report. This report is available on-line and upon request. Similarly the annual Network Plan reports are also available to the public on-line or upon request.

2. Support compliance with ambient air quality standards and emissions strategy development – Met

The NDEQ reviews all of the data collected by DCHD, LLCHD, and NDEQ during the previous year as part of the annual data certification process, which is submitted to EPA by May 1st. At this time design values are calculated and compared with the NAAQS. This design value information is then incorporated into the annual Network Plan. The annual Network Plans discuss attainment/non-attainment status and monitoring strategies that may be related.

The NDEQ, DCHD and LLCHD also perform data validation reviews at least once each quarter and in many instances monthly. Any potential non-attainment or near non-attainment circumstances will be recognized during these reviews. If such conditions are identified, efforts are made to ascertain the cause and to the extent possible bring about corrective action through regulatory and/or voluntary mechanisms.

An Air Now summary report for ozone & $PM_{2.5}$ is emailed daily to an NDEQ member. When elevated ozone or $PM_{2.5}$ levels are reported, this information is passed on to air quality managers at DCHD, LLCHD and NDEQ.

The examples below illustrate how state and local air quality programs have recognized air quality issues and reacted to them.

a. In the fall of 2011, the 3-month average lead concentration at the Fremont site exceeded the NAAQS. EPA and Magnus Farley, the one known source, were notified. The data were discussed and presented to EPA for review. NDEQ and the source conducted an on-site review of the facility and potential emission sources (see Section V.B.2 in this network plan for additional information).

   In 2012, NDEQ continued to calculate daily and 3-month average lead monitoring data as the data became available and disseminated this information to Magnus Farley. High daily lead levels in May thru early July brought the 3-month average within 93% of the NAAQS, and these lead levels were discussed with Magnus Farley. Lower lead levels were seen beginning in July and continuing thereafter. The impact of this information exchange with the source is difficult to evaluate, but it may have played an important role in facilitating the source in remaining diligent with their control efforts.

   The NDEQ continues to inform Magnus Farley of lead levels as the data become available. Lead levels have remained in attainment with the current DV at 60% of the NAAQS. See Attachment B Table B-7 for 2014-2016 maximum 3-month average data.

b. From September 2011 thru June 2012, the 46th & Farnam site recorded four (4) 24-hour average PM_{10} values greater than the 150 ug/m^3 standard. The 46th & Farnam site is source-oriented with respect to Omaha Steel Castings Company, and the company had initiated a move to a new location in Wahoo, NE.

   Douglas County Health Department made Omaha Air Quality and Omaha Steel aware of the high values in a timely manner. Omaha Air Quality met with Omaha Steel to discuss potential PM_{10} sources and controls. Omaha Steel proceeded with process-handling and housekeeping changes intended to reduce PM_{10} emissions. These efforts were effective in reducing PM_{10} levels. Omaha Steel completed their move to their new facility in 2014 and closed the 46th & Farnam site.

c. In the summer of 2012, Nebraska monitoring sites began reporting ozone levels above those seen in recent years. The NDEQ began using Air Now data to track the current 4th highest

values for sites in and around Nebraska as the ozone season progressed. Although the 4th high values at 2 sites in the Omaha MSA exceeded 0.075 ppm 8-hour ozone NAAQS, the 3-year average design values did not exceed the NAAQS (i.e., the maximum unofficial 2010-2012 DVs = 0.069 ppm).

d. In the spring of 2014, 2016, and 2017, smoke from controlled grassland fires in the Flint Hills area of Kansas impacted Nebraska. AirNow data was used to track the degree and extent of the impact on ambient ozone and $PM_{2.5}$. At times, the impact from these controlled burns raised ozone and/or $PM_{2.5}$ levels in Nebraska. Both DCHD and LLCHD issued air quality alerts related to these burns.

3. Support for air pollution research studies – Met

The NDEQ, DCHD and LLCHD operate the Nebraska SLAMS network in accordance with the monitor specifications, site placement, and QA requirements set forth in 40 CFR Part 50 and 58. EPA R7 provides oversight to ensure that regulatory requirements are met with respect to methodology and QA.

Data is reviewed quarterly before being submitted to EPA's AQS database. Once in AQS, the data is available for pollution research studies.

Near real-time data is also reported to the EPA AirNow data from the continuous PM, CO and ozone monitors operating in the Omaha and Lincoln MSA. This data is also available for research purposes.

III.B: Appendix D – Minimum Monitoring Site Requirements

Nebraska has the minimum number of monitoring sites required by Appendix D. The minimum monitoring site requirements for each of the four MSAs are examined separately and documented in Tables D-2.a through D-2.d below.

The review for non-MSA areas of the state was performed on a pollutant specific basis. This review is documented in narrative form in Section III.C below.

It should be noted that the number of monitoring sites required in a network generally needs to be greater than the minimum number required by Appendix D. This is stated in Appendix D Section 1.1.2: "… total number of monitoring sites that will serve the variety of data needs will be substantially higher than these minimum requirements provide…"

III.C: Appendix D Minimum Monitoring Requirements for non-MSAs

NCore – (40 CFR Part 58 App. D Sec. 3) No sites required or operated.

At this time there is no requirement or plan to develop an NCore site in Nebraska, other than the current site in Omaha.

Ozone (O_3) – (40 CFR Part 58 App. D Sec. 4.1) No sites required or operated.

At this time there is no requirement or plan to deploy ozone monitoring sites outside of the MSAs.

Carbon Monoxide (CO) – (40 CFR Part 58 App. D Sec. 4.2) No sites required or operated.

At this time there is no requirement or plan to conduct CO monitoring outside the MSAs. Elevated CO levels are primarily associated with vehicle emissions and congested traffic areas. Highest levels would be anticipated in the Omaha and Lincoln MSAs. Highest concentration site monitoring in Lincoln and Omaha has consistently found CO levels well below the NAAQS. Thus, there is not a need for additional monitoring sites in less populated communities.

Nitrogen Dioxide (NO_2) – (40 CFR Part 58 App. D Sec. 4.3) No sites required or operated.

At this time there is no requirement or plan to conduct NO_2 monitoring outside the MSAs.

Sulfur Dioxide (SO_2) – (40 CFR Part 58 App. D Sec. 4.4) No sites required or operated .

There are no Part 58 requirements to operate SO_2 monitoring sites in non-MSA areas. However, pursuant to Part 51, Subpart BB, monitoring may be used to demonstrate attainment with the 1-hour SO_2 NAAQS. NDEQ has no current plans for SO_2 monitoring in non-MSA areas. In January 2017, LLCHD began operating a source-oriented SO_2 monitor adjacent to Nebraska Public Power District's Sheldon Station near Hallam, NE in the Lincoln MSA. Also in January 2017, DCHD began operating a source-oriented SO_2 monitor adjacent to Omaha Public Power District's North Omaha Station in the Omaha MSA.

Lead (Pb) – (40 CFR Part 58 App. D Sec. 4.5)

Two source-oriented sites required; 1 operating and 1 waived.

40 CFR Part 58 Appendix D requires source-oriented monitoring near sources with lead emissions of 0.5 tpy or more. Three sources initially met this threshold: Magnus Farley in Fremont, Magnolia Metals in Auburn, and Nucor Steel in Norfolk.

Monitoring near Magnus Farley in Fremont and Magnolia Metals in Auburn was initiated in 2010. A waiver pursuant to Part 58 Appendix D Section 4.5 was sought from and granted by EPA R7 for Nucor Steel in April 2014. This waiver expires in April 2019.

In 2012 and 2013 Magnolia Metals installed pollution-control equipment that reduced their lead emissions to 0.1 tpy. Ambient lead levels dropped to below 5% of the NAAQS in 2015. The 2015 Network Plan included a proposal for no longer requiring lead monitoring near Magnolia Metals. The Auburn lead site was shut down in June 2016 in accordance with the 2015 Network Plan.

Thus only one source-oriented lead monitor, the one in Fremont, is currently operating.

PM_{10} Particulate Matter (40 CFR Part 58 App. D Sec. 4.6) No sites required. No sites operated.

There are no minimum PM_{10} monitoring requirements for areas outside of MSAs.

NDEQ operated PM_{10} sites in Cozad and Gothenburg that were shut-down in March 2016 in accordance with the 2015 Network Plan.

Fine Particulate Matter: $PM_{2.5}$ (40 CFR Part 58 Appendix D Section 4.7 & 4.7.3) Two (2) sites required and 2 operated.

States are required to operate a background site and a transport site for $PM_{2.5}$. Nebraska's background site is in Scottsbluff, and the transport site is in Grand Island.

Coarse Particulate Matter: $PM_{10-2.5}$ (40 CFR Part 58 App D Sec 4.8) No sites required or operated.

Photochemical Assessment Monitoring Stations (PAMS) (40 CFR Part 58 Appendix D Section 5) No sites required or deployed.

PAMS are only required in areas classified as serious, severe, or extreme non-attainment for O_3. No such areas exist in Nebraska at this time.

IV: Appendix E Review

This appendix sets forth requirements for probe and monitoring path placement, including: horizontal and vertical placement, spacing from minor sources, spacing from obstructions, spacing from trees, spacing from roadways, cumulative interferences on a monitoring path, maximum monitoring path length, and probe material and sample residence time. Compliance with these criteria is verified when the site is set up and periodically thereafter. Compliance is evaluated using review sheets developed for that purpose.

Tables D-2.a thru D-2.c: Minimum Monitoring Reviews for Each Nebraska MSA[(1)]

Table D-2.a: 40 CFR Part 58 Appendix D Review: Omaha MSA (MSA Population ~ 915,000)

Pollutant	App. D Citation	Review Criteria & *Comments*	Sites Required	Sites Operated	Criteria Met?
Ozone	Sec. 4.1 Table D-2	The Omaha MSA population is between 350K to 4M and O_3 levels are ≥ 85% of NAAQS (*See Design Values in Attachment B).*	2	3 Includes NCore	Y
CO	Sec. 4.2	The population threshold for requiring a near-road CO monitoring site in a CBSA is 1 million. The population of the Omaha MSA is below this threshold.	0	2 Includes NCore	Y
NO_2	Sec. 4.3.2	The Omaha MSA has a population between 500K and 1M and is thus not currently required to have a near-road NOx monitoring site.	0	0	Y
	Sec.4.3.3	Area-Wide monitoring only required if CBSA ≥ 1M (Omaha MSA population < 1 M)	0	(2)	Y
	Sec. 4.3.4	Regional Administrator required monitoring: None at this time.	0	0	Y
SO_2	Sec. 4.4	The need for SO_2 sites is based on the *Population Weighted Emissions Index* (PWEI). Omaha's PWEI = 24,545, which falls within the 5000 to 100000 range requiring 1 site. The current network of two highest concentration sites and one NCore site exceeds the minimum requirements.	1	3 Includes NCore	Y
		Regional Administrator required monitoring: None at this time.	0	0	Y
Lead	Sec. 4.5 (a)	There are no sources emitting ≥ 0.5 tpy of lead in the Nebraska portion of the Omaha MSA.	0	0	Y
	Sec. 4.5 (b)	One community-based lead monitor was required at NCore site. Revised regulations effective 4/27/16 eliminated this requirement. DCHD will continue to operate the lead monitor through 2017.	1	1	Y
	Sec. 4.5 (c)	Regional Administrator required monitoring: None at this time.	0	0	Y
PM_{10}	Sec. 4.6 Table D-4	The Omaha MSA has a population between 500K – 1M and is in the PM_{10} concentration range as defined in 40 CFR Part 58 Appendix D, Table D-4.	4-8	6 Includes NCore & 2 sites @ Weeping Water	Y
$PM_{2.5}$	Sec 4.7 Table D-5	The Omaha MSA has a population between 500K – 1M and $PM_{2.5}$ levels < 85% of NAAQS range (*See Design Values in Attachment B).*	1	4 Includes NCore	Y
	Sec 4.7.2	Continuous monitor required.	1	1 @ NCore	Y
	Sec. 4.7.4	$PM_{2.5}$ Speciation Trends Network monitoring required (included SASS and URG samplers as one)	1	1 @ NCore	Y
PAMS	Sec. 5	Only required for areas classified as serious, severe, or extreme non-attainment for O_3.	0	0	NA
NCore	Sec. 3	Omaha has been designated to operate an NCore site with lead and NOx/NOy monitoring.	1	1	Y

(1) Unless noted otherwise, this analysis does not count monitors located in Iowa toward meeting the minimum monitoring requirements. It does consider pollutant levels measured at Iowa sites when determining minimum monitoring needs for ozone and $PM_{2.5}$.

(2) There is an NO/NOy monitor at the Omaha NCore site.

Table D-2.b: 40 CFR Part 58 Appendix D Review: Lincoln MSA (Population ~ 323,600)					
Pollutant	App. D Citation	**Review Criteria & *Comments***	Sites Required	Sites Operated	Criteria Met?
Ozone	Sec. 4.1 Table D-2	The Lincoln MSA population is between 50K to 350K and O_3 levels < 85% of NAAQS (*See Design Values in Attachment B).*	0	1	Y
CO	Sec. 4.2	No minimum requirement	0	0	Y
NO_2	Sec. 4.3.2	Near-road monitoring: No requirement for CBSA < 500K.	0	0	Y
	Sec.4.3.3	Area-Wide monitoring only required if CBSA $\geq$ 1M (Lincoln MSA population < 1 M).	0	0	Y
	Sec. 4.3.4	Regional Administrator required monitoring: none.	0	0	Y
SO_2	Sec. 4.4	The number of SO_2 sites required is based on the *Population Weighted Emissions Index* (PWEI). Lincoln's PWEI = 1,128, which falls below 5000. Thus no sites are required. However, LLCHD began operating a source-oriented SO_2 monitor near Hallam, NE in January 2017 to meet requirements 40 CFR Part 51 Subpart BB, §51.1200 - §51.1205 (a.k.a. the Data Requirements Rule or DRR).	0	1	Y
		Regional Administrator required monitoring: none.	0	0	Y
Lead	Sec. 4.5 (a)	There are no sources emitting $\geq$ 0.5 tpy of lead.	0	0	Y
	Sec. 4.5 (b)	Community-based monitor only required if CBSA population $\geq$ 500K.	0	0	Y
	Sec. 4.5 (c)	Regional Administrator required monitoring: none.	0	0	Y
PM_{10}	Sec. 4.6 Table D-4	The Lincoln MSA population is between 250K and 500K. Monitoring is only required if current monitoring indicates PM_{10} $\geq$ 85% of NAAQS. *The highest 24-hr value found during monitoring in Lincoln from 1988-98 was 102 $\mu g/m^3$ or 68% of the NAAQS, and PM_{10} concentrations have been declining in Nebraska since that time.*	0-1	0	Y
$PM_{2.5}$	Sec 4.7 Table D-5	The Lincoln MSA population is between 50K – 500K and $PM_{2.5}$ levels < 85% of NAAQS (*See Design Values in Attachment B).*	0	1	Y
	Sec 4.7.2	Continuous monitor not required.	0	1	Y
	Sec. 4.7.4	$PM_{2.5}$ Speciation Trends Network monitoring not required.	0	0	Y
PAMS	Sec. 5	Only required for areas classified as serious, severe, or extreme non-attainment for O_3.	0	0	Y
NCore	Sec. 3	Lincoln has not been designated to operate an NCore site.	0	0	Y

Table D-2.c: 40 CFR Part 58 Appendix D Review: Sioux City MSA (Population ~ 169,000)					
Pollutant	App. D Citation	**Review Criteria & *Comments***	Sites Required	Sites Operated	Criteria Met?
Ozone	Sec. 4.1 Table D-2	The Sioux City MSA population is between 50K and 350K. Appendix D Sec. 4.1, Table D-2 says that for MSAs of this size 1 ozone site is required if the DV $\geq$ 85% of the NAAQS. There is one ozone monitor in the MSA located in a rural area of Union County, SD. The 3-year Design Value from this Union County site is 61 ppb or 87% of the NAAQS. *Nebraska has no current plans to install an ozone monitor in the Sioux City MSA.*	1	0	Y
CO	Sec. 4.2	No minimum requirement.	0	0	Y
NO_2	Sec. 4.3.2	Near-road monitoring: No requirement for CBSA < 500K.	0	0	Y
	Sec.4.3.3	Area-Wide monitoring only required if CBSA $\geq$ 1M (Sioux City MSA population < 1 M)	0	0	Y
	Sec. 4.3.4	Regional Administrator required monitoring; none.	0	0	Y
SO_2	Sec. 4.4	The number of SO_2 sites required is based on the *Population Weighted Emissions Index* (PWEI). Sioux City MSA's PWEI = 2,291, which falls within the 5000 to 100000 range requiring 1 site. *Two sites exist in the MSA: one in Union County, SD & one near Sergeant Bluff, IA. Nebraska has no current plans to install an SO_2 monitor in the Sioux City MSA.*	1	0	Y
		Regional Administrator required monitoring: none	0	0	Y
Lead	Sec. 4.5 (a)	There are no sources emitting $\geq$ 0.5 tpy of lead in the Nebraska portion of the Sioux City MSA.	0	0	Y
	Sec. 4.5 (b)	Community-based lead monitoring is only required when CBSA population $\geq$ 500K.	0	0	Y
	Sec. 4.5 (c)	Regional Administrator required monitoring: none.	0	0	Y
PM_{10}	Sec. 4.6 Table D-4	The Sioux City MSA population is between 100K – 250K and PM_{10} levels are < 80% of NAAQS (*See Design Values in Attachment B).*	0	0	Y
$PM_{2.5}$	Sec 4.7 Table D-5	The Sioux City MSA population is between 50K and 500K and $PM_{2.5}$ levels are < 85% of NAAQS, thus no monitor is required. (*See Design Values in Attachment B).*	0	0	Y
	Sec 4.7.2	Continuous monitor not required	0	0	Y
	Sec. 4.7.4	$PM_{2.5}$ Speciation Trends Network monitoring not required	0	0	Y
PAMS	Sec. 5	Only required for areas classified as serious, severe, or extreme non-attainment for O_3	0	0	Y
NCore	Sec. 3	The Nebraska portion of the Sioux City MSA has not been designated to operate an NCore site.	0	0	Y

Table D-2.d: 40 CFR Part 58 Appendix D Review: Grand Island MSA (Population ~ 85,000)					
Pollutant	App. D Citation	**Review Criteria & *Comments***	Sites Required	Sites Operated	Criteria Met?
Ozone	Sec. 4.1 Table D-2	Grand Island MSA population is between 50K -350K. Monitoring is only required if current monitoring finds O_3 > 85% of NAAQS as set forth in Part 58 Appendix D Table D-2.	0	0	Y
CO	Sec. 4.2	No minimum requirement.	0	0	Y
NO_2	Sec. 4.3.2	Near-road monitoring: No requirement for CBSA < 500K.	0	0	Y
	Sec.4.3.3	Area-Wide monitoring only required if CBSA $\geq$ 1M (Grand Island MSA population < 1 M)	0	0	Y
	Sec. 4.3.4	Regional Administrator required monitoring: none	0	0	Y
SO_2	Sec. 4.4	*Population Weighted Emissions Index* (PWEI) = 141, which falls below 5000. No minimum number of sites required. See Table D-3 below for PWEI calculation data.	0	0	Y
		Regional Administrator required monitoring: none	0	0	Y
Lead	Sec. 4.5 (a)	There are no sources emitting $\geq$ 0.5 tpy of lead	0	0	Y
	Sec. 4.5 (b)	Community-based lead monitoring is only required when CBSA population $\geq$ 500K.	0	0	Y
	Sec. 4.5 (c)	Regional Administrator required monitoring: none	0	0	Y
PM_{10}	Sec. 4.6 Table D-4	PM_{10} monitoring is not required if MSA population < 100,000	0	0	Y
$PM_{2.5}$	Sec 4.7 Table D-5	Grand Islands's CBSA population is between 50K – 500K and $PM_{2.5}$ levels are < 85% of NAAQS (*See Design Values in Attachment B). The PM2.5 site operated in Grand Island is Nebraska's transport site required pursuant to 40 CFR Part 54 Appendix D, Section 4.7.3.*	0	1	Y
	Sec 4.7.2	Continuous monitoring is not required	0	0	Y
	Sec. 4.7.4	$PM_{2.5}$ Speciation Trends Network monitoring is not required	0	0	Y
PAMS	Sec. 5	Only required for areas classified as serious, severe, or extreme non-attainment for O_3	0	0	Y
NCore	Sec. 3	The Grand Island MSA has not been designated to operate a NCore site	0	0	Y

Table D-3: Population Weighted Emissions Index (PWEI) Data for Nebraska Core Based Statistical Areas (CBSAs) [(a) (b) (c)] Page 1 of 2

CBSA	County	Population 7/1/15 [(c)]	SO_2 Emissions (tons/year)		SO_2 Emissions (% Change)	PWEI [(a) (b)]	
			2011 EI	2014 EI		2011 EI	2014 EI
Omaha MSA	Douglas	550,064	14,311	11,514	-20%	28,802	**24,545**
	Sarpy	175,692	29	60	107%		
	Cass	25,512	1,094	1,279	17%		
	Saunders	20,016	20	37	85%		
	Washington	20,248	60	32	-47%		
	Pottawattamie, IA	93,671	15,101	13,808	-9%		
	Mills, IA	14,844	22	22	0%		
	Harrison, IA	14,265	43	64	49%		
	Totals	**915,312**	**30,680**	**26,816**	**-13%**		
Lincoln MSA	Lancaster	306,468	4,254	3,446	-19%	1,390	**1,128**
	Seward	17,110	43	41	-5%		
	Totals	**323,578**	**4,297**	**3,487**	**-19%**		
Sioux City MSA	Woodbury, IA	102,782	29,693	13,473	-55%	5,040	**2,291**
	Plymouth, IA	24,800	18	27	50%		
	Dakota	20,781	14	25	79%		
	Dixon	5,797	13	12	-8%		
	Union, SD	14,909	74	12	-84%		
	Totals	**169,069**	**29,812**	**13,549**	**-55%**		
Grand Island MSA	Hall	61,680	2,378	1,552	-35%	211	**141**
	Hamilton	9,190	29	24	-17%		
	Howard	6,409	40	29	-28%		
	Merrick	7,787	33	50	52%		
	Totals	**85,066**	**2,480**	**1,655**	**-33%**		

Observation: The EPA's emission inventory data indicates that SO_2 emissions from all 4 of Nebraska's MSAs decreased 13% to 55% from 2011 to 2014.

Footnotes at bottom of page 2 of this table.

Table D-3: Population Weighted Emissions Index (PWEI) Data for Nebraska Core Based Statistical Areas (CBSAs) [(a) (b) (c)] Page 2 of 2

CBSA	County	Population 7/1/15 [(c)]	SO_2 Emissions (tons/year)		SO_2 Emissions (% Change)	PWEI [(a) (b)]	
			2011 EI	2014 EI		2011 EI	2014 EI
Kearney MiSA	Buffalo	48,863	89	75	-16%	6	**4**
	Kearney	6,585	15	5	-67%		
	Totals	**55,448**	**104**	**80**	**-23%**		
Norfolk MiSA	Madison	35,039	24	16	-33%	13	**8**
	Pierce	7,208	30	29	-3%		
	Stanton	5,937	206	126	-39%		
	Totals	**48,184**	**260**	**171**	**-34%**		
Hastings MiSA	Adams	**31,587**	**3,324**	**3,186**	-4%	105	**101**
Scottsbluff MiSA	Banner	788	1	1	0%	8	**9**
	Scotts Bluff	36,261	203	201	-1%		
	Sioux	1,260	15	22	47%		
	Totals	**38,309**	**219**	**224**	**2%**		
North Platte MiSA	Lincoln	35,656	29,246	24,594	-16%	1,081	**908**
	Logan	777	37	1	-97%		
	McPherson	475	2	2	50%		
	Totals	**36,908**	**29,285**	**24,598**	**-16%**		
Fremont MiSA	Dodge	**36,706**	**1,426**	**2,262**	**59%**	52	**83**
Columbus MiSA	Platte	**32,847**	**330**	**405**	**23%**	11	**13**
Lexington MiSA	Dawson	23,886	64	68	6%	2	**2**
	Gosper	1,973	14	6	-57%		
	Totals	**25,859**	**78**	**74**	**-5%**		
Beatrice MiSA	Gage	**21,900**	**87**	**34**	**-61%**	2	**1**

Footnotes:
(a) Population Weighted Emission Index (PWEI) = (CBSA Population) x (SO2 Emissions (tpy))/1,000,000
(b) SO2 Emission data was obtained from the EPA Emission Inventory database for 2011 and 2014. The 2014 EI data is the most recent data available from EPA at the time this table was created (April 2017).
(c) U.S. Census population estimate data for 7/1/2015 were used in this table and the PWEI calculations.
The PWEI calculated with 2014 Emission Inventory data is currently applicable. The PWEI was also calculated with 2011 EI data to document any change that might have occurred.

Memo to Record

From: Randy Smith and Jim Yeggy

Date: 12 July 2017

Re: Nebraska 2017 Ambient Air Monitoring Network Plan

Changes to Public Inspection Draft in response to in-house NDEQ comments.

Attachment D: Compliance Verification with 40 CFR Part 58

Page 57, changed effective date in introductory paragraph: ~~4/27/16~~ 3/31/17

Section II, Table D-1, page 58:

Minor insertion in title:

Table D-1: Compliance Summary: PM Monitor Collocation Requirements of Appendix A

Corrected data errors for TSP-Lead row: # of Sites operated by NDEQ/LLCHD changed from 2 to 1, % Collocated changed from 50% to 100%

Footnote (1): minor wording change:

Collocation Requirements: Appendix A requires 15% of ~~the~~ PM sites in each parameter/method category to have collocated monitors…

Unnecessary footnote (3) removed:

~~(3) The Cozad and Gothenburg PM_{10} sites were closed in March 2016 and the Weeping Water primary monitor was replaced with a MetOne BAM continuous monitor in June 2016, for which no collocation is required.~~

Footnotes 4, 5, 6, and 7 renumbered to 3, 4, 5, and 6 respectively and footnote references in table changed accordingly.

Section III.A.1.b and c, page 59: changes in wording to clarify the roles of local agencies:

b. The Air Quality Index ~~reporting~~ is ~~performed~~ calculated by DCHD and ~~LLCHD for their respective jurisdictions. The AQI information~~ is made available on their ~~respective city~~ website~~s~~.

c. Monitoring data from continuous particulate, ozone and CO monitors in the Omaha and Lincoln MSAs report directly to the EPA AirNow system. The general public can access air quality index information on-line at www.airnow.gov. LLCHD maintains a link to the EPA AirNow site on their website.

Section III.A.2.d, page 61: minor wording change:

At times, the impact from these controlled burns raised ozone ~~and~~ and/or $PM_{2.5}$ levels in Nebraska.

Section III.C, PM_{10} Particulate Matter, page 62: minor wording change:

NDEQ operated PM_{10} sites in Cozad and Gothenburg that were shut-down ~~on~~ in March ~~8,~~ 2016 in accordance with the 2015 Network Plan.

Section IV, Tables D-2.a thru D-2.c, page 64:

Changed footnote indicator from * to (1) in page title and in initial footnote

Added footnote:

(2) There is an NO/NOy monitor at the Omaha NCore site.

Section IV, Table D-2.a, page 64:

NO_2, Sec. 4.3.3, Sites Operated column: changed reference:

~~1 @ NCore~~ (2)

PM_{10}, Review Criteria *& Comments* column: corrected data error and removed outdated and unnecessary information:

The Omaha MSA has a population between 500K – 1M and ~~a high~~ is in the medium PM_{10} concentration range as defined in 40 CFR Part 58 Appendix D, Table D-4 ~~with 1 max value > 120% of NAAQS at 46th & Farnam St Site in 2012~~. ~~With the closing of the Omaha Steel facility at 46th & Farnam, the only sites with PM_{10} exceeding 80% of NAAQS may be in the Weeping Water area (sites operated by NDEQ). See Attachment B for PM_{10} data.~~

PM_{10}, Sites Required column: data correction:

~~4 8~~ 2-4

Section IV, Table D-2.b, page 65:

SO_2, Review Criteria *& Comments* column: update PWEI for Lincoln MSA:

Lincoln's PWEI = ~~1,371~~ 1,128, which falls below 500.

SO_2, Review Criteria *& Comments* column: provide CFR reference for SO_2 monitoring requirement:

However, LLCHD began operating a source-oriented SO_2 monitor near Hallam, NE in January 2017 to meet requirements in 40 CFR Part 51 Subpart BB, §51.1200 - §51.1205 (a.k.a. the Data Requirements Rule or DRR).

PM_{10}, Review Criteria *& Comments* column: correct monitoring requirement threshold:

Monitoring is only required if current monitoring indicates PM_{10} > ~~85~~80% of NAAQS.

Section IV, Table D-2.c, page 66:

Removed redundant footnote at bottom of table and footnote indicator * in table title.

Ozone, Review Criteria *& Comments* column: minor change in wording in comment:

Nebraska has no current plans to install ~~a second~~ an ozone monitor in the Sioux City MSA.

Ozone, Criteria Met? column: removed comment reference: Y ~~See comment~~

SO_2, Review Criteria *& Comments* column: adding planning clarification in comment:

Two sites exist in the MSA: one in Union County, SD & one near Sergeant Bluff, IA. *Nebraska has no current plans to install an SO2 monitor in the Sioux City MSA.*

SO_2, Criteria Met? column: removed comment reference: Y ~~See comment~~

Section IV, Table D-2.d, page 67:

$PM_{2.5}$, Review Criteria & *Comments* column: added clarification in comment on purpose of monitoring site:

Grand Islands's CBSA population is between 50K – 500K and PM2.5 levels are < 85% of NAAQS *(See Design Values in Attachment B).* *The $PM_{2.5}$ site operated in Grand Island is Nebraska's transport site required pursuant to 40 CFR Part 54 Appendix D, Section 4.7.3.*

$PM_{2.5}$, Sites Operated column: removed footnote indicator: 1~~(1)~~

Removed footnote at bottom of table:

~~Footnote:~~
~~(1) The PM2.5 site operated in Grand Island is Nebraska's transport site.~~