

Nebraska Department of Environmental Quality

2013 Ambient Air Monitoring Network Plan

Final 082613
Document # 13-010

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Acronyms and Abbreviations

Agencies/Organizations

- ATSDR - Agency for Toxic Substances and Disease Registry (an agency within the US Department of Health)
- 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
- OAQC - City of Omaha Air Quality Control

(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.
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Regulations

- CFR - Code of Federal Regulations
- 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}), O₃, SO₂, 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 SO₂ monitoring requirements)
- 2010 Network Assessment – Nebraska’s *2010 Ambient Air Monitoring Network Plan and 5-Year Assessment*.
- 2011 Network Plan – Nebraska’s *2011 Ambient Air Monitoring Network Plan*
- 2012 Network Plan – Nebraska’s *2012 Ambient Air Monitoring Network Plan*
- 2013 Network Plan – Nebraska’s *2013 Ambient Air Monitoring Network Plan* (i.e., this document)

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Acronyms and Abbreviations (Continued)

Pollutants

- CO - Carbon Monoxide
- H₂S - Hydrogen sulfide (typically a major component of TRS)
- O₃ - Ozone
- Pb - Lead
- PM_{2.5} - Particulate matter with a diameter equal to or less than 2.5 micrometers or microns (reported as $\mu\text{g}/\text{m}^3$ with air volumes measures at local conditions)
- PM₁₀ - Particulate matter with a diameter equal to or less than 10 micrometers or microns (reported as $\mu\text{g}/\text{m}^3$ with air volumes measures at standard conditions (25° C, 1 atm))
- PM_{10-2.5} - The difference between PM₁₀ and PM_{2.5} (Both being calculated at local conditions)
- SO₂ - Sulfur Dioxide
- TRS - Total Reduced Sulfur (H₂S + other reduced sulfur-containing compounds)
- TSP - Total Suspended Particulates
- TSP-Pb - Lead sampled using a TSP sampler

Concentration Units

- ppb - Parts per billion (a volume/volume concentration unit)
- ppm - Parts per million (a volume/volume concentration unit)
- mg/m³ - Milligrams per cubic meter (a mass/volume concentration unit)
- $\mu\text{g}/\text{m}^3$ - Micrograms per cubic meter (a mass/volume concentration unit)

Census Terminology

- MSA - Metropolitan Statistical Area
- MiSA - Micropolitan Statistical Area

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. PM₁₀ and CO, on the other hand, are largely emitted from sources; *in situ* formation being of minimal importance. NO_x and SO_x are emitted and then undergo transformations to NO₂ and SO₂; 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.

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I. Introduction and Purpose

This 2013 Ambient Air Monitoring Network Plan (hereafter referred to as the “2013 Network Plan”) was prepared to meet the requirements of federal regulations set forth in 40 CFR Part 58.10. It serves several purposes as listed below.

- Describes the current ambient air monitoring network in Nebraska including:
 - The purpose of each monitoring site, and
 - Changes made since January 1, 2012.
- 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 2014, 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 (www.ndeq.state.ne.us) 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, PM₁₀, PM_{2.5}, PM_{10-2.5} and regional haze (i.e., IMPROVE monitors). The network is operated by the Nebraska Department of Environmental Quality and two local agencies: the Douglas County Health Department and the Lincoln Lancaster County Health Department.

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Table III-1: Number of Monitoring Sites in the Nebraska Air Monitoring Network ⁽¹⁾					
Pollutant	Omaha MSA ⁽²⁾	Lincoln MSA ⁽⁵⁾	Sioux City MSA ⁽⁶⁾	Other Areas of NE ⁽⁶⁾	Total Sites
Ozone	3 ⁽³⁾	1	0	0	4
Carbon Monoxide	2 ⁽³⁾	0	0	0	2
Nitrogen Oxides	1 ⁽³⁾	0	0	0	1
Sulfur Dioxide	2 ⁽³⁾	0	0	0	2
Total Reduced Sulfur	0	0	1	0	1
PM ₁₀	6 ⁽³⁾⁽⁴⁾	0	0	2	8
PM _{2.5}	4 ⁽³⁾	1	0	2	7
PM _{10-2.5}	1 ⁽³⁾	0	0	0	1
PM _{2.5} Speciation	1 ⁽³⁾	0	0	0	1
Lead	1 ⁽³⁾	0	0	2	3
NCore ⁽⁷⁾	1	0	0	0	1
IMPROVE ⁽⁸⁾	0	0	0	2	2
Totals	12 ⁽²⁾⁽⁴⁾⁽⁷⁾	2 ⁽⁵⁾	1	8	23 ⁽⁹⁾
Footnotes:					
(1) This table summarizes the number of operating sites in the NE SLAMS network as of 4/30/13.					
(2) There are 2 multi-pollutant monitoring sites in the Omaha MSA:					
<ul style="list-style-type: none"> • The South Omaha site, at which ozone and a PM₁₀ are monitored; • The NCore site, at which CO, NO/NOy, O₃, SO₂, PM, lead and meteorological parameters are monitored. Thus there are 10 monitoring sites within the Omaha MSA, but if the pollutants are counted separately the total would be 19 sites.					
(3) This footnote means that one (1) monitor in this category is located at the NCore site.					
(4) PM ₁₀ sites in the Omaha MSA include 4 sites operated by DCHD that are located in Douglas County; and 2 sites operated by NDEQ. The NDEQ operated sites are located in the Weeping Water area of Cass County.					
(5) LLCHD operates the 3 monitoring sites in the Lincoln MSA.					
(6) The NDEQ operates 11 sites: 2 in the Omaha MSA, 1 in the Sioux City MSA, and 8 in “Other Areas of NE”.					
(7) The NCore site is a multiple-pollutant site with monitors for CO, O ₃ , NOx/NOy, SO ₂ , PM _{2.5} , PM ₁₀ , PM _{10-2.5} , PM _{2.5} speciation, TSP-Pb and meteorological parameters. Many of the monitors at this site are “double-counted in this table as explained in footnote (3) above.					
(8) IMPROVE – Interagency Monitoring of Protect 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.					
(9) The sum total number of individual pollutant sites in the <i>Total Sites</i> column exceeds the bottom total sites value because the multi-pollutant NCore site and the ozone/PM ₁₀ site at 24 th & O Sts. were counted as one site each.					

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IV. Nebraska Ambient Air Monitoring Network: January 1, 2012 thru March 31, 2013

This section describes the Ambient Air Monitoring Network in place from January 1, 2012 thru March 31, 2013, and changes made during that time period. Only one change was made during this time frame; there was an unscheduled closure of the Lincoln CO site in February 2013 (see below).

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. Attachment A lists all the monitoring sites in Nebraska, including start-up and termination dates.

A. Omaha MSA Sites Operated by the DCHD

The DCHD operates an ambient air network of 10 sites in Douglas, Sarpy and Washington Counties. Multi-pollutant monitoring is conducted at two of the sites. The NCore site monitors for 9 pollutant parameters (CO, NO_y/NO_x, O₃, SO₂, PM_{2.5}, PM₁₀, PM_{10-2.5}, PM_{2.5} speciation & TSP lead), meteorological parameters, and atmospheric radiation (RADNET*). The South Omaha site has both an ozone and a PM₁₀ monitor. Thus the Omaha area monitoring network is more extensive than the 10 site total might indicate; if the pollutants are counted separately, there are 19 pollutant monitoring sites.

Table III-1 above provides summary information on the DCHD operated network, while Attachment A provides detailed information.

* 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.

B. Omaha MSA Sites Operated by the NDEQ

The NDEQ operates 2 PM₁₀ monitoring sites in the Weeping Water area. One at the city waste water treatment plant (abbr. WW City site) and one approximately 1/3 mile northwest of the Weeping Water spur (State Spur 13K) and Highway 50 intersection (abbr. WW Farm site). There were no changes made with respect to monitoring locations from January 1, 2012 thru March 31, 2013.

C. Lincoln MSA Sites Operated by the LLCHD

LLCHD currently (April 2013) operates two monitoring sites:

- A PM_{2.5} site at 3140 N Street in Lincoln, and
- An ozone site in Davey, NE.

The PM_{2.5}, N Street site has three monitors: a primary filter-based sampler, a collocated filter-based sampler, and a continuous monitor.

At the beginning of 2012, LLCHD also operated a CO monitoring site at 2620 O Street in Lincoln. Data was last collected from this site on February 3, 2012. The inlet structure at this site failed and LLCHD subsequently lost use of the building where the monitor was housed. Permanent site closure was proposed in the 2012 Network Plan. EPA approved the 2012 Network Plan and thus the closure of the O Street CO site.

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

The NDEQ operates one TRS monitoring at 501 Pine Street in Dakota City. There were no changes to the Nebraska air monitoring network in the Sioux City MSA from January 1, 2012 thru March 31, 2013.

E. Grand Island Metropolitan Statistical Area

The NDEQ operates a PM_{2.5} site in Grand Island. No changes were made to the air monitoring network in the Grand Island MSA from January 1, 2012 thru March 31, 2013. Grand Island was just officially recognized as a MSA in February 2013. The potential impact on monitoring requirements associated with the MSA designation are discussed in Section V.F.2 below.

F. Scottsbluff Micropolitan Statistical Area

The NDEQ operates a PM_{2.5} site in Scottsbluff. No changes were made to the air monitoring network in the Scottsbluff MiSA from January 1, 2012 thru March 31, 2013.

G. Fremont Micropolitan Statistical Area

The NDEQ operates a TSP-lead monitoring site at 1255 Front Street in Fremont. This site has two TSP samplers for collecting ambient air lead samples: a primary sampler that operates once every 6 days and a collocated QA sampler that operates once every 12 days.

There were no changes in the Fremont lead monitoring network from January 1, 2012 thru March 31, 2013, except those related to sampler upgrades and repairs.

- From May 3, 2012 thru September 30, 2012 both the primary and the collocated samplers were sent in to the manufacturer for conversion from mass flow controllers to volumetric flow controllers. These repairs were performed sequentially, so that primary sampling data from the site was obtained, but collocated data was not. The flow controller change was required because the original controllers were demonstrating temperature dependent flow bias. The conversion appears to have eliminated this problem.
- On March 11, 2013, the motor in one of the Fremont samplers failed. The motor was sent in for warranty repair/replacement. The Fremont site operated with only a primary sampler during this period, which had extended into May 2013 at the time this Network Plan was written.

H. Lexington Micropolitan Statistical Area

The NDEQ operates PM₁₀ sites in Cozad and Gothenburg. These are source-oriented sites with respect to alfalfa processing and grain handling facilities in these communities. Data from these sites is demonstrating attainment with the PM₁₀ NAAQS (see Attachment B Table B-5.a).

I. City of Auburn

The NDEQ operates a TSP-lead monitoring site in Auburn that is located approximately 0.15 miles northeast of the city ball park facilities. The site has a single TSP sampler that operates on a once per 6 day schedule.

No changes were made to this site during this time period. However, the sampler was sent in to the manufacturer for conversion of its mass flow controller to a volumetric flow controller. Seven sample dates were missed from August 25 thru September 30, 2012 due to conversion-associated down-time.

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J. IMPROVE Sites

IMPROVE is the acronym for Interagency Monitoring of Protect 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. Data collected at the Nebraska sites facilitate regional haze and pollution transport studies.

The NDEQ provides administrative oversight of the operation of two IMPROVE sites: one at Halsey National Forest in Thomas County and one at Crescent Lake National Wildlife Refuge in Garden County. These sites began operation in 2002. No changes were made at these sites from January 1, 2012 thru March 31, 2013.

K. National Atmospheric Deposition Program (NADP):

National Trends Network (NTN) & Mercury Deposition Network (MDN)

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 NADP. There were no changes to the NADP/NTN network from January 1, 2012 thru March 31, 2013.

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

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 can be found in Attachment A and at the following web addresses: <http://nadp.sws.uiuc.edu/> or <http://nadp.sws.uiuc.edu/mdn/>

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V. Considerations for Network Planning

A. Compliance with 40 CFR Part 58 Requirements

The Nebraska Ambient Air Quality Network must comply with the requirements set forth in 40 CFR Part 58, including Appendices A, C, D and E. Attachment D of this Network Plan contains a review of the Nebraska ambient air monitoring network with respect to these requirements.

The review indicates the Nebraska ambient air monitoring program is meeting applicable requirements. It is noted, as it was previously in the 2011 and 2012 Network Plans, that DCHD is meeting the collocation requirement for its PM_{2.5} network of 4 sites (2 MetOne BAMs and 2 2025 sequential samplers) with a 2025 sequential sampler collocated at the NCore MetOne BAM site.

Additional information is provided below concerning 2 potential monitoring site requirements that pertain to 40 CFR Part 58 Appendix D requirements.

1) Near-Road NO_x Monitoring in the Omaha MSA

On March 14, 2013, EPA promulgated changes to the near-road NO_x monitoring requirements (see 40 CFR Part 58 Appendix D Sec. 4.3.2) that were consistent with the previously-recommended, phased-implementation strategy. The revised regulations will require a near-road monitoring site in the Omaha MSA by January 1, 2017, with the site to be identified in the 2016 Network Plan.

There is a provision in the revised regulation, where-by a near-road monitoring site would be required in the Omaha MSA if there were road-segments with traffic counts that equal or exceed 250,000 Annual Average Daily Traffic (AADT). Both the NDOR and Omaha Metropolitan Area Planning Association (MAPA) publish traffic count data. The traffic counts published by both of these agencies indicate that maximum traffic counts in the Omaha MSA are below 250,000 AADT for any single road segment. Both agencies identified I-80 near the 42nd St. intersection as the highest traffic count segment as summarized below:

- NDOR: 2012 traffic count data identified I-80 at 42nd St. to be the heaviest traveled segment with ~170,000 AADT.
- MAPA: The *2010 Traffic Flow Map* identified the heaviest traveled road segment as I-80 between I-480 and 42nd St interchanges with an estimated 183,500 annual average weekday traffic (AAWT) count. The AAWT should be slightly higher than the AADT.

The Douglas County Health Department has indicated that the current CO monitoring site at 78th St. and W. Dodge Rd. would be a good candidate for consideration as the near-road NO_x monitoring site. The City of Omaha traffic count data estimates for the 72nd and Dodge Street intersection are 89,000 AADT and for the 84th and West Dodge Road intersection are 67,000 AADT. Although the traffic counts are lower than on I-80 near 42nd St., the 78th and Dodge Street location is subject to traffic congestion (slower speed limit and multiple traffic light stops in the vicinity), and it is in a valley location adjacent to Little Papillion Creek. Factors such as these are important in the determining where to place the near-road NO_x site.

EPA published the *Near-Road NO₂ Monitoring Technical Assistance Document* (EPA-454/B-12-002) in June 2012, which explains EPA recommendations for the site selection

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process. Traffic volumes, fleet mix, roadway design, traffic congestion patterns, meteorology, and local terrain & topography are all considerations in identifying the near-road NO_x monitoring site.

2) Source-Oriented Lead Monitoring

On December 14, 2010 EPA promulgated modifications to 40 CFR Part 58 Appendix D Sec 4.5, which lowered the emission threshold for requiring source-oriented lead monitoring to 0.5 tons per year (previously it had been 1 ton of lead emitted per year). This change required lead monitoring near the Nucor Steel-Norfolk facility, unless it could be demonstrated that lead levels would not exceed 50% of the NAAQS. Nucor Steel provided modeling that demonstrated the 50% criteria would be met, and the NDEQ submitted a waiver request in June 2011. EPA is reviewing this request.

Nucor Steel has submitted a construction permit application for an expansion of the Norfolk facility. As currently proposed the expansion will increase production and include additional controls potential lead emissions. If the permit is approved and expansion is implemented, a determination will need to be made as to whether:

- Lead emissions will be increased, and
- Additional modeling will be required to support continuation of the lead monitoring waiver.

Thus, if EPA rejects the waiver request, or if the expansion results in a withdrawal of the waiver request, source-specific lead monitoring would need to be initiated in 2014 or 2015. Funding would need to be procured for the construction and operation of the site.

B. Attainment with the National Ambient Air Quality Standards (NAAQS)

This section discusses areas where NAAQS attainment analyses are of the most interest. Attachment B contains a summary for all sites of the 2010 thru 2012 monitoring data, and includes a comparison of the monitoring data to the NAAQS.

The NAAQS attainment issues are discussed in this section are:

- Lead: Fremont site
- PM₁₀: Weeping Water Lauritzen Farm and Omaha 46th & Farnam monitoring sites;
- December 2012 change of the annual average PM_{2.5} NAAQS: All sites;
- 1-Hour SO₂ NAAQS: Entire state;
- 1-hour NO₂ NAAQS: Entire state;
- Secondary SO₂ and NO₂ NAAQS: General discussion;
- 8-Hour Ozone: Omaha MSA

These issues are not anticipated to require modifications in the Nebraska ambient air monitoring network before the end of 2013.

1) Fremont Lead

The Fremont monitoring site recorded 3-month average lead concentrations near or above the lead NAAQS in 2011 and 2012 (NAAQS = 0.15 $\mu\text{g}/\text{m}^3$).

- September thru November 2011: A 3-month average value of 0.16 $\mu\text{g}/\text{m}^3$ was found. However, sampler flow bias issues resulted in data being invalidated, such that the exceedence could not be supported. The samplers were refitted with different flow controllers in 2012, and sampler performance has been within specifications since the

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refits were completed.

- April thru June 2012 & May thru July 2012: The averages for these two 3-month time periods was 0.13 and 0.14 $\mu\text{g}/\text{m}^3$, respectively. These lead levels approached the lead NAAQS (i.e., 87% & 93%, respectively), but did not exceed it. High 24-hr lead values detected on 5-days in May thru early July (i.e., 0.44 $\mu\text{g}/\text{m}^3$ on 5/3, 0.43 $\mu\text{g}/\text{m}^3$ on 5/15, 0.53 $\mu\text{g}/\text{m}^3$ on 6/8, 0.16 $\mu\text{g}/\text{m}^3$ on 6/14 and 0.20 $\mu\text{g}/\text{m}^3$ on 7/2) caused the high 3-month average values.

The Fremont lead monitoring site is a source-oriented site with respect to Magnus Farley Metals (MFM). MFM recycles and manufactures brass castings with lead babbitt linings for locomotive and rail car wheel bearings. The ambient air monitoring site is located ~ 80 meters north of the MFM facility fence-line.

Based on the 2012 monitoring data, the Fremont lead site is in attainment with the lead NAAQS. Thus no further action is required or anticipated at this time; other than to continue to encourage voluntary efforts on the part of Magnus Farley, and keep them apprised of ambient data as soon as it becomes available (typically 30 to 60 days post-sampling).

2) Weeping Water PM_{10}

There are two PM_{10} monitoring sites in the Weeping Water area:

- The Weeping Water City (WW City) site at the wastewater treatment plant in the east central part of the city; and
- The Weeping Water Farm site (WW Farm) located ~ 1.9 miles west of the city in an agricultural field.

The WW Farm site recorded 4 days from October thru November 2010 and one day in January 2012 when the 24-hour average PM_{10} level exceeded 150 $\mu\text{g}/\text{m}^3$. See Table V-1 below.

The NAAQS is exceeded when 24-hour PM_{10} levels exceed 150 $\mu\text{g}/\text{m}^3$ on more than 3 days in 3 consecutive calendar years. There have been 5 exceedences of the 150 $\mu\text{g}/\text{m}^3$ level in the 2010 thru 2012 period. EPA and the sources in the area are aware of these exceedences.

It appears that the area where the NAAQS is being exceeded is limited to the commercial and agricultural area west of Weeping Water. The monitoring data presented in Table V-1 below demonstrates that PM_{10} levels at the Weeping Water City site are well below 150 $\mu\text{g}/\text{m}^3$.

Limestone mining and processing facilities located ~ 0.3 miles to the west of the WW Farm monitoring site appear to be the primary PM_{10} sources impacting the site. These limestone mining and processing facilities are ~ 2.2 miles west of the City of Weeping Water.

Nebraska has not recommended an attainment-status re-designation for the Weeping Water area. Discussions with EPA R7 continue on the proper course of action for managing PM_{10} levels in the Weeping Water area. It appears that source awareness has had a positive effect; PM_{10} levels have dropped since the fall of 2010 as shown in Table V-1 above.

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Table V-1: Maximum 24-Hour PM₁₀ Values from the Weeping Water Area: 2010-2012											
Rank	1	2	3	4	5	6	7	8	9	10	
Weeping Water – City Site											
2010	10/20	12/7	10/14	4/20	10/8	12/10	4/5	10/17	4/14	4/11	Date
	73	61	55	53	49	40	38	38	34	33	µg/m ³
2011	10/21	10/6	5/9	6/8	10/3	7/20	3/4	4/12	5/30	8/31	Date
	52	47	43	43	42	37	35	35	35	34	µg/m ³
2012	9/30	9/27	9/24	8/22	9/6	5/18	1/7	5/15	6/29	7/17	Date
	55	51	46	44	44	42	41	41	41	41	µg/m ³
Weeping Water – Farm Site											
2010	10/27	10/26	11/26	10/20	10/19	3/31	10/21	4/19	3/23	9/7	Date
	306	249	209	176	122	109	106	93	88	85	µg/m ³
2011	10/21	12/30	12/29	10/6	2/11	11/21	11/7	11/28	5/31	5/10	Date
	108	95	94	89	86	86	82	77	76	75	µg/m ³
2012	1/5	10/18	10/31	5/14	9/27	2/1	12/13	9/26	5/16	10/1	Date
	179	129	116	109	108	104	99	98	94	93	µg/m ³
Notes:											
<ul style="list-style-type: none"> • Values greater than the 150 µg/m³ NAAQS are shown in bold, red font. • The 24-hour values are calculated to the nearest µg, and rounded to the nearest 10 µg for comparison to the NAAQS. Values of 151 to 154 are rounded to 150 (i.e., do not exceed the NAAQS), while values of 155 to 159 are rounded to 160 (i.e., exceed the NAAQS). • The NAAQS is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. Assuming daily monitoring, then there cannot be more than 3 exceedences of 150 µg/m³ in 3 consecutive calendar years. 											

3) 46th & Farnam Sts PM₁₀ Site in Omaha

The 46th & Farnam site is source-oriented, with the monitor being located within 150 to 200 ft of the production areas at Omaha Steel Castings Company. From September 2011 thru June 2012, the 46th & Farnam site recorded four (4) 24-hour average PM₁₀ values greater than the 150 µg/m³ standard (See Table V-2 below). The NAAQS allows three exceedences of the 150 µg/m³ standard over any 3 consecutive calendar years.

Omaha Air Quality and Omaha Steel representatives met to discuss potential PM₁₀ sources and controls. Process-handling and housekeeping changes were recommended to reduce PM₁₀ emissions. This appears to have been effective; the highest PM₁₀ value in the 2nd half of 2012 was 144 µg/m³ on July 13th.

Omaha Steel is also in the process of relocating their plant to Wahoo, NE. The air quality construction permit for the new plant was issued on March 11, 2013. The move will be performed in a phased manner. It is anticipated the move will be completed by April 2014, with production activities at the 46th & Farnam site to be discontinued on or before that time.

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Rank	1	2	3	4	5	6	7	8	9	10	
2010	4/20	10/8	7/10	7/9	10/1	4/19	6/1	12/8	10/15	5/14	Date
	145	145	133	132	117	116	113	113	111	109	µg/m ³
2011	9/28	10/29	10/24	10/5	10/31	10/6	10/11	10/21	3/16	6/7	Date
	172	152	151	141	138	135	122	122	120	120	µg/m ³
2012	5/14	6/5	1/5	10/3	3/16	6/6	5/18	5/10	6/1	1/10	Date
	199	181	159	150	143	143	140	133	132	129	µg/m ³

Notes:

- Values greater than the 150 µg/m³ NAAQS are shown in **bold, red font**.
- The 24-hour values are calculated to the nearest µg, and rounded to the nearest 10 µg for comparison to the NAAQS. Values of 151 to 154 are rounded to 150 (i.e., do not exceed the NAAQS), while values of 155 to 159 are rounded to 160 (i.e., exceed the NAAQS).
- The NAAQS is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. Assuming daily monitoring, then there can not be more than 3 exceedences of 150 µg/m³ in 3 consecutive calendar years.

4) December 2012 PM_{2.5} NAAQS Change: Omaha MSA

In December 2012, EPA finalized changes to the NAAQS regulations that lowered the annual average PM_{2.5} NAAQS from 15 µg/m³ to 12 µg/m³. There are 5 PM_{2.5} monitoring sites in the Omaha MSA: 4 in Nebraska and 1 in Council Bluffs, IA. Figure V-1 shows the 2010 thru 2012 annual average data and the 3-year Design Values (DVs) from these 5 sites. All the DVs are less than 12 µg/m³. Thus attainment with the NAAQS is indicated.

Note: the Design Value (DV) for the Council Bluffs site was calculated by the NDEQ using data from the EPA AQS data base. The IA DNR will calculate the official DV for the Council Bluffs site. Thus the Council Bluffs DV used in this document is preliminary and is used for preliminary evaluation purposes.

An examination of Figure V-1, and the data used to develop it, shows the following:

- Two sites had annual averages above 12 µg/m³ in the 2010 thru 2012 time frame:
 - Bellevue: 2010 annual average = 12.4 µg/m³ and 2010-12 DV = 11.5 µg/m³, and
 - Council Bluffs-C Avenue: 2010 annual average = 12.2 µg/m³ and 2010-12 DV = 11.1 µg/m³.
- PM_{2.5} levels increased at the Omaha-Berry Street site from 2010 thru 2012; and
- The 2010-12 Design Values for 3 sites are at or above 85% of the 12 µg/m³ NAAQS:
 - Omaha-Berry: DV = 10.9 µg/m³ or 91% of the NAAQS,
 - Bellevue: DV = 11.5 µg/m³ or 96% of the NAAQS, and
 - Council Bluffs-C Avenue: DV = 11.1 µg/m³ or 92% of the NAAQS

Figure V-2 shows the annual average data for these 5 sites from 2003 thru 2012 (10 years). This provides a longer term historical perspective of annual average PM_{2.5} levels. The following are noted from Figure V-2:

- There were only 2 years in which annual averages exceeded 12 µg/m³: 2005 and 2010;

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- The Council Bluffs site recorded the highest PM_{2.5} levels from 2003 thru 2009;
- In 2010 and 2011, the Bellevue site recorded the highest PM_{2.5} levels;
- PM_{2.5} levels recorded at the Bellevue site increased significantly in 2010 and have declined since, but remain high when compared with 2003-04 and 2006-09 data;
- PM_{2.5} levels at the Omaha Berry Street site have increased steadily since 2009; and
- In 2012 Berry recorded the highest PM_{2.5} levels in the Omaha MSA.

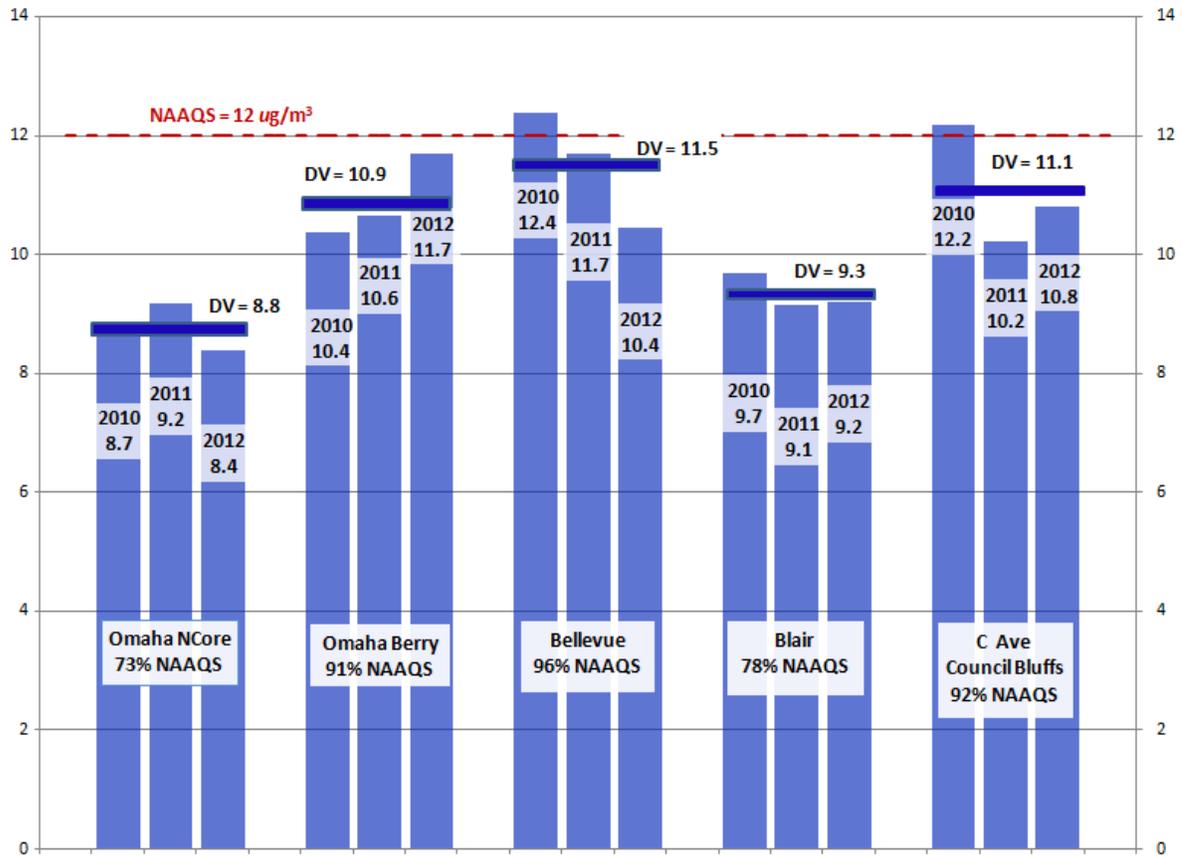
The significance of this from an attainment review perspective is that it appears that there may be 3 monitoring sites in the Omaha MSA that have recorded annual average PM_{2.5} levels that are at or above 90% of the 12 $\mu\text{g}/\text{m}^3$ NAAQS: Omaha-Berry, Bellevue and Council Bluffs.

Figure V-3 provides a historical perspective of 3-year design values going back to 2003 (10 years) for the 5 Omaha MSA monitoring sites. As shown in the figure PM_{2.5} annual average DVs have not exceeded 12 $\mu\text{g}/\text{m}^3$ in the previous 10 years. It also shows that the 2011 and 2012 DVs for the Bellevue site and the 2012 DV for the Omaha-Berry site are above any previous levels recorded in the last 10 years.

40 CFR Part 58 Appendix D Section 4.7.1 (Table D-5) sets forth the minimum PM_{2.5} monitoring site requirements. When PM_{2.5} concentrations are equal to or greater than 85% of the NAAQS, MSAs with populations of 500,000 to 1,000,000 are required to have a minimum of 2 monitoring sites. The Omaha MSA has a population of ~886,000. The 2010-12 Design Values for PM_{2.5} exceed 85% of the NAAQS at 3 of the 5 monitoring sites in the Omaha MSA. Thus additional monitoring sites are not required (i.e., a minimum of 2 are required and 5 are operating), nor are any anticipated at this point.

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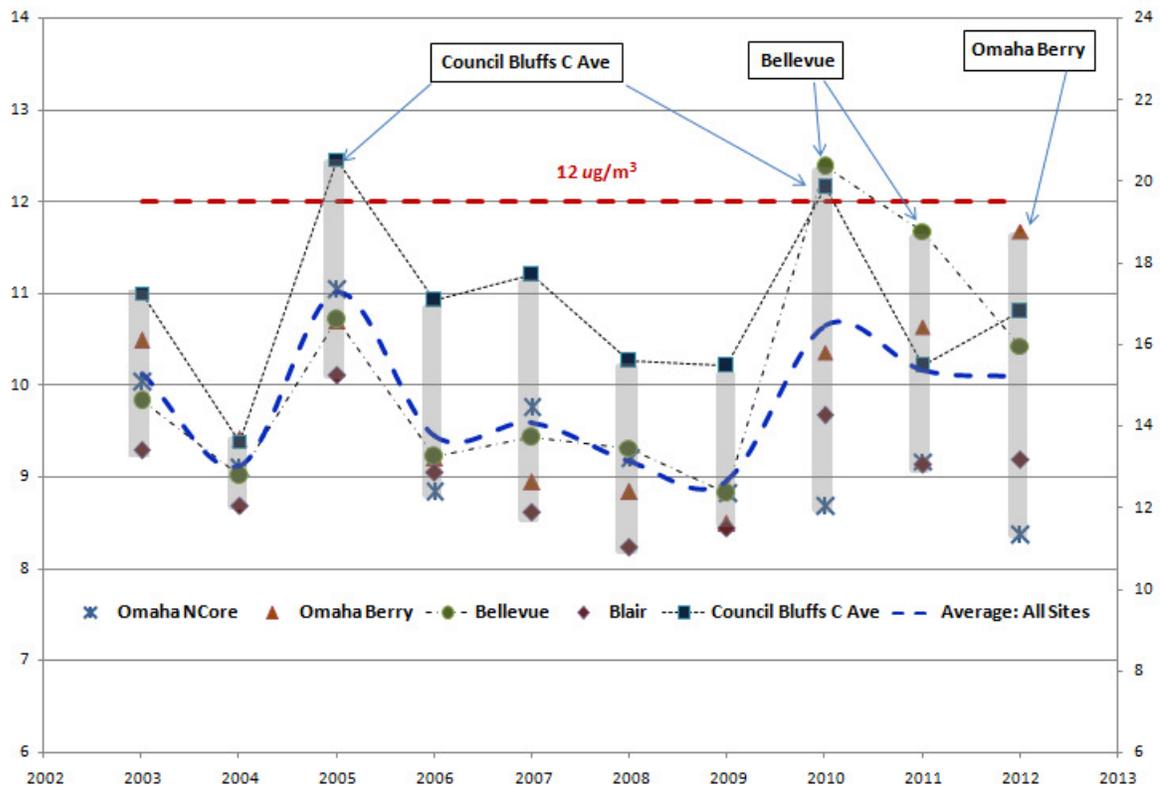
Figure V-1: Annual Average PM_{2.5} Levels and 2010-12 Design Values (DVs) in the Omaha MSA



Note: the DV for the Council Bluffs site was calculated by the NDEQ using data from the EPA AQS data base. The IA DNR will calculate the official DV for the Council Bluffs site. Thus the Council Bluffs DV used in this document is preliminary and is used for preliminary evaluation purposes.

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Figure V-2: Annual Average PM_{2.5} Levels 2003 thru 2012 at Omaha Monitoring Sites

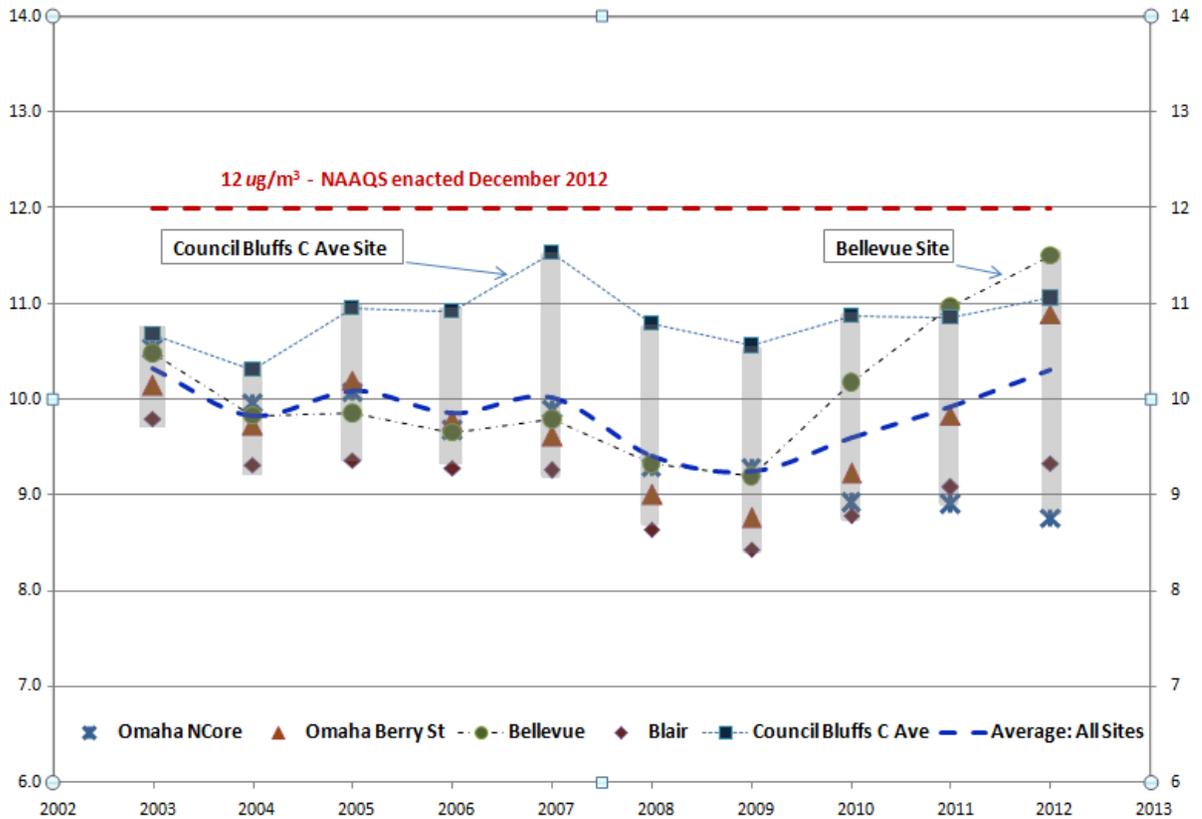


Notes:

- * This figure summarizes data from the 5 PM_{2.5} monitoring sites in the Omaha MSA
- * There were only 2 years in which annual averages exceeded 12 $\mu\text{g}/\text{m}^3$: 2005 and 2010.
- * The Council Bluffs site recorded the highest PM_{2.5} levels from 2003 thru 2009
- * In 2010 and 2011, the Bellevue site recorded the highest PM_{2.5} levels
- * PM_{2.5} levels recorded at the Bellevue site increased significantly in 2010 and have declined since
- * PM_{2.5} levels at the Omaha Berry Street site have increased steadily since 2009, and in 2012 Berry recorded the highest PM_{2.5} levels in the Omaha MSA

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Figure V-3: Annual Average PM_{2.5} Design Values (DVs) for Omaha MSA Monitoring Sites



Note: The DVs in this figure were calculated by the NDEQ using data from the EPA AQS data base. These are not necessarily the official DVs for these sites.

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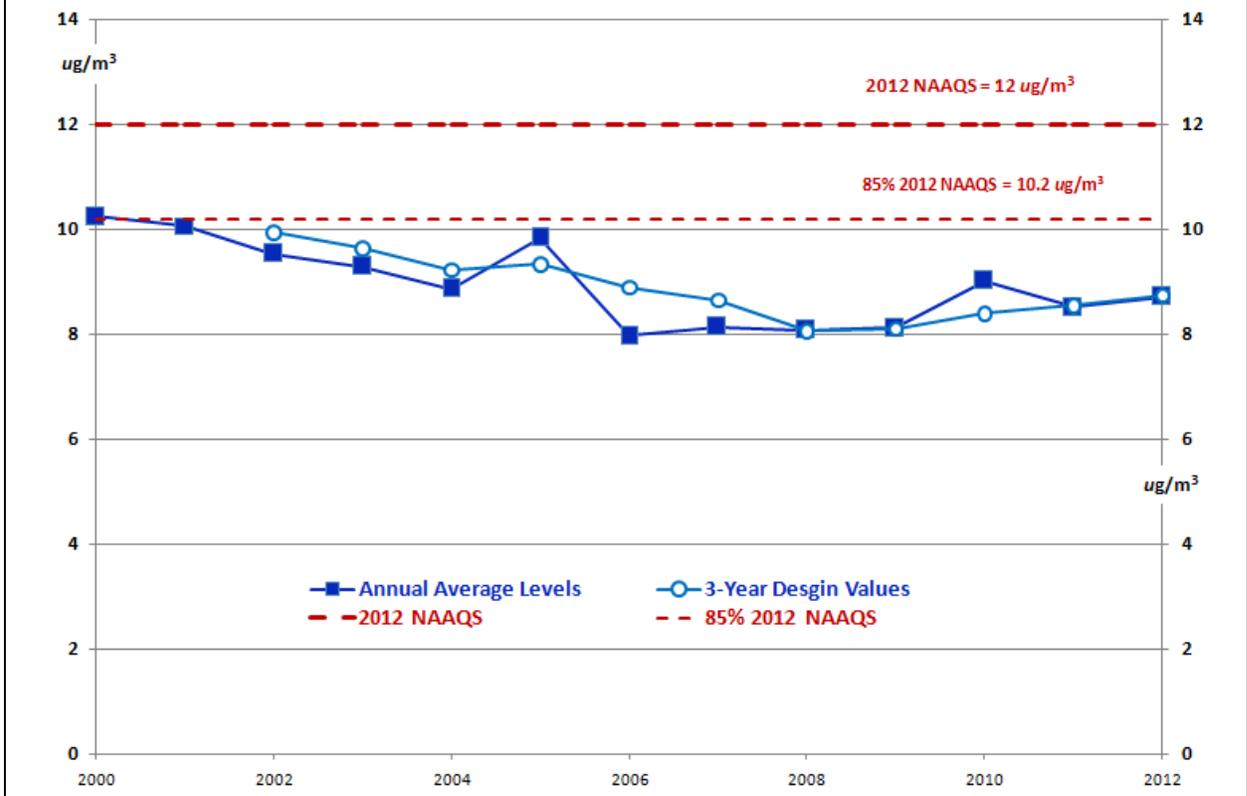
5) December 2012 PM_{2.5} NAAQS Change: Lincoln MSA

There is one PM_{2.5} monitoring site in the Lincoln MSA. The 2010-12 Design Value is 8.8 $\mu\text{g}/\text{m}^3$ or 73% of the new NAAQS finalized in 2012.

The minimum number of PM_{2.5} monitoring sites required for an MSA with populations of 50,000 to 500,000 and DVs less than 85% of the NAAQS is zero (40 CFR Part 58 Appendix D Section 4.7.1, Table D-5). The Lincoln MSA has a population of ~310,000. As shown in Figure V-4 below, the historical DVs from this site going back to 2000-02 have always been less than 10.2 $\mu\text{g}/\text{m}^3$ (85% of new NAAQS).

No additional PM_{2.5} monitoring sites are required or anticipated.

Figure V-4: Annual Average PM_{2.5} Levels and Design Values (DVs) for the Lincoln MSA



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6) December 2012 PM_{2.5} NAAQS Change: Sioux City MSA

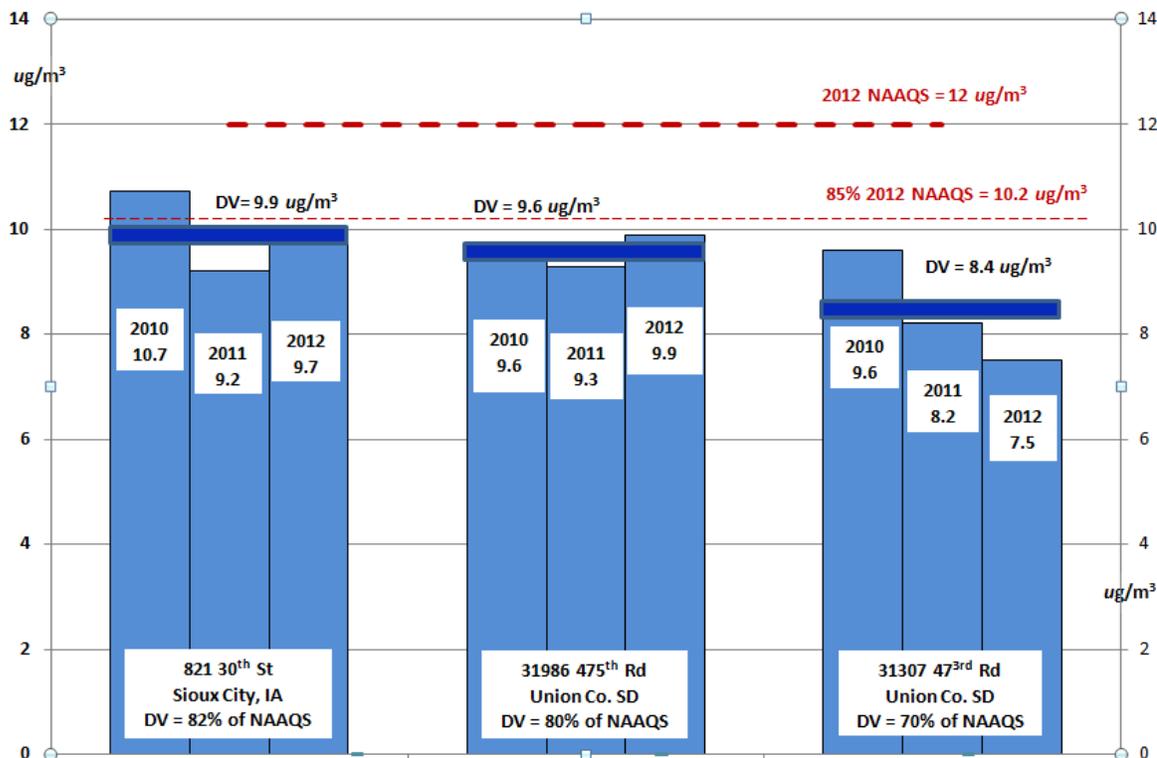
There are 3 monitoring sites in the Sioux City MSA: one in Sioux City, IA and two in Union County, SD. As shown in Figure V-5 below the 2010-12 Design Values were less than 85% of the 12 $\mu\text{g}/\text{m}^3$ NAAQS.

Historically the annual average PM_{2.5} levels at these sites have never exceeded 12 $\mu\text{g}/\text{m}^3$. See Table V-3 below, which summarizes data back to 2000.

The minimum number of PM_{2.5} monitoring sites required for MSAs with populations of 50,000 to 500,000 and DVs less than 85% of the NAAQS is zero (40 CFR Part 58 Appendix D Section 4.7.1, Table D-5). The Sioux City MSA has a population of ~ 169,000. The 2010-12 DV is below the 85% threshold. No additional PM_{2.5} monitoring sites are required or anticipated.

Historically there were 4 DVs since 2000-02 that exceeded the 85% threshold (10.2 $\mu\text{g}/\text{m}^3$). These are shown in Table V-3 with highest DV being 10.5 $\mu\text{g}/\text{m}^3$. The minimum number of PM_{2.5} monitoring sites required for MSAs with populations of 50,000 to 500,000 and DVs equal to or greater than 85% of the NAAQS is one (40 CFR Part 58 Appendix D Section 4.7.1, Table D-5). Thus this minimum monitoring requirement is being met regardless of whether future DVs exceed 85% of the NAAQS.

Figure V-5: Annual Average PM_{2.5} Levels and 2010-12 Design Values (DV) in the Sioux City MSA



Note: The DVs in this figure were calculated by the NDEQ using data from the EPA AQS data base. These are not necessarily the official DVs for these sites.

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Table V-3: Historical Summary of Annual Average PM_{2.5} Levels and Design Values in the Sioux City MSA: 2000 thru 2012

Sites	Year Monitoring Started	Highest Annual Average		Highest DV	
		μg/m ³	Year	μg/m ³	Years
821 30 th St, Sioux City IA	1999	10.84	2003	10.5*	2005-07
31986 475 th Rd, Union Co SD	2009	9.88	2012	9.6	2010-12
31307 473 rd Rd, Union Co. SD	2009	9.6	2010	8.7	2009-11

* Historical Design Values equal to or greater than 85% of the new 12 μg/m³ NAAQS (10.2 μg/m³):

2001-03 => 10.3 μg/m ³	2003-05 => 10.3 μg/m ³	2005-07 => 10.5 μg/m ³	2006-08 => 10.3 μg/m ³
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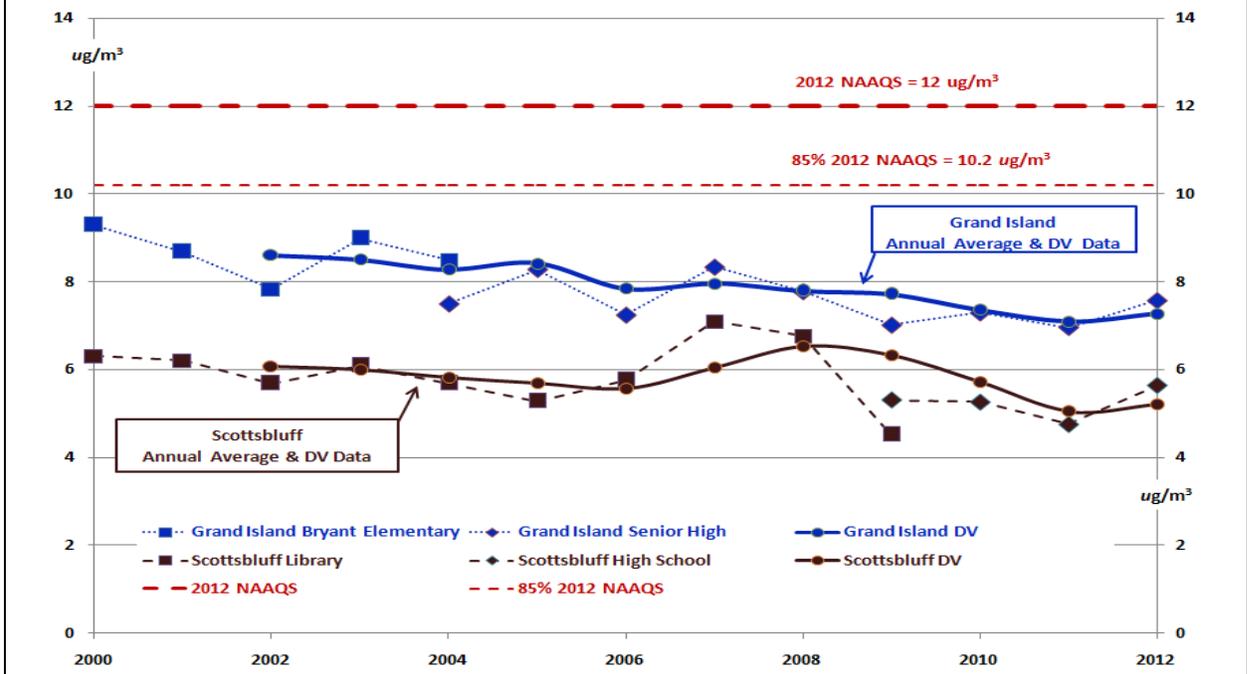
7) December 2012 PM_{2.5} NAAQS Change: Grand Island and Scottsbluff

The NDEQ operates monitoring sites in Grand Island and Scottsbluff. The Grand Island site was established as Nebraska's transport site. The Scottsbluff site was established as Nebraska's background site. Each state is required to have one background site and one transport site per 40 CFR Part 58 Appendix D Section 4.7.3. Both the Grand Island and Scottsbluff sites are also population oriented, being located at the high schools in these two communities.

The 2010-12 Design Values, as well as historical design values going back to 2000-02, have been less than 85% of the 12 μg/m³ NAAQS. See Figure V-6 below.

Also see Section V.E.2 below for the PM_{2.5} monitoring requirements for the newly designated Grand Island MSA.

Figure V-6: Grand Island and Scottsbluff Annual Average PM_{2.5} levels and Design Values (DVs): 2000 – 2012



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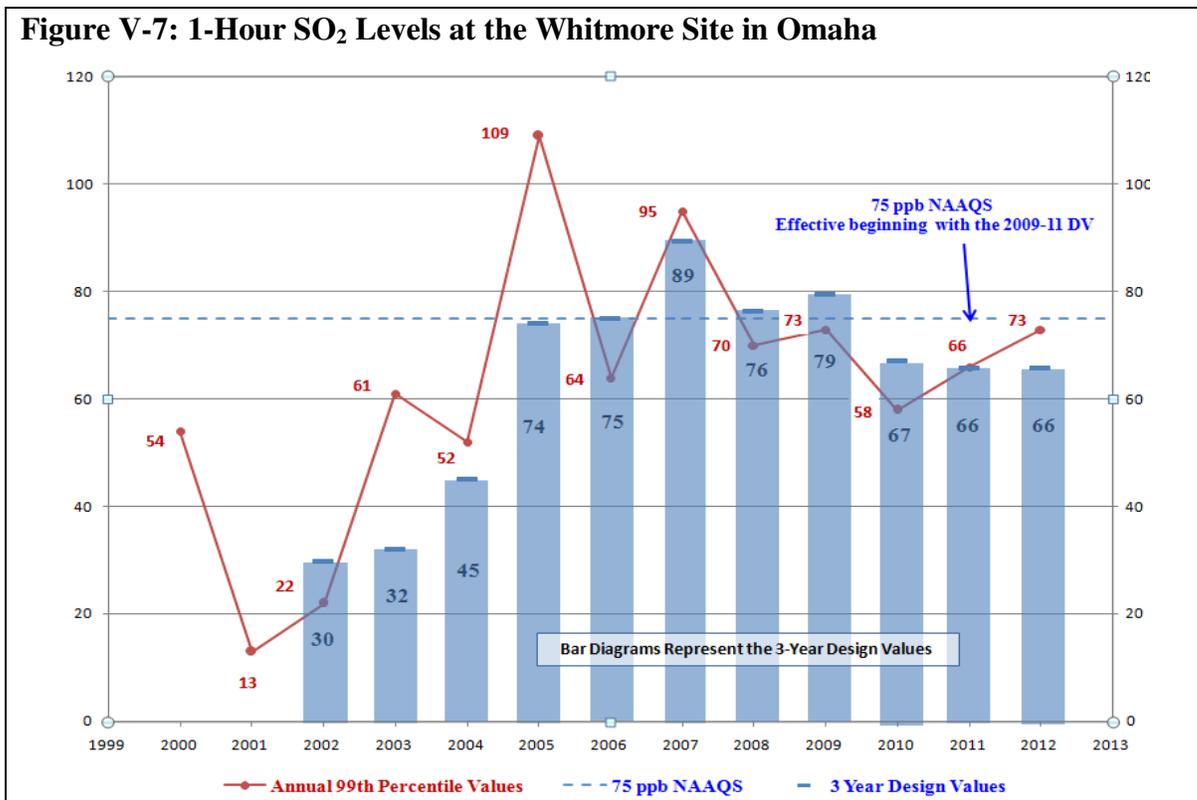
8) Sulfur Dioxide – Primary NAAQS

EPA promulgated a new 1-hour SO₂ NAAQS of 0.075 ppm in 2010. Attainment with the NAAQS is evaluated using the 3-year average of the annual 99th percentile 1-hour values (1-Hour SO₂ Design Value). Nebraska’s initial attainment-designation recommendation was submitted as “unclassifiable” in accordance with the EPA regulations and guidance. EPA issued the “120 day letter” recommending approval of the “unclassifiable” determination for Nebraska in 2013. It appears that all areas of the US that are not classified as “non-attainment” will be determined to be “unclassifiable” at this time.

There is one source-oriented SO₂ monitoring site in the Nebraska ambient air monitoring network: the site is at 1616 Whitmore Ave in Omaha (operated by the DCHD), which is located at a predicted highest concentration location relative to the OPPD North Omaha Station (a coal-fired electricity generating facility). This site is currently finding SO₂ levels to be in attainment with the NAAQS. Historically (before the current NAAQS was promulgated) the 2005-07, 2006-08 and 2007-09 design values did exceed 75 ppb. See Figure V-7 below.

EPA had originally envisioned using a combination of monitoring and modeling to finalize the attainment classification for SO₂. EPA is considering options on how to best proceed. At this point it appears that both modeling and monitoring will likely play a role in finalizing the attainment classification process.

Until EPA finalizes the procedures for completing attainment determinations, it is not possible to determine whether additional monitoring sites will need to be added to the Nebraska ambient air monitoring network. Any new sites will be addressed in future network plan reviews; although not anticipated, it is possible that new sites could be established prior to inclusion in a future network review.



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Table V-4: SO₂ Related Information on Power Plants in or near Nebraska: 2012 Data ⁽¹⁾⁽²⁾					
Plant name	Location	BTU Input (BTU x10 ¹²)	SO ₂ (tons)	Ambient Monitoring Data (ppm) ⁽³⁾	
				99 th Percentile	Design Value ⁽³⁾
Mid Am Scott Energy Ctr	Pottawattamie Co IA Omaha MSA	112	14,073	nd	nd
OPPD North Omaha Stn	Douglas Co NE Omaha MSA	35	11,377	73	66 ⁽⁴⁾
Mid Am G. Neal North Stn	Woodbury Co IA Sioux City MSA	44	9789	39	na ⁽⁵⁾
Mid Am G Neal South Stn	Woodbury Co IA Sioux City MSA	45	14273		
NPPD Gerald Gentleman Stn	Lincoln Co NE 18 mi W North Platte	89	26438	nd	nd
OPPD Nebraska City Stn	Otoe Co NE 4 mi SE Neb City	95	16766	nd	nd
Gerald Whelan Energy Ctr	Adams Co NE 2 mi E Hastings	15	2133	nd	nd
NPPD Sheldon Stn	Lancaster Co NE Lincoln MSA	12	2760	nd	nd
Platte Generating Stn	Hall Co NE 2 mi S Grand Island	6	1813	nd	nd
Lon D Wright Power Plant	Dodge Co NE SE edge Fremont	4	1095	nd	nd
<p>Abbr: nd – Source-oriented ambient air monitoring site data not available (no data) na – Data not available</p>					
<p>Footnotes:</p> <p>(1) BTU input and SO₂ emission data from the EPA Acid Rain data base (http://www.epa.gov/airmarkets/quarterlytracking.html).</p> <p>(2) Ambient air monitoring data from the EPA AQS data base.</p> <p>(3) The 1-hour SO₂ NAAQS is equal to 75 ppm. Attainment is evaluating using the 3-year average of the annual 99th percentile value, which is referred to as the Design Value or DV.</p> <p>(4) The source-oriented monitoring site for the OPPD North Omaha Station was shut down from 6/22/11 thru 10/1/11 due to Missouri River flooding.</p> <p>(5) The source-oriented monitoring site for the Mid America George Neal North & South Stations began operations on 7/1/12. Thus there is only a half-year of data for 2012 and no 3-year average DV.</p>					
<p>Source-Oriented Ambient Air Monitoring Stations:</p> <p>Mid America George Neal North & South Stations: Site located at 1221 260th Street, Sergeant Bluff , IA; Operated by the IA DNR /University Hygienic Laboratory; Began operation on 7/1/12.</p> <p>OPPD North Omaha Station: Site located at 1616 Whitmore Street, Omaha, NE; Operating by DCHD; Began operation in 1999, but was shut-down from 6/22/11 thru 10/1/11 due to Missouri River flooding.</p>					

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9) Nitrogen Oxides - Primary NAAQS

EPA promulgated a new 1-hour NO_x NAAQS of 100 ppb in February 2010. Attainment with the NAAQS was to be evaluated using the 3-year average of the annual 98th percentile 1-hour NO₂ values.

The initial attainment evaluation was to be performed using 2008 thru 2010 data. The NDEQ submitted a classification recommendation of *unclassifiable/attainment* in August 2011, and EPA approved this classification in January, 2012. This classification was used because Nebraska did not have NO_x monitoring data available for 2008 thru 2010.

In 2011, DCHD began operating a NO/NO_y monitor at the NCore site at 4102 Woolworth St. in Omaha (see Attachment B Table B-4.b for data). The NO/NO_y monitor will not provide an exact NO₂ value, but the NO_y-NO should approximate NO₂ levels with the possibility of a positive bias (i.e., NO_y-NO \geq NO₂).

Table V-5 below contains NO/NO_y data from the Omaha NCore site, as well as NO₂ data from selected monitoring sites in adjacent or near-by states. The data demonstrates that NO_y-NO levels are well below the NO_x NAAQS at the Omaha NCore site, and that NO₂ levels in adjacent states are also in attainment with the NAAQS.

The data in Table V-5 supports the *unclassifiable/attainment* classification (i.e., although data from Nebraska is limited, the data available from Nebraska and near-by states indicates attainment). The greatest potential for the NO_x NAAQS to be exceeded would be in a near-road, high-traffic area in the Omaha MSA. Regulations promulgated on March 14, 2013 will require a near-road NO_x monitor to begin operating in the Omaha MSA by January 1, 2017. Near-road NO_x monitoring will be addressed in a future network plan. See Section A.1 above for additional information on near-road NO_x monitoring.

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Table V-5: One-Hour NO_x Levels at Monitoring Sites in Nebraska and at Selected Sites in Near-By States for Comparison to the Primary NAAQS ⁽¹⁾⁽²⁾⁽³⁾							
Site	Site #	Annual 98 th Percentile NO _x Values (ppb)			DV (ppb)	% Primary NAAQS	Pollutant
		2010	2011	2012			
Omaha NE NCore	31-055-0019	nd	45.0	45.0	45.0 ⁽⁴⁾	45% ⁽⁴⁾	NO _y -NO
Des Moines IA	19-153-0030	47.0	39.3	39.6	42.0	42%	NO ₂
Davenport IA	19-163-0015	37.5	37.5	34.1	36.4	36%	NO ₂
Blaine MN Minneapolis MSA	27-003-1002	51.0	46.0	41.0	46.0	46%	NO ₂
Rosemount MN Minneapolis MSA	27-037-0020	44.0	37.0	36.0	39	39%	NO ₂
Sioux Falls SD	46-099-0008	48.0	38.6	36.6	41.1	41%	NO ₂
Union Co. SD Sioux City MSA	46-127-0002	20.0	14.3	57.0	30.4	6%	NO ₂
Rapid City SD	46-103-0020	nd	47.0	42.2	44.6 ⁽⁴⁾	45% ⁽⁴⁾	NO ₂
Brookhurst WY Casper MSA	46-025-2601	nd	42.2	27.3	35 ⁽⁴⁾	35% ⁽⁴⁾	NO ₂
Cheyenne WY	56-021-0100	nd	32.3	35.8	34.1 ⁽⁴⁾	34% ⁽⁴⁾	NO ₂
Wamsutter WY	56-037-0200	40.0	37.9	36.3	38	38%	NO ₂
Denver CO	08-031-0002	71.0	72.0	72.0	71.7	72%	NO ₂
Wichita KS	20-173-0010	39.0	68.8	85.1	64.3	65%	NO ₂
Kansas City KS	20-209-0021	54.0	53.1	50.8	52.6	53%	NO ₂
Kansas City MO	29-095-0034	52.0	53.9	52.8	52.9	53%	NO ₂
St. Louis MO	29-510-0086	50.0	55.5	52.4	52.6	53%	NO ₂

Footnotes:

(1) The Omaha NCore site is the only NO_x monitoring site in Nebraska. This site monitors for NO and NO_y. The NO_y-NO parameter includes NO₂ as well as other reactive forms of NO_x. The NO_y-NO parameter can be used demonstrate attainment with the NO_x NAAQS, but not non-attainment.

(2) Sites from the near-by states of IA, MN, SD, WY, CO, KS and MO were selected in part on their proximity to NE, and urban sites and highest concentration sites also received selection priority. In areas where there was more than one NO_x monitoring site, data from the site that had the highest NO_x values is shown. The levels shown in this table include the highest found in each state.

(3) The NO_x 1-hour primary NAAQS is 100 ppb. Attainment with the NAAQS is evaluated using the 3 year average of the annual 98th percentile values for NO₂. The NO_y-NO value is equal to or greater than the NO₂ value.

(4) There was only 2 years of data (2011 & 2012) for four sites. Thus a true DV could not be calculated for these sites.

10) Secondary NAAQS for Oxides of Nitrogen and Sulfur

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On July 12, 2011, EPA public noticed proposed secondary NAAQS for NO₂ and SO₂. The proposal would have retained the current secondary NAAQS and established new secondary NAAQS equal to the primary NAAQS. In the development of this proposal a combined SO₂ and NO₂ NAAQS was also considered because they have cumulative effects on the vegetation and water environments as dual contributors to acid rain.

On April 3, 2012, EPA issued final regulations that retained the current secondary NAAQS for NO₂ and SO₂, and did not add the secondary 1-hour NAAQS for NO₂ and SO₂ in combination (i.e., the final regulation did not change the secondary NO₂/SO₂ NAAQS).

The existing (continued) secondary NAAQS are:

- NO₂ => 0.053 ppm (53 ppb) annual average with the highest annual average over the last 3 years being compared to the NAAQS; and
- SO₂ => 0.5 ppm (500 ppb) 3-hour average value, with attainment being determined by using the annual 2nd highest daily 3-hour maximum for the preceding 3 years, with the highest annual value being compared to the NAAQS.

With respect to NO₂, there is one NO/NO_y monitoring site in Nebraska, the Omaha NCore site. The NO_y-NO parameter will be equal to or greater than NO₂. Thus the NO_y-NO parameter can be used to evaluate attainment with the NAAQS, but non-attainment can not be definitely determined. The NO_y-NO levels being found at the Omaha NCore site are well below the NAAQS with the 2010-12 design value at 35% of the secondary NAAQS.

Table V-6 below contains the NO_y-NO and NO₂ monitoring data for the 2010-12 time frame for the Omaha NCore site, and for other sites in near-by states. The results indicate the secondary NO₂ NAAQS is being met with a significant cushion.

There are currently two SO₂ monitoring sites in Omaha: the NCore site and the highest concentration site at 19th & Whitmore Sts. Table V-7 contains the 2010-12 results from the two Omaha SO₂ monitoring sites, as well as selected sites in nearby states. As shown in Table V-7 all the SO₂ monitoring sites in Nebraska and near-by states are demonstrating attainment with the secondary SO₂ NAAQS.

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Table V-6: Annual Average NO₂ Levels at Monitoring Sites in Nebraska and at Selected Sites in Near-By States for Comparison to the Secondary NAAQS ⁽¹⁾⁽²⁾⁽³⁾

Site	Site ID	Annual Averages			Design Value	Percent Secondary NAAQS	Pollutant
		2010	2011	2012			
NCore Omaha , NE	31-055-0019	nd	18.13	18.7	18.7 ⁽⁴⁾	35%	NOy-NO
Des Moines IA	19-153-0030	8.90	8.02	8.10	8.9	17%	NO ₂
Davenport IA	19-163-0015	8.44	7.45	7.67	8.4	16%	NO ₂
Blaine MN Minneapolis MSA	27-003-1002	9.37	7.93	7.23	9.4	18%	NO ₂
Rosemount MN Minneapolis MSA	27-037-0020	9.67	8.96	9.37	9.7	18%	NO ₂
Sioux Falls SD	46-099-0008	6.58	6.17	6.23	6.6	12%	NO ₂
Union Co SD Sioux City MSA	46-127-0002	2.92	2.63	5.76	5.8	11%	NO ₂
Rapid City SD	46-103-0020	nd	8.43	7.53	8.4 ⁽⁴⁾	16%	NO ₂
Brookhurst WY Casper MSA	46-025-2601	nd	6.99	5.37	7.0 ⁽⁴⁾	13%	NO ₂
Cheyenne WY	56-021-0100	nd	3.62	3.8	3.8 ⁽⁴⁾	7%	NO ₂
Wamsutter WY	56-037-0200	4.84	4.44	4.72	4.8	9%	NO ₂
Denver CO	08-031-0002	27.70	24.43	24.52	27.7	52%	NO ₂
Wichita KS	20-173-0010	8.27	12.24	10.13	12.2	23%	NO ₂
Kansas City KS	20-209-0021	13.13	13.10	12.28	13.1	25%	NO ₂
Kansas City MO	29-095-0034	14.93	15.00	14.14	13.1	25%	NO ₂
St. Louis MO	29-510-0086	12.83	13.39	14.13	14.1	27%	NO ₂

Footnote:

- (1) The Omaha NCore site is the only NO_x monitoring site in Nebraska. This site monitors for NO and NO_y. The NO_y-NO parameter includes NO₂ as well as other reactive forms of NO_x. The NO_y-NO parameter can be used demonstrate attainment with the NO_x NAAQS, but not non-attainment.
- (2) Sites from the near-by states of IA, MN, SD, WY, CO, KS and MO were selected in part on their proximity to NE, and urban sites and highest concentration sites also received selection priority. In areas where there was more than one NO_x monitoring site, data from the site that had the highest NO_x values is shown. The levels shown in this table include the highest found in each state.
- (3) The NO_x 1-hour primary NAAQS is 100 ppb. Attainment with the NAAQS is evaluated using the 3 year average of the annual 98th percentile values for NO₂. The NO_y-NO value is equal to or greater than the NO₂ value.
- (4) There was only 2 years of data (2011 & 2012) for four sites. Thus a true DV can not be calculated.

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Table V-7: Three-Hour SO₂ Levels (ppb) at Selected Monitoring Sites in and around Nebraska ⁽¹⁾⁽²⁾⁽³⁾

Site	Site ID #	Annual 2 nd High 3-Hr Max			Design Value	Percent NAAQS
		2010	2011	2012		
NCore Omaha NE	31-055-0019	nd	26	26	26	5%
Whitmore St Omaha NE	31-055-0055	55	54	76	76	15%
Sergeant Bluff IA	19-193-0020	nd	nd	15	15	3%
Des Moines IA	19-153-0030	2	2	1	2	0.4%
Muscatine IA	19-39-0020	122	199	176	199	40%
Minneapolis MN	27-053-0954	24	3	6	24	5%
Union Co. SD	46-127-0001	21	5	7	21	4%
Badlands NP SD	46-071-0001	9	6	2	9	2%
Rapids City SD	46-103-0020	nd	5	7	7	1%
Newcastle WY	56-045-0800	13	9	16	16	3%
NCore Cheyenne WY	56-021-0100	nd	4	5	5	1%
Carbon Co. WY	56-007-0852	nd	150	111	150	30%
Denver CO	08-031-0002	30	27	32	32	6%
Trego Co KS	20-195-0001	3	3	5	5	1%
Kansas City KS	20-209-0021	37	34	48	48	10%
Kansas City MO	29-095-0034	112	146	144	146	29%
Herculaneum MO	29-099-0027	nd	110	181	181	36%

Footnotes:

(1) Data from all NE SO₂ sites is shown. Data from selected sites in the nearby states of IA, MN, SD, WY, CO, KS & MO are also shown. Near-by state sites were selected based on their proximity to Nebraska, and the SO₂ concentrations reported. Data from the highest concentration site in each state is shown. When there was more than one site in an area, the highest concentration data is shown.

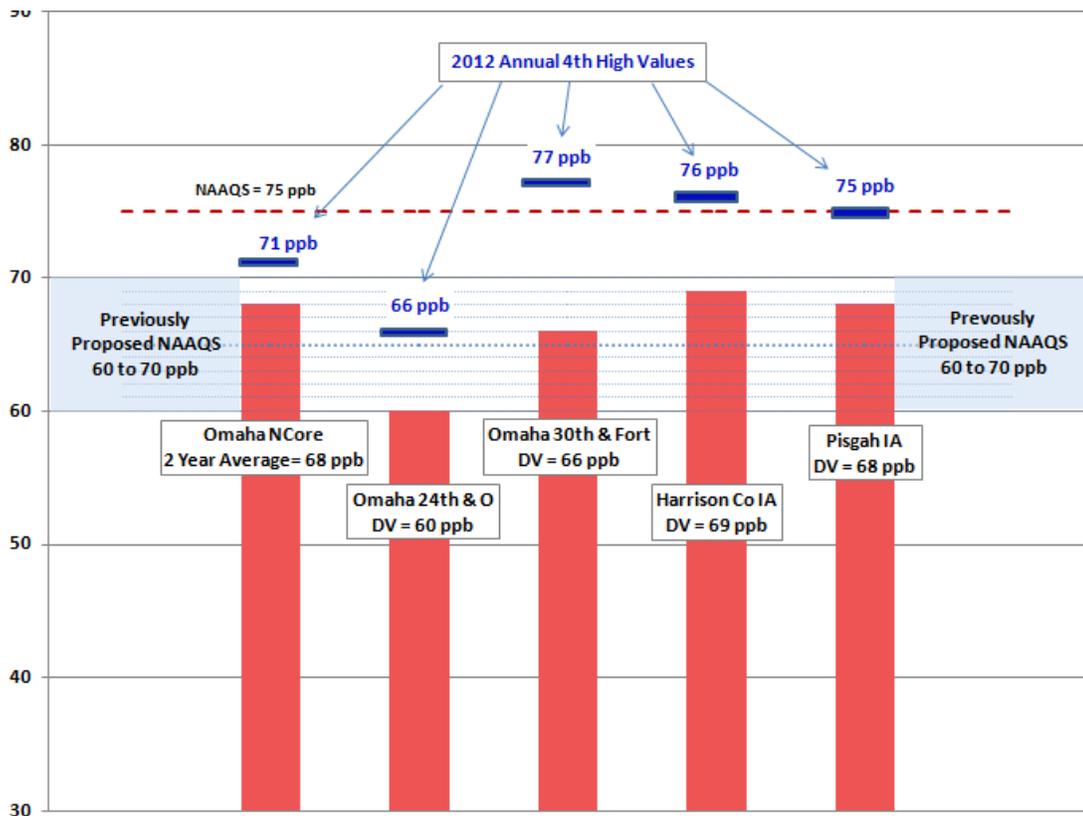
(2) The secondary 3-hour SO₂ NAAQS = 500 ppb or 0.5 ppm. To determine attainment the 2nd high 3-hour maximum is determined for each calendar year. Attainment is achieved when the highest 3-hour 2nd max over the most recent 3 year time frame (i.e., the Design Value or DV) is equal to or less than the NAAQS. The NAAQS has one significant figure. Thus 549 ppb rounds to 500 ppb (attainment), and 550 ppb rounds to 600 ppb (non-attainment).

11. Ozone – Omaha MSA

Figure V-8 shows the 2010-12 design values and 2012 4th high values for 8-hour ozone levels at the five monitoring sites in the Omaha MSA. As Figure V-8 shows, the Omaha MSA remains in attainment with the 75 ppb 8-hour ozone NAAQS, although the 2012 4th high values exceeded 75 ppb at 2 sites: 77 ppb at 30th & Fort in Omaha and 76 ppb at the Harrison County site in Iowa (located ~3.5 miles south of Pisgah, IA at the highway maintenance shed on Hwy 183).

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Figure V-8: 2012 Ozone Design Values (DV)* and Annual 4th-High 8-Hour Ozone Levels at Monitoring Sites in the Omaha MSA



* The “DVs” shown in this figure were calculated using the Design Value calculation procedures set forth in 40 CFR Part 58. However, the IA DNR is responsible for calculating the DVs for the Harrison County and Pisgah sites. It is possible that the final DVs calculated by Iowa could differ from the DVs shown above.

Historically (from 2000 thru 2011), the Harrison County site has recorded the highest annual 4th-high ozone levels in the Omaha MSA. Comparing Harrison County IA annual 4th-high ozone levels with those found at 30th and Fort in Omaha from 2000 thru 2013 finds that ozone levels at Harrison County IA site averaged 16% higher than those at the 30th & Fort site in Omaha. Although the difference in the ozone levels at these 2 sites has decreased somewhat in recent years, the respective 2010-12 DVs for each site are indicative of the historical trend. The 2010-12 DV for Harrison County is 3 ppb or 4% higher than the DV for the 30th & Fort site, even though the 2012 ozone level at 30th & Fort was 1 ppb higher than at Harrison County.

Three of the 2012 4th-high ozone levels detected at the 30th & Fort site occurred on 3 consecutive days, July 12th thru 14th. During this same time frame, the Harrison County site record one of its 4th-high levels. It was hot during this 3-day period, with maximum daily temperatures of 95 to 97° F and average daily temperatures of 83 to 86° F.

During this 3-day time frame the ozone levels at 30th & Fort exceeded those at Harrison County by 4 to 19% (average 10%). Based on historical patterns, this was unusual. There was speculation that the adhesive material used to attach the rain shield to the inlet line, or the plastic material of which the shield was composed, may have been emitting volatile organic compounds (VOCs) due to the heat, which may have caused a positive bias in the

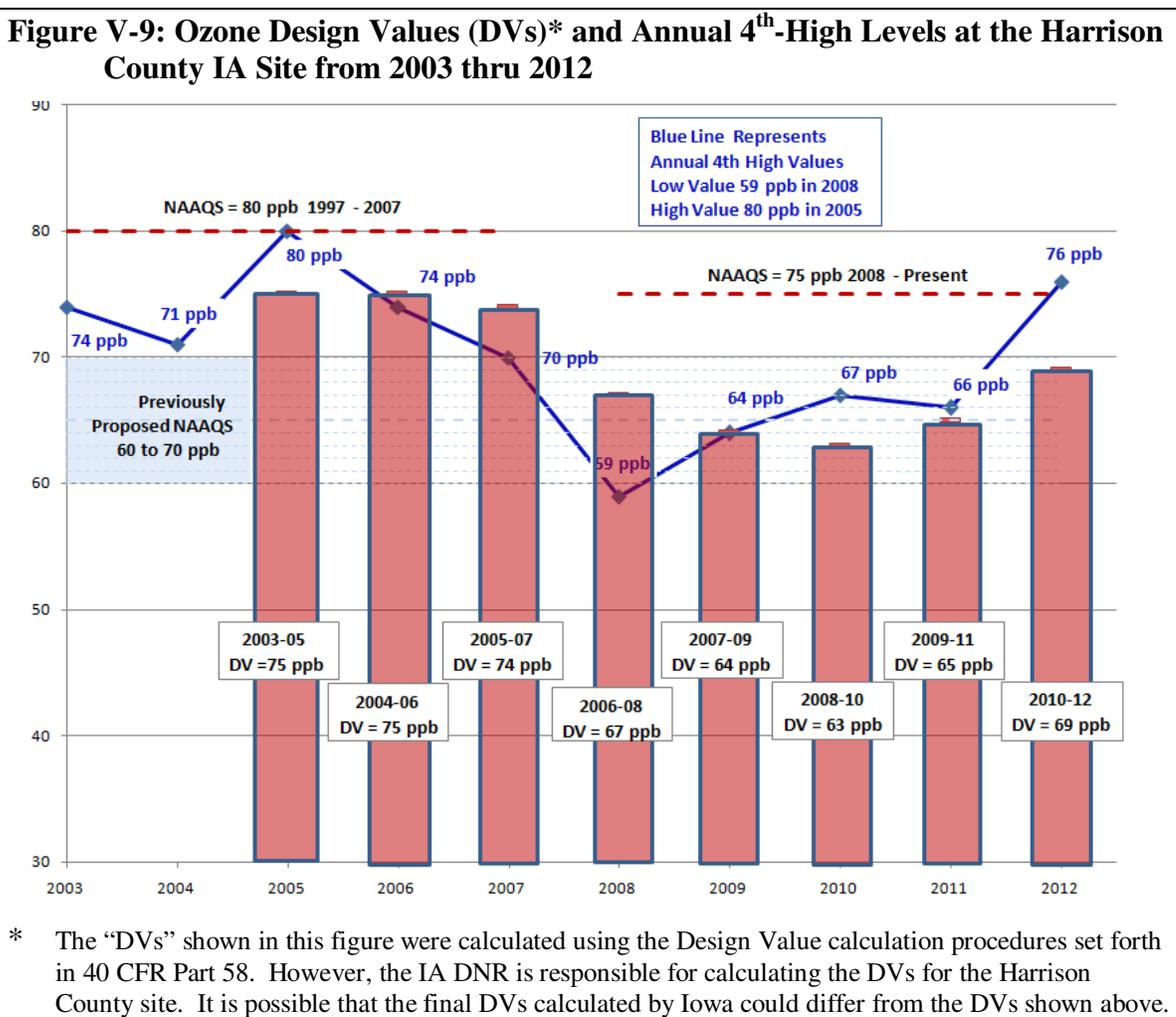
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data collected. The adhesive material was replaced and the plastic shield was replaced with a metal shield; afterward the differences in the ozone-levels at the 30th & Fort and Harrison County sites returned to historical patterns with higher ozone levels at the Pisgah site. There is no definitive evidence as to whether VOCs from the adhesive material impacted ozone measurements at the 30th & Fort site, thus the data was retained.

Ozone data from the Harrison County IA site was used to examine ozone trends within the Omaha MSA for the following reasons:

- Historically it has had the highest ozone levels, except for 2012 (see discussion above);
- It currently has the highest 2010-12 DV; and
- It will likely have the highest DV for the 2011-13 time frame (based on a comparison of the 2011 and 2012 data from the Omaha sites).

Figure V-9 below shows the DVs and annual 4th-high 8-hour values from the Harrison County site from 2003 thru 2012 (10 years). As can be seen from Figure V-9, the annual 4th-high ozone levels dropped below 70 ppb after 2007 and stayed there until 2012 when the 4th-high value was 76 ppb.



Unless 2013 ozone levels exceed all historical precedence, the 2011-13 DV will remain in attainment with the current 75 ppb NAAQS. The 2013 4th-high ozone level would need to exceed 83 ppb for the 2011-13 DV to exceed 75 ppb.

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There was a significant increase in ozone levels in 2012. If these higher levels continue in 2013 and 2014, then attainment with the current 75 ppb NAAQS would be in jeopardy in 2014.

There were high temperatures and drought in the summer of 2012. This may have contributed to the increase in ozone levels. If so, and if this weather pattern persists through 2013 or beyond, then the 2012 ozone levels could continue for multiple years. This could result in future ozone levels above the current 75 ppb NAAQS in 2014 or beyond.

EPA is in the process of re-evaluating the ozone NAAQS. In 2010, EPA proposed lowering the 8-hour ozone NAAQS to be within the range of 60 to 70 ppb as recommended by the Clean Air Science Advisory Committee. There were also proposed changes that would have eliminated the current practice of truncating annual 4th-high values and 3 year average values. Using the revised calculation method, DVs could be raised as much as 2 ppb because truncation is currently used in calculating both the 8-hr values and the 3-yr DVs. See example below.

EPA subsequently withdrew the proposed regulation and is in the process of re-evaluating the ozone NAAQS. A proposed determination on the ozone NAAQS is anticipated in 2013. If it is determined that the ozone NAAQS should be changed, then a revised NAAQS could be finalized in 2013 or early 2014.

The 2010-12 DV data represented in Figure V-8 above demonstrates that one or more Omaha monitoring sites could be in jeopardy of becoming non-attainment with a lower NAAQS in the 60 to 70 ppb range. This conclusion assumes that ozone levels continue at historical levels demonstrated over the last 10 years. If the DV calculation methods were modified as previously proposed, that would also be a factor in future attainment evaluations (see example above). If any monitoring site in the Omaha MSA demonstrates non-attainment, then the entire MSA is considered in non-attainment.

To summarize, the Omaha MSA is in attainment with the NAAQS, and is anticipated to remain in attainment through 2013, provided the NAAQS is not lowered. Looking beyond 2013 continued attainment is less certain, both due to the possibility of continued ozone levels similar to those experienced in 2012, and to the possibility of the NAAQS being revised. Regardless, changes in the Omaha ozone monitoring network are not anticipated prior to the end of 2014.

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Table V-8: Example Ozone Calculations: Simulated Hourly Data Used to Demonstrate Annual 4 th High Value and 3-Year Design Value Calculations						
	2010 Data		2011 Data		2012 Data	
	Raw Hourly Data	Truncated Hourly Data	Raw Hourly Data	Truncated Hourly Data	Raw Hourly Data	Truncated Hourly Data
1	0.0666	0.066	0.0693	0.069	0.0669	0.066
2	0.0669	0.066	0.0695	0.069	0.0675	0.067
3	0.0676	0.067	0.0698	0.069	0.0675	0.067
4	0.0679	0.067	0.0701	0.070	0.0678	0.067
5	0.0665	0.066	0.0705	0.070	0.0679	0.067
6	0.0659	0.065	0.0707	0.070	0.0677	0.067
7	0.0658	0.065	0.0706	0.070	0.0676	0.067
8	0.0657	0.065	0.0699	0.069	0.0673	0.067
Average (Std Rounding)	0.06661	0.06588	0.07005	0.0695	0.06753	0.06688
Current Regulations (5/31/13) using Truncation						
Annual 4 th High Value		0.065		0.069		0.066
3-Year Average	0.0667					
3-Year DV (truncated average)	0.066					
Calculations using Typical Rounding Conventions (2010 proposal)						
Annual 4 th High Value	0.0666		0.0701		0.0675	
3-Year Average	0.0681					
3-Year DV (rounded average)	0.068					
Note: Truncation is used 3 times in the current calculation method: the hourly values are truncated, the 8-hr average values are truncated, and the 3-year average of the annual 4 th -high values is truncated.						

12. Ozone – Nebraska Outside of the Omaha MSA

There are three ozone monitoring sites in Nebraska located outside of the Omaha MSA:

- Davey: a SLAMS site operated by LLCHD in the Village of Davey ~ 6 miles north of Lincoln, which began operation in 1985;
- Scottsbluff: a non-regulatory site operated by the National Park Service (NPS) at Scotts Bluff National Monument, which began operation on April 29th, 2010; and
- Santee: a CASTNET site operated by EPA located ~ ¼ mile south of the Village of Santee, which began operation on January 1st, 2011.

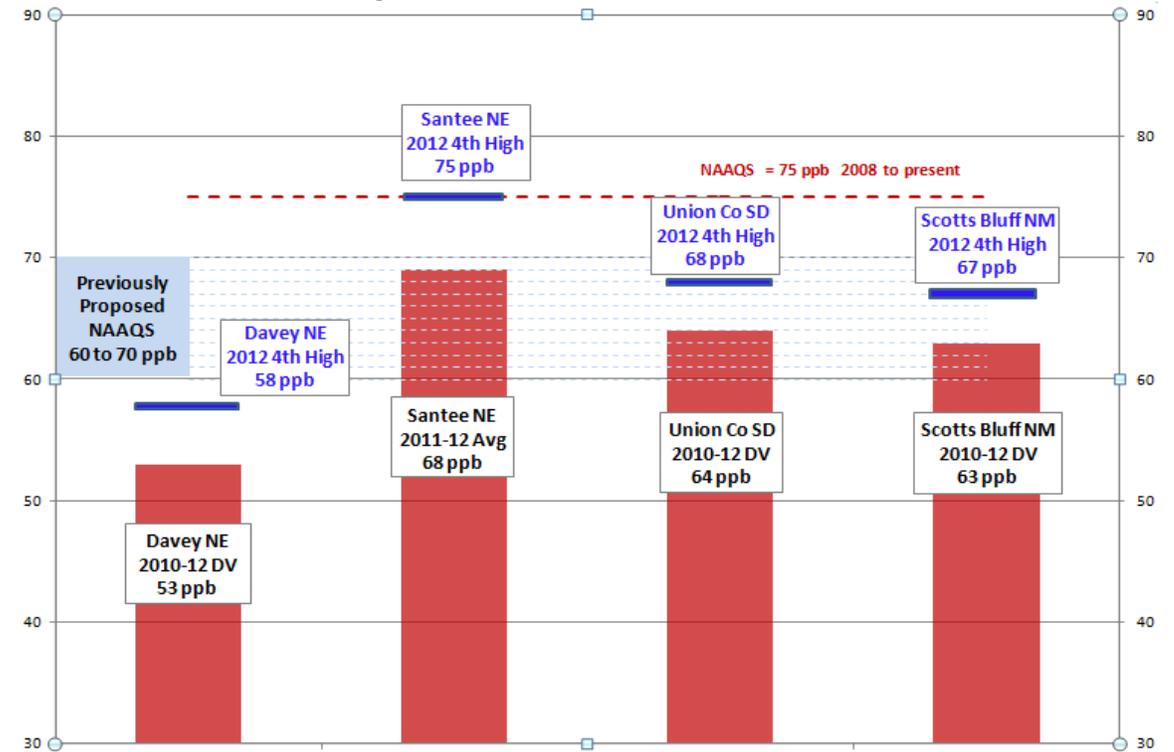
There is also an ozone monitoring site in Union County SD ~ 15 miles north of Elk Point, SD near I-29. This site is within the Sioux City MSA and has operated since January 1, 2009. It is operated by the SD Department of Environmental Protection.

Figure V-10 shows the 2010-12 DVs and 2012 4th-high values for these 4 sites. The 2010-12 DVs are in attainment with the 75 ppb 8-hour ozone NAAQS, and should continue to be in attainment thru 2013, provided the NAAQS is not lowered as previously discussed in

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the Omaha MSA section above. If the NAAQS were lowered into the 60 to 70 ppb range, attainment might not be maintained, depending on where the NAAQS was set in this range and future ozone levels.

Figure V-10: 2012 Ozone Design Values (DV)* and Annual 4th-High 8-Hour Ozone Levels at Monitoring Sites Outside the Omaha MSA



* The “DVs” shown in this figure were calculated using the Design Value calculation procedures currently set forth in 40 CFR Part 58. However, the NDEQ is not the regulatory authority responsible for calculating DVs for the Santee, Union County SD and Scotts Bluff NM sites. Thus the DVs shown above for those three sites may differ from the actual design values. They are shown here for comparative purposes.

Figure V-11 shows the 2012 4th-high ozone levels for sites in and around Nebraska, while Figure V-12 shows the DVs for these sites. Comparing the ozone levels shown in Figures V-11 and V-12, it appears that ground-level ozone levels in Nebraska are very similar to those in surrounding states. Two exceptions are noted:

- Ozone levels at the Davey site appear lower than anticipated; and
- Ozone levels at the Santee site appear higher than anticipated.

LLCHD and NDEQ have discussed possibly seeking a higher concentration ozone monitoring site within the Lincoln MSA. General site locations discussed have included northeast Lincoln, Waverly, or an alternative location northeast of Lincoln in the Salt Creek valley and/or near the I-80 corridor. LLCHD currently plans to continue ozone monitoring at Davey through 2013 and has not committed to moving or closing that site. It is possible that temporary SPAMS or special study sites could be used to investigate higher ozone concentration areas.

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Ozone levels at the Scotts Bluff National Monument are likely influenced by pollutant transport from the Denver, CO, Fort Collins, Co and Cheyenne, WY metro areas. The monitoring results indicate that the impacts have not been sufficient for ozone to reach non-attainment levels in the Scottsbluff area with respect to the current 75 ppb NAAQS. It is noted that the ozone levels detected at the Scotts Bluff NM did not increase significantly in 2012, which is contrast to the increases seen at the other monitoring sites in Nebraska

Summary:

- All monitoring sites in Nebraska and the Omaha MSA are demonstrating attainment with the current 75 ppb NAAQS. If the NAAQS were lowered as previously proposed, non-attainment is a possibility.
- Ozone levels at the Santee site appear to be surprisingly high for the rural area where it resides. The site is a CASTNET site operated by EPA.
- Ozone levels at the Davey (Lincoln MSA) site are lower than at any other site in Nebraska. There have been discussions concerning the possible establishment of an alternative site within the Lincoln MSA, but no definitive commitments.

C. EPA Regulation Changes that are Proposed or Under Consideration

1. Rural Ozone Monitoring

EPA proposed additional ozone monitoring requirements on July 8, 2009. The proposed regulation called for an additional 3 non-urban monitors in Nebraska. EPA indicated their intent to finalize the additional ozone monitoring requirements at the same time they finalized the revised ozone NAAQS, which were proposed in January 2010 (see next section).

In September 2011, EPA withdrew the proposed regulations and stated their intent to defer changes until the next 5-year ozone NAAQS review. That review is currently underway, and EPA has indicated their intent to propose revisions to the ozone standard in 2013.

The earliest issuance of revised ozone monitoring requirements would be in the latter half of 2013. At this time, the NDEQ is not proposing initiating a rural ozone monitoring network.

2. Ozone NAAQS Revision

On January 19, 2010, EPA proposed lowering the primary ozone NAAQS from the current 0.075 ppm to a level between 0.060 to 0.070 ppm; and proposed establishing a secondary NAAQS of 7 to 15 ppm-hours to protect sensitive vegetation and ecosystems. In September 2011, EPA withdrew the proposed regulations and stated their intent to defer changes until the next 5-year ozone NAAQS review. That review is currently underway. EPA has indicated their intent is to propose revisions to the ozone standard in early 2014.

The earliest issuance of revised ozone NAAQS would be in the latter half of 2014. At this time, the NAAQS remains at 0.075 ppm, and all areas of Nebraska are in attainment with the NAAQS. Thus it does not appear that any ozone NAAQS changes that might be made, would impact ozone monitoring needs prior to calendar year 2015.

Regardless, if the ozone NAAQS is lowered into the 0.060 to 0.070 ppm range, the attainment status of areas of Nebraska may be impacted. See Sections B.11 and B.12 above for additional discussion on attainment with the previously proposed NAAQS.

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D. Other Air Quality Issues: Range and Grassland Management Burning

Prescribed burning is a common range and grassland management practice conducted in the spring to promote native prairie species, to suppress tree growth in pastures and prairies, and to release nutrients back into the soil. It is a conservation/grassland management tool recognized by state and federal agencies, as described at the following web addresses:

- www.npwr.usgs.gov/resource/habitat/burning/index.htm
- http://www.fsa.usda.gov/FSA/newsReleases?mystate=mn&area=home&subject=copr&topic=crp-20&newstype=crpsuccessstories&type=detail&item=ss_mn_artid_628.html
- www.ngpc.state.ne.us/wildlife/programs/wildnebraska/options.asp

The appeal of burning is in part because it recreates natural prairie fires that were important to maintaining native grasslands in their indigenous, pre-settlement state. Thus from an ecological viewpoint, it is the “natural” way to maintain prairie environments. These burns destroy invading trees and shrubs, release nutrients, and maintain inter-specie populations of prairie plants and grasses in a natural state.

The increase in agricultural commodity prices and agricultural land values have increased vegetation burning in recent years as landowners have burned grassland and brush-piles as part of land-clearing activities related to conversion of pastures, timber and wooded fence-lines and border areas to row crop lands.

The smoke from these fires can travel great distances. The National Oceanic and Atmospheric Administration (NOAA) reported that dozens of large grass fires started on April 11, 2011 created a smoke plume that stretched from eastern Kansas across the southern Great Lakes states and all the way to the Atlantic Coast off Long Island, N.Y. This plume impacted Lincoln’s air quality resulting in elevated PM_{2.5} levels, such that the Lincoln Lancaster County Health Department (LLCHD) issued an air pollution advisory on April 12-13, 2011 recommending that people with health problems stay indoors.

Most area fires occur in a fairly short period of time in the spring of the year. The data suggests that range fires are a significant source of PM_{2.5} during the spring period. With new, lower PM_{2.5} NAAQS, the potential pollution impact of range and grassland management burning could become an attainment related issue. See Section V.b.4 thru V.B.7 above and Attachment B for more information on how PM_{2.5} levels compare with the new, lower NAAQS.

Spring range and grassland burning may also be impacting ozone levels in April and May. April 2011 provides an example of how grassland burning can impact ozone levels in the Omaha MSA. The 8-hr ozone level reached 0.059 ppm in Pisgah, IA on April 12, 2011 (this site is in the Omaha MSA) and 0.065 ppm in Montgomery County, IA on April 13, 2011 (this site is located 45 mile E-SE of the I-80 & I-29 interchange). For further discussion on high ozone values have been detected in April thru mid-June see Attachment F in the *2010 Network Assessment*.

E. Population Growth and Metropolitan Areas

1. General 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

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- 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 2011 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: 61% of the monitoring sites and 73% of the pollutant monitors are located within the Omaha and Lincoln MSAs. The Omaha MSA network contains 52% of the monitoring sites in Nebraska and 67% of the monitors.

2. Grand Island MSA

The 2010 US Census did find the urbanized core of Grand Island to have a population of 50,440, and Grand Island was formally recognized as a Metropolitan Statistical Area on February 28, 2013. The MSA designation triggers minimum monitoring site requirements for PM_{2.5} and ozone monitoring as summarized in Table V-9 below.

Table V-9: Minimum Number^(a) of PM_{2.5} and Ozone Monitoring Site Requirements for the Grand Island MSA^(b)		
Pollutant	DV ≥ 85% of NAAQ^(c)	DV < 85% of NAAQS^(c)
PM _{2.5}	1 Site	None
2010-12 Design Values (DVs): <ul style="list-style-type: none"> • Annual Average = 7.3 μg/m³ or 49% of NAAQS • 98th Percentile = 18.8 μg/m³ or 54% of the NAAQS 		
Reference 40 CFR Part 58 Appendix D Section 4.7 Table D-5. Applies to MSAs with populations of 50,000 to 499,000.		
8-Hour Ozone	1 Site	None
2010-12 Design Value (DV) for 4 th High Values is not available. No monitoring site.		
Reference 40 CFR Part 58 Appendix D Section 4.1 Table D-2. Applies to MSAs with populations of 50,000 to 249,999.		
Footnotes:		
(a) This is the minimum number of monitoring sites that is required by the regulation for metropolitan statistical areas (MSAs). The actual number of monitoring sites needed may exceed the minimum number required.		
(b) The 2010 Census found the population of the Grand Island CBSA to be 50,440.		
(c) The most recent Design Value (DV) is to be compared to the NAAQS.		
85% of the 12 μg/m ³ PM _{2.5} NAAQS = 10.2 μg/m ³		
85% of the 75 ppm Ozone NAAQS = 64 ppb or 0.064 ppm		

As can be seen from the information in Table V-9 above, the PM_{2.5} minimum site requirement is being met. There is one monitoring site in Grand Island that is reporting PM_{2.5} levels less than 85% of the NAAQS. Thus the current Grand Island network of 1 site exceeds the minimum requirement. No changes are anticipated for this network.

The application of Part 58 Appendix D to ozone monitoring in the Grand Island MSA is less certain, because there is not any ozone monitoring currently being conducted. Figure

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V-12 above provides information on ozone DVs in and around Nebraska. Based on the information in Figure V-12, it appears likely that ozone levels in Grand Island are near the 85% trigger for requiring ozone monitoring.

The NDEQ will discuss ozone monitoring needs for the Grand Island MSA with EPA R7. The designation was just made in February 2013, and additional time will be required to reach a final determination on the need for an ozone monitoring site in the Grand Island MSA.

If required, the addition of an ozone monitoring site in Grand Island will involve a significant capital expenditure, additional training and acquisition of human resources to conduct the monitoring. It is anticipated that CAA §105 grant funding would be sought, and this would need to be approved via the CAA §105 work plan process.

The final determination on the need for ozone monitoring in the Grand Island MSA may await the finalization of the current ozone NAAQS review. Changes in the NAAQS could clarify the need (or lack there-of) for ozone monitoring.

Thus the NDEQ is not proposing to initiate ozone monitoring at Grand Island in this network plan, but is recognizing that additional review and discussion are needed. Should ozone monitoring be required, it will be included in a future network plan.

F. Funding

Air monitoring is supported by a combination of federal, cash, state and local funding sources. Table V-4 below provides a summary of the primary funding sources used for air monitoring.

Current funding levels are adequate to continue the operation of the existing Nebraska air monitoring network, at least through the end of the current federal fiscal year. Current funding levels do not provide for expansions of the Nebraska ambient air monitoring network, and expansions to the network are not anticipated before the end of 2014.

The CAA §103 grant work plan for April 2013 thru March 2014 has been finalized. Expansion of PM_{2.5} or IMPROVE monitoring activities were not included in the work plan. Continuation funding levels were associated with this work plan, with disbursement of 1st half year funds anticipated by July 1, 2013.

The current CAA §105 grant work plan extends thru September 2013. This work plan does not request any expansion of monitoring activities in Nebraska.

At this time, the NDEQ is not anticipating any significant changes or cuts in funding through September 2014, but state and federal budget priorities could change. The Nebraska fiscal year runs from July 1st thru June 30th. Stable state funding is currently projected through June 2014.

The federal fiscal year (FFY) runs from Oct 1st thru Sept 30th. Federal funding priorities could undergo changes in the upcoming 2014 FFY. Funding changes could impact the ambient air monitoring network in ways not discussed in this network plan.

Table V-10: Primary Funding Sources used to Support Air Monitoring in Nebraska

Nebraska Department of Environmental Quality (NDEQ)

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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 through-out 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 <i>State Title V Funds</i> 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 can not 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 <i>State Title V Funds</i> 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.

Nebraska 2013 Ambient Air Monitoring Network Plan

VI. Anticipated Nebraska Air Monitoring Network Modifications

There are no proposed changes to the Nebraska ambient air monitoring network through 2014.

The following potential changes are recognized as issues that need further review and/or discussion:

- The need for a source-oriented lead monitoring site near the Nucor Steel facility in Norfolk. A waiver has been requested and a final determination from EPA R7 is pending. Nucor Steel has submitted a construction permit application for a proposed plant expansion, which may impact lead emissions and the waiver request. See Section V.A.2. If the waiver is denied or withdrawn, it is anticipated that the site would be established within 6 months, provided funding was available.
- The possibility of relocating the ozone monitoring site in Davey to a new location, which would possibly better represent the highest ozone concentrations in the Lincoln MSA. Also the possibility of operating special purpose or survey monitoring sites that could be used to identify higher concentration site locations. See Section V.B12.
- The possibility of replacing the filter-based sequential PM₁₀ samplers with continuous monitors at three sites (Weeping Water City, Cozad and Gothenburg) has been discussed. The current samplers are more than 10 years old and due for replacement. The continuous samplers have several advantages:
 - Lower operating costs because filter analysis are not required,
 - They provide daily versus the current one in six day sampling, and
 - The operation of a collocated monitor is not required.The filter-based, sequential samplers are federal reference methods (FRMs), while the continuous monitors are federal equivalent methods (FEMs).
- A determination as to whether an ozone monitoring site will be required in the newly designated Grand Island MSA. The review and the timing of a final determination could be influenced by the on-going ozone NAAQS review. See Sections V.C.2 and V.E.2.
- The possible need for a collocated PM_{2.5} sampler for the sequential sampler network operated by the DCHD. See Section V.A.
- The need for a rural ozone monitoring network, which will be dependent upon whether such a network is required as part of a revised ozone NAAQS regulation, which is currently under review. See Section V.C.1.

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Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment A: Ambient Air Monitoring Sites in Nebraska

Omaha NCore Site Operated by DCHD

Site Name: Omaha NCore ⁽¹⁾		AIRS ID: 31-055-0019 ⁽¹⁾
Location: 4102 Woolworth St., Omaha		Latitude: 41.246792° Longitude: -95.973964°
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	
Monitor/Pollutant: Ozone (O₃)		
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	
Monitor/Pollutant: Nitrogen Oxides (NO/NO_y)		
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous	
Analyzer/Sampler: Thermo 42i NO/NO ₂ /NO _x	EPA Method: RFNA-1289-074	
Start-Up Date: 1/20/11	Closure Date: Currently operating	
Monitor/Pollutant: Sulfur Dioxide (SO₂) – 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	
Monitor/Pollutant: PM_{2.5}		
Type/POC: Primary Continuous / POC 001	Monitoring Frequency: Continuous	
Analyzer/Sampler: Met One BAM-1020 ⁽³⁾ ⁽⁴⁾	EPA Method: EQPM-0308-170	
Start-Up Date: 2/1/04 ⁽³⁾	Closure Date: Currently operating	
Monitor/Pollutant: PM_{2.5}		
Type/POC: Collocated ⁽²⁾ / POC 002	Monitoring Frequency: Once every 6 days ⁽²⁾	
Analyzer/Sampler: 2025 Sequential	EPA Method: RFPS-0498-118	
Start-Up Date: 1/1/99	Closure Date: Currently operating	
Monitor/Pollutant: PM_{2.5} Speciation		
Type/POC: Speciation / POC 005 ⁽⁶⁾	Monitoring Frequency: Once every 3 days	
Analyzer/Sampler: PM _{2.5} Speciation	Sampler Type: SASS and a 3000 URG	
Start-Up Date: 5/25/01	Closure Date: Currently operating	
Monitor/Pollutant: PM₁₀ – 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	
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	
Continued on next page		

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment A: Ambient Air Monitoring Sites in Nebraska

Omaha NCore Site Operated by DCHD

Site Name: Omaha NCore	AIRS ID: 31-055-0019 (See Comment 1)
Location: 4102 Woolworth St., Omaha	Latitude: 41.246792° Longitude: -95.973964°
Operating Agency: Douglas County Health Department (continued from previous page)	
Monitor Information – 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
Start-Up Date: 12/1/12	Closure Date: Currently operating
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 to the network planning process set forth in 40 CFR Part 58.10. It is recognized in this Network Plan for informational purposes only. The RadNet monitor began operating at the Woolworth site in June 2006.	
Comments:	
<ol style="list-style-type: none"> 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. 2. The POC 1 filter-based sequential monitor was used as the primary site monitor for NAAQS attainment evaluation through September 2009. At that point, it was converted to the collocated sampler with the POC 3 continuous monitor becoming the primary monitor. The POC 2 collocated sampler was shut down after taking the 9/22/09 sample. 3. The POC 3 continuous PM_{2.5} monitor operated from 2/1/04 thru 1/5/09 using a R&P TEOM continuous PM_{2.5} monitor. The TEOM monitor is not an FRM/FEM. On 1/6/09 a Met One BAM monitor was brought on line. The Met One BAM monitor is an FEM. Through September 2009 the BAM unit was run as an auxiliary monitor for AirNow and AQI reporting purposes. A review found good correlation between the POC 1 and POC 3 data. On October 1, 2009 the POC 3 monitor was designated the primary monitor for evaluating NAAQS attainment status. On January 1, 2011 the continuous monitor was re-designated as POC 1, to facilitate AQS data analysis issues. 4. Between 10/28/10 and 1/3/11, the PM_{2.5} Met One BAM-1020 was temporarily removed from service so that it could be reconfigured to operate as the PM_{2.5} portion of a dichotomous PM_{10-2.5} monitoring system. The other part of the dichotomous PM_{10-2.5} monitoring system is a PM₁₀ Met One BAM-1020, which is configured to report PM₁₀ data in local and STP conditions. The dichotomously-configured PM_{2.5} and PM₁₀ BAM units, which comprise the PM_{10-2.5} monitoring system, were put on-line on 1/1/11. 5. 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. 	

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment A: Ambient Air Monitoring Sites in Nebraska

Carbon Monoxide Sites in the Omaha MSA that are Operated by DCHD

Site Name: 78 th & Dodge – Omaha	AIRS ID: 31-055-0056
Location: 78 th St and W Dodge Rd, Omaha	Latitude: 41.259175° Longitude: -96.028628°
Operating Agency: Douglas County Health Department	
Monitor Information	Pollutant: Carbon Monoxide (CO)
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Thermo 48i	EPA Method: RFCA-0981-054
Purpose: Highest Concentration	Scale: Microscale
Start-Up Date: 10/01/07	Closure Date: Currently operating
Comments: None	

Sulfur Dioxide Sites in the Omaha MSA that are Operated by DCHD

Site Name: Whitmore – Omaha	AIRS ID: 31-055-0053
Location: 1616 Whitmore St, Omaha	Latitude: 41.297778° Longitude: -95.937500°
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: High Conc. & Population Oriented	Scale: Neighborhood
Start-Up Date: 7/1/99	Closure Date: Currently operating*
Comments: This site was temporarily closed from 6/22/11 thru 10/1/11 due to Missouri River flooding.	

Ozone Sites in the Omaha MSA that are Operated by DCHD

Site Name: South Omaha – Ozone	AIRS ID: 31-055-0028
Location: 2411 O Street, Omaha	Latitude: 41.207500° Longitude: -95.947500°
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
Comments: There is also a PM ₁₀ monitor located at this site.	

Site Name: 30 th & Fort - Omaha	AIRS ID: 31-055-0035
Location: 30 th & Fort Sts., Omaha	Latitude: 41.306111° Longitude: -95.960278°
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: Currently operating
Comments: None	

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment A: Ambient Air Monitoring Sites in Nebraska

PM_{2.5} Sites in the Omaha MSA that are Operated by DCHD (Continued)

Site Name: Berry Street Omaha		AIRS ID: 31-055-0052	
Location: 9225 Berry Street, Omaha		Latitude: 41.333056°	Longitude: -96.099722°
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	
Comments: None			

Site Name: Bellevue		AIRS ID: 31-153-0007	
Location: 2912 Coffey Ave., Bellevue		Latitude: 41.166944°	Longitude: -95.923889°
Operating Agency: Douglas County Health Department			
Monitor Information		Pollutant: PM_{2.5}	
Type/POC: Primary Continuous / POC 001		Monitoring Frequency: Once every 3 days	
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	
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.			

Site Name: Blair		AIRS ID: 31-177-0002	
Location: 2242 Wright St., Blair		Latitude: 41.551136°	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	
Comments: None			

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment A: Ambient Air Monitoring Sites in Nebraska

PM₁₀ Sites in the Omaha MSA that are Operated by DCHD

Site Name: 19 th & Burt, Omaha	AIRS ID: 31-055-0054
Location: 19 th & Burt Sts., Omaha	Latitude: 41.267770° Longitude: -95.940830°
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
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
Comments: None	

Site Name: 46 th & Farnam, Omaha	AIRS ID: 31-055-0045
Location: 46 th & Farnam Sts, Omaha	Latitude: 41.257500° Longitude: -95.976111°
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 (See Comments)	Closure Date: Currently operating
Comments: 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.	

Site Name: South Omaha - PM ₁₀	AIRS ID: 31-055-0028
Location: 2411 O Street, Omaha	Latitude: 41.207500° Longitude: -95.947500°
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: Neighborhood
Start-Up Date: 6/1/06 (See Comments)	Closure Date: Currently operating
Comments:	
<ul style="list-style-type: none"> • This site was originally established for ozone monitoring on 2/1/78. • The PM₁₀ sampler was initially set-up at 25th & L Sts and then moved to 2411 O St on 8/22/07. 	

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment A: Ambient Air Monitoring Sites in Nebraska

PM₁₀ Sites in the Weeping Water Area* that are Operated by NDEQ

Site Name: Weeping Water City		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: PM₁₀	
Type/POC: Primary / POC 001		Monitoring Frequency: Once per 3 days	
Analyzer/Sampler: 2025 Sequential		EPA Method: RFPS-1298-127	
Purpose: Population & Source Oriented		Scale: Neighborhood	
Start-Up Date: 1/1/85		Closure Date: Currently operating	
Monitor Information		Pollutant: PM₁₀	
Type/POC: Collocated / POC 001		Monitoring Frequency: Once per 6 days	
Analyzer/Sampler: 2025 Sequential		EPA Method: RFPS-1298-127	
Purpose: Population & Source Oriented		Scale: Neighborhood	
Start-Up Date: 1/1/85		Closure Date: Currently operating	
Comments: Located at the city waste water treatment facility.			

Site Name: Weeping Water Farm		AIRS ID: 31-025-0009	
Location: 5102 Hwy 50, Cass Co.		Latitude: 40.873309°	Longitude: -96.183359°
Operating Agency: Nebraska Department of Environmental Quality			
Monitor Information		Pollutant: PM₁₀	
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	
Comments: None			

- * 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 PM₁₀ monitoring conducted here is for evaluation of air quality in the vicinity of Weeping Water, and not the Omaha MSA as a whole.

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment A: Ambient Air Monitoring Sites in Nebraska

Sites in the Lincoln MSA that are Operated by LLCHD

Site Name: Morris Paint Building	AIRS ID: 31-109-0018
Location: 2620 O St., Lincoln	Latitude: 40.812590° Longitude: -96.683020°
Operating Agency: Lincoln Lancaster County Health Department	
Monitor Information	Pollutant: Carbon Monoxide (CO)
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Dasibi Model 3008	EPA Method: RFCA 0488-067
Purpose: Highest Concentration	Scale: Microscale
Start-Up Date: 1/1/86	Closure Date: 2/8/13 (See Comment)
Comment: Data collection from this site ceased on 2/3/12, when the inlet structure failed. Subsequently LLCHD lost use of the building in which the monitor was located. This site was proposed for permanent closure in the 2012 Network Plan, which received EPA approval on 2/8/13.	
Site Name: Davey	AIRS ID: 31-109-0016
Location: 1st & Maple Sts., Davey	Latitude: 40.984722° Longitude: -96.677222°
Operating Agency: Lincoln Lancaster County Health Department	
Monitor Information	Pollutant: Ozone
Type/POC: Primary / POC 001	Monitoring Frequency: Continuous
Analyzer/Sampler: Dasibi Model 1003 AH	EPA Method: EQOA 0577-019
Purpose: Population Oriented	Scale: Urban
Start-Up Date: 1/1/85	Closure Date: Currently operating
Comments: It is anticipated that the analyzer equipment at this site will be updated in 2013 or 2014. It is also possible that this site may be relocated in 2014.	
Site Name: LLCHD Building	AIRS ID: 31-109-0022
Location: 3140 N St., Lincoln	Latitude: 40.812590° Longitude: -96.683020°
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
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
Monitor Information	Pollutant: PM_{2.5}
Type/POC: Continuous / POC 003	Monitoring Frequency: Continuous
Analyzer/Sampler: Met One BAM-1020 ⁽¹⁾	EPA Method: EQPM-0308-170
Purpose: Population Oriented	Scale: Neighborhood
Start-Up Date: 7/1/06	Closure Date: Currently operating
Comment: (1) The MetOne BAM monitor replaced an R&P TEOM monitor in June 2010. The POC 3 monitor is used for AirNow and AQI reporting only.	

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment A: Ambient Air Monitoring Sites in Nebraska

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: 40.942099° Longitude: -98.364967°
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: 2025 Sequential	EPA Method: RFPS-0498-118
Purpose: Transport & Population Oriented	Scale: Regional & Neighborhood
Start-Up Date: 5/7/04	Closure Date: Currently operating
Comments: None	

Site Name: Scottsbluff Senior High School	AIRS ID: 31-157-0004
Location: Hwy 26 & 5 th Ave, Scottsbluff	Latitude: 41.876853° Longitude: -103.656561°
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: 2025 Sequential	EPA Method: RFPS-0498-118
Purpose: Background & Population Oriented	Scale: Regional & Neighborhood
Start-Up Date: 5/13/09	Closure Date: Currently operating
Comments: Electric power is supplied to this site by wind and solar generating units.	

PM₁₀ Sites Operated by NDEQ (Outside of the Omaha MSA/Weeping Water Area)

Site Name: Cozad	AIRS ID: 31-047-0001
Location: 215 W 8 th Street, Cozad	Latitude: 40.859444° Longitude: -99.987778°
Operating Agency: Nebraska Department of Environmental Quality	
Monitor Information	Pollutant: PM ₁₀
Type/POC: Primary FRM/ POC 1	Monitoring Frequency: Once every 6 days
Analyzer/Sampler: 2025 Sequential	EPA Method: RFPS-1298-127
Purpose: Source and Population Oriented	Scale: Neighborhood
Start-Up Date: 10/1/94	Closure Date: Currently operating
Comments: None	

Site Name: Gothenburg	AIRS ID: 31-047-0003
Location: 409 9 th Street, Gothenburg	Latitude: 40.927500° Longitude: -100.162778°
Operating Agency: Nebraska Department of Environmental Quality	
Monitor Information	Pollutant: PM ₁₀
Type/POC: Primary FRM/ POC 1	Monitoring Frequency: Once every 6 days
Analyzer/Sampler: 2025 Sequential	EPA Method: RFPS-1298-127
Purpose: Source and Population Oriented	Scale: Neighborhood
Start-Up Date: 9/1/91	Closure Date: Currently operating
Comments: None	

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment A: Ambient Air Monitoring Sites in Nebraska

Lead (Pb) Sites Operated by NDEQ

Site Name: Fremont		AIRS ID: 31-053-0005	
Location: 1255 Front St., Fremont, NE		Latitude: 41.90583°	Longitude: -97.31583°
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		Scale: Micro-scale	
Start-Up Date: 3/9/10		Closure Date: Currently operating	
Monitor Information		Pollutant: Lead (Pb)	
Type/POC: Collocated / POC 2		Monitoring Frequency: Once every 12 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	
Comments: Highest concentration site			

Site Name: Auburn		AIRS ID: 31-127-0002	
Location: RR2, Auburn, NE		Latitude: 40.40254°	Longitude: -95.84164°
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		Scale: Micro-scale	
Start-Up Date: 5/8/10		Closure Date: Currently operating	
Comments: Highest concentration site			

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment A: Ambient Air Monitoring Sites in Nebraska

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: 42.421867°	Longitude: -96.403031°
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: Currently operating	
Comments: None			

Interagency Monitoring of Protected Visual Environments (IMPROVE) Sites *

Site Name: Crescent Lake IMPROVE		AIRS ID: Not applicable, See Comments	
Location: Crescent Lake WRA, Gosper Co.		Latitude: 41.7627°	Longitude: -102.4336°
Operating Agency: Nebraska Department of Environmental Quality / US Fish & Wildlife 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	
Comments: None			

Site Name: NE National Forest IMPROVE		AIRS ID: Not applicable, See Comments	
Location: Nebraska National Forest, Thomas Co.		Latitude: 41.8888°	Longitude: -100.3387°
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	
Comments: None			

* 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.

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Attachment A: Ambient Air Monitoring Sites in Nebraska

Monitoring Sites not subject to the Network Plan Review Process**

** These sites are included in the Network Plan for informational purposes only.

Site Name: Mead NADP		AIRS ID: Not applicable, See Comments	
Location: U of Ne Field Lab, Saunders Co.		Latitude: 41.1528°	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	
<p>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.</p> <ul style="list-style-type: none"> 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. 			

Site Name: North Platte NADP		AIRS ID: Not applicable, See Comments	
Location: U of Ne Ag Station, Lincoln, Co.		Latitude: 41.0592°	Longitude: -100.7464°
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	
<p>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.</p> <ul style="list-style-type: none"> 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. 			

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Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

This attachment compares ambient air quality data from 2010 thru 2012 to the NAAQS, or in the case of Total Reduced Sulfur to Nebraska's state standard. The annual data presented below was retrieved from the EPA AQS data base. The 2012 data was not yet certified and could be subject to change. The values compared to the NAAQS were calculated as set forth in 40 CFR Part 58.

The NDEQ operates an ambient air monitoring program in Nebraska, and provides over-site for the DCHD and LLCHD monitoring programs. Data from sites outside Nebraska and from sites within Nebraska not operated by the NDEQ, DCHD and LLCHD (collectively abbreviated non-NDEQ sites) is included below. The NAAQS comparisons for these non-NDEQ sites are not official, and are included for comparison purposes only.

Table B-1: Ozone Data

Comparison of 3-Year Design Values for 8-hour Ozone to NAAQS ⁽¹⁾					
Site	2010	2011	2012	DV ⁽¹⁾	% NAAQS
Omaha MSA and Near-By Sites					
Omaha NCore ⁽²⁾		0.066	0.071	0.068	91%
2411 O St., Omaha	0.058	0.057	0.066	0.060	80%
11414 N 72nd St., Omaha	0.053	Shutdown	Shutdown		
30th & Fort, Omaha	0.064	0.059	0.077	0.066	88%
Harrison Co, IA (orig. Pisgah site) ⁽³⁾	0.067	0.066	0.076	0.069	92%
Pisgah, IA (new in 2009) ⁽³⁾	0.067	0.064	0.075	0.068	91%
Montgomery County, IA ⁽³⁾⁽⁴⁾	0.067	0.065	0.071	0.067	89%
Lincoln MSA Sites					
First & Maple, Davey	0.050	0.053	0.058	0.053	71%
Sioux City MSA and Surrounding Sites ⁽⁶⁾					
31102 471st Ave, Union Co, SD ⁽⁵⁾	0.062	0.062	0.068	0.064	85%
Emmetsburg, IA ⁽⁶⁾	0.067	0.067	0.070	0.068	91%
Sioux Falls, SD ⁽⁶⁾	0.064	0.065	0.072	0.067	89%
Santee Indian Reservation ⁽⁶⁾⁽⁷⁾		0.063	0.075	0.069	92%
Nebraska Panhandle Sites					
Scotts Bluff National Monument ⁽⁷⁾	0.059	0.063	0.067	0.063	84%
Notes and Explanations:					
(1) Concentrations are in units of ppm.. The Design Value (DV) is the truncated 3-year average of the 4 th highest max for each year. The NAAQS = 0.075 ppm (promulgated 3/27/2008).					
(2) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.					
(3) The following sites are operated by the IA DNR: Harrison Co. IA, Pisgah, IA, Montgomery Co, IA and Emmetsburg, IA.					
(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) The Union Co., SD site is in the Sioux City MSA & operated by the SD Dept. of Environment & Natural Resources					
(6) Three of the four sites listed are located outside the Sioux City MSA:					
<ul style="list-style-type: none"> • Emmetsburg, IA site is 97 mi NE of Sioux City & is operated by the IA DNR. • Sioux Falls, SD site is 75 NNW of Sioux City & is operated by the SD Dept of Environment & Natural Resources • Santee Indian Reservation site is 76 mi WNW of Sioux City & is operated by EPA as part of CASTNET. 					
(7) The Scotts Bluff NM site is a non-NDEQ site operated by the National Park Service; using a method that is not an EPA reference or equivalent method (FRM/FEM).					

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

Table B-2: Carbon Monoxide Data

Comparison of 3-Year Maximum Value for 1-Hour Carbon Monoxide to NAAQS ^{(1) (2)}					
Site	2010	2011	2012	Design Value ⁽²⁾	% NAAQS
Omaha MSA Sites					
78th & Dodge Sts, Omaha	2.2	2.4	2.6	2.6	7%
Omaha NCore ⁽⁴⁾		1.3	1.3	1.3	4%
Lincoln MSA Sites					
2620 O St, Lincoln	2.9	2.9	1.3 ⁽⁶⁾	2.9	8%
Sioux City MSA Sites					
31986 475th Ave, Union Co, SD ⁽⁵⁾	0.9	0.4	0.6	0.9	3%
Comparison of 3-Year Maximum Value for 8-Hour Carbon Monoxide to NAAQS ^{(1) (3)}					
Site	2010	2011	2012	Design Value ⁽³⁾	% NAAQS
Omaha MSA Sites					
78th & Dodge Sts., Omaha	1.7	1.6	2.3	2.3	26%
Omaha NCore ⁽⁴⁾		0.5	0.8	0.8	9%
Lincoln MSA Sites					
2620 O St, Lincoln	1.6	1.5	0.9 ⁽⁶⁾	1.6	18%
Sioux City MSA Sites					
31986 475th Ave, Union Co, SD ⁽⁵⁾	0.3	0.3	0.3	0.3	3%
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 2 nd highest maximum value over the last 3 years. The annual values shown are the annual 2 nd highest maximum values. Concentrations are in units of ppm.					
(3) The 8-hour NAAQS = 9 ppm. The Design Value is the highest annual 2 nd highest maximum value over the last 3 years. The annual values shown are the 2 nd 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.					
(5) The Union Co., SD site is operated by the South Dakota Department of Environment & Natural Resources					
(6) The 2620 O St. Lincoln site closed 2/3/12.					

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

Table B-3: Sulfur Dioxide Data

Comparison of 1-Hour Sulfur Dioxide Levels to the Primary NAAQS ⁽¹⁾					
Site	2010	2011	2012	Design Value ⁽¹⁾	% NAAQS
Omaha MSA Sites					
1616 Whitmore St., Omaha	0.058	0.066 ⁽⁴⁾	0.073	0.066	88%
11300 North Post Rd, Omaha	0.005	closed		0.005	6%
Omaha NCore ⁽³⁾		0.037	0.038	0.038	50%
Sioux City MSA Sites					
1221 260th St. Sergeant Bluff, IA ⁽⁵⁾			0.039	0.039	52%
31986 475th Ave, Union Co, SD ⁽⁶⁾	0.012	0.007	.009	0.009	12%
31307 473rd Ave, Union Co, SD ⁽⁶⁾	0.009	0.008	.007	0.008	11%
Comparison of 3-Hour Sulfur Dioxide Levels to the Secondary NAAQS ⁽²⁾					
Site	2010	2011	2012	Design Value ⁽²⁾	% NAAQS
Omaha MSA Sites					
1616 Whitmore St., Omaha	0.055	0.054 ⁽⁴⁾	0.076	0.076	11%
11300 North Post Rd, Omaha	0.005	closed	closed	0.005	1%
Omaha NCore ⁽³⁾		0.026 ⁽³⁾	0.026	0.026	5%
Sioux City MSA Sites					
1221 260th St. Sergeant Bluff, IA ⁽⁵⁾			0.002	0.002	< 1%
31986 475th Ave, Union Co, SD ⁽⁶⁾	0.021	0.006	0.007	0.021	4%
31307 473rd Ave, Union Co, SD ⁽⁶⁾	0.014	0.006	0.005	0.014	3%
Notes and Explanations:					
(1) The 1-hour NAAQS is 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.					
(2) The 3-hour NAAQS is 0.5 ppm not to be exceeded more than once per year. It is a secondary standard promulgated in 1971, and retained without change in 1996. The Design Value is the highest annual 2 nd highest maximum 3-hour reading over the last three years. The annual values shown are 2 nd highest maximum values. All concentrations expressed in units of ppm.					
(3) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.					
(4) The Whitmore St Omaha site was closed from 6/22/11 thru 10/1/11 due to Missouri River flooding.					
(5) The Sergeant Bluff IA site is operated by the IA DNR.					
(6) The Union Co., SD sites are operated by the South Dakota Department of Environment & Natural Resources.					

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

Table B-3: Sulfur Dioxide Data (continued)

Comparison of 24-Hour Sulfur Dioxide Levels to the Pre-2010 NAAQS ⁽⁷⁾⁽⁸⁾					
Site	2010	2011	2012	Design Value ⁽¹⁾	% NAAQS
Omaha MSA Sites					
1616 Whitmore St., Omaha	0.026	0.020 ⁽⁴⁾	0.025	0.026	19%
11300 North Post Rd, Omaha	0.003	closed	closed	0.003	2%
Omaha NCore ⁽³⁾	nd	0.006	0.006	0.006	4%
Sioux City MSA Sites					
1221 260th St. Sergeant Bluff, IA ⁽⁵⁾	nd	nd	0.003	0.003	2%
31986 475th Ave, Union Co, SD ⁽⁶⁾	0.004	0.002	0.002	0.004	3%
31307 473rd Ave, Union Co, SD ⁽⁶⁾	0.004	0.003	0.002	0.004	3%
Comparison of Annual Average Sulfur Dioxide Levels to the Pre-2010 NAAQS ⁽⁹⁾⁽¹⁰⁾					
Site	2010	2011	2012	Design Value ⁽¹⁾	% NAAQS
Omaha MSA Sites					
1616 Whitmore St., Omaha	0.002	0.002	0.002	0.002	8%
11300 North Post Rd, Omaha	0.0008	closed	closed	0.0008	3%
Omaha NCore ⁽³⁾	nd	0.0009	0.0009	0.0009	3%
Sioux City MSA Sites					
1221 260th St. Sergeant Bluff, IA ⁽⁵⁾			0.0003	0.0003	1%
31986 475th Ave, Union Co, SD ⁽⁶⁾	0.0004	0.0002	0.0004	0.0004	1%
31307 473rd Ave, Union Co, SD ⁽⁶⁾	0.0003	0.0003	0.0003	0.0058	1%
<p>Notes and Explanations:</p> <p>(3) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.</p> <p>(4) The Whitmore St Omaha site was closed from 6/22/11 thru 10/1/11 due to Missouri River flooding.</p> <p>(5) The Sergeant Bluff IA site is operated by the IA DNR.</p> <p>(6) The Union Co., SD sites are operated by the South Dakota Department of Environment & Natural Resources</p> <p>(7) The 24-hour NAAQS is a primary standard promulgated in 1971 and retained without change in 1996. It will no longer apply once the attainment status to the 1-hour NAAQS is determined per regulations changes in 2010.</p> <p>(8) The 24-hour NAAQS is 0.14 ppm not to be exceeded more than once per year. The Design Value is the highest annual 2nd highest maximum 24-hour reading over the last three years. The annual values shown are 2nd highest maximum values. The 24-hour NAAQS is a primary standard. All concentrations expressed in units of ppm.</p> <p>(9) The Annual Average NAAQS is a primary standard promulgated in 1971 and retained without change in 1996. It will no longer apply once the attainment status to the 1-hour NAAQS is determined per regulations changes in 2010.</p> <p>(10) The Annual Average NAAQS is 0.03 ppm not to be exceeded in a calendar year. The Design Value is the highest annual average over the last 3-years. The Annual Average NAAQS is a primary standard. All concentrations expressed in units of ppm.</p>					

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

Table B-4a: Nitrogen Dioxide Data

Comparison of 1-Hour Maximum Levels of Nitrogen Dioxide to NAAQS					
Site	2010	2011	2012	Design Value ⁽¹⁾	% NAAQS
Sioux City MSA					
31986 475th Ave, Union Co, SD ⁽³⁾	0.022	0.015	0.016	0.018	18%
31307 473rd Ave, Union Co, SD ⁽³⁾	0.020	0.014	0.057	0.030	30%
Comparison of 3-Year Maximum Annual Average Value for Nitrogen Dioxide to NAAQS					
Site	2010	2011	2012	Design Value ⁽¹⁾	% NAAQS
Sioux City MSA					
31986 475th Ave, Union Co, SD ⁽³⁾	0.003	0.003	0.003	0.003	6%
31307 473rd Ave, Union Co, SD ⁽³⁾	0.003	0.003	.006	0.004	7%
Notes and Explanations:					
(1) The 1-hour 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. All concentrations are expressed in ppm units.					
(2) The Annual Average 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 was compared to the NAAQS. The Annual Average NAAQS is a primary standard. All concentrations expressed in units of ppm.					
(3) The Union Co., SD sites are operated by the South Dakota Department of Environment & Natural Resources					

Table B-4b: 2011-2012 Nitrogen Oxide Data from the Omaha NCore Site ⁽¹⁾

Nitric Oxide Species	1-Hour Values (ppm) ^{(2) (3)}					
	Annual Maximum		98 th Percentile		Annual Average	
	2011	2012	2011	2012	2011	2012
NO _y ⁽⁴⁾	0.121	0.158	0.084	0.095	0.010	0.010
NO ⁽⁵⁾	0.089	0.133	0.047	0.067	0.002	0.002
NO _y -NO ⁽⁶⁾	0.053	0.051	0.043	0.043	0.008	0.008
NO _y -NO as a % of the NO ₂ NAAQS (2 yr average value) ⁽⁷⁾	NA		43%		15%	
Footnotes:						
(1) Omaha NCore is a multi-pollutant monitoring site located at 4102 Woolworth Street.						
(2) The maximum 1-hour value for each nitric oxide species is determined for each day. This daily data is used to identify/calculate the Annual Maximum, 98 th Percentile and Annual Average values. The maximum and 98 th percentile values for NO _y and NO may not occur at the same time or even the same day. Thus the difference in the NO _y and NO values will not equal the NO _y -NO values in this table.						
(3) NO _y /NO data was collected on 340 days in 2011 making the 7 th highest maximum the 98 th percentile value.						
(4) NO _y – Reactive oxides of nitrogen; includes NO, NO ₂ and other nitrogen oxides, including organic nitrogen oxide compounds.						
(5) NO – Nitrogen oxide						
(6) NO _y -NO provides an approximation of nitrogen dioxide (NO ₂), with some possibility of over-estimating the true NO ₂ concentration. For this reason, the NO _y -NO parameter can be used to demonstrate attainment, but not non-attainment.						
(7) See previous footnote. NO _y -NO as a % of the NO ₂ NAAQS values indicate attainment with the NO ₂ NAAQS, although only 2 years of data is available..						

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

Table B-5a: PM₁₀ - Maximum 24-Hour Data ^{(1) (2)}

Site	2010	2011	2012	Design Value ⁽¹⁾	% NAAQS
Omaha MSA & Near-By Sites					
Omaha NCore ⁽³⁾	nd	86	74	70	47%
2411 O St, Omaha	60	58	71	58	39%
46th & Farnam Sts, Omaha	145	172	199	159	106%
19th & Burt Sts, Omaha	71	44	51	50	33%
3130 C Ave, Council Bluffs, IA ⁽⁴⁾	74	50	64	63	42%
Montgomery Co., IA (outside Omaha MSA) ^{(4) (5)}	51	49	65	46	31%
Weeping Water WWTF ⁽⁶⁾	73	52	75	55	37%
Weeping Water Lauritzen Farm ⁽⁶⁾⁽⁷⁾	306	108	179	179	119%
Sioux City MSA Sites					
821 30th St, Sioux City, IA ⁽⁴⁾	63	74	78	58	39%
31986 475th Ave, Union Co, SD ⁽⁸⁾	66	69	101	80	53%
31307 473rd Ave, Union Co, SD ⁽⁸⁾	102	67	82	72	48%
Other Nebraska Sites					
Cozad	92	120	99	90	60%
Gothenburg	53	139	73	68	45%
Notes and Explanations:					
(1) NAAQS = 150 µg/m ³ , not to be exceeded more than once per year on average over 3 years, where exceedence is defined as a value of 155 µg/m ³ or more. The Design Value is the 4 th highest 24-hour value found in the 3-year design period. Concentrations are in units of µg/m ³ at standard temperature (25° C) and pressure (760 mm Hg) conditions.					
(2) NAAQS History: The primary 24-hour NAAQS was initially set at 150 µg/m ³ 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 Council Bluffs, Montgomery Co., Emmetsburg 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) 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.					
(7) The Weeping Water Lauritzen Farm site recorded four 24-hour PM ₁₀ values above 150 µg/m ³ in 2010: 176 on 10/20/10, 249 on 10/26/10, 306 on 10/27/10 and 209 on 11/26/10. Attainment status is under review.					
(8) The Union Co., SD sites are operated by the South Dakota Department of Environment & Natural Resources					

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Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

Table B-5b: PM₁₀ - Annual Average Data ⁽¹⁾

Site	2010	2011	2012	3-Year Average	% Old Std
Omaha MSA Sites					
Omaha NCore ⁽²⁾	nd	21.8	24.6	23.2	46%
2411 O St, Omaha	26.1	25.9	30.1	27.4	55%
46th & Farnam Sts, Omaha	42.5	44.3	52.4	46.4	93%
19th & Burt Sts, Omaha	24.1	21.0	25.0	23.4	47%
3130 C Ave, Council Bluffs, IA ⁽³⁾	26.3	23.4	28.4	26.0	52%
Montgomery Co., IA (outside Omaha MSA) ⁽³⁾⁽⁴⁾	19.4	18.7	21.7	19.9	40%
Weeping Water WWTF ⁽⁵⁾	20.9	20.4	25.1	22.1	44%
Weeping Water Lauritzen Farm ⁽⁵⁾	33.0	28.1	34.7	31.9	64%
Sioux City MSA and Near-By Sites					
821 30th St, Sioux City, IA ⁽³⁾	19.9	19.7	22.8	20.8	42%
31986 475th Ave, Union Co, SD ⁽⁶⁾	19.3	17.1	22.4	19.6	39%
31307 473rd Ave, Union Co, SD ⁽⁶⁾	17.2	15.6	19.2	17.3	35%
Other Nebraska Sites					
Cozad	21.8	24.9	29.4	25.4	51%
Gothenburg	21.9	28.1	29.5	26.5	53%
Notes and Explanations:					
(1) There is currently no NAAQS for the annual average PM ₁₀ concentration. An annual average NAAQS of 50 µg/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 µg/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 sites are operated by the South Dakota Department of Environment & Natural Resources.					

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Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

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

Site	2010	2011	2012	Design Value ⁽¹⁾	% NAAQS
Omaha MSA & Near-By Sites					
Omaha NCore ⁽³⁾	30.5	22.5	21.3	24.8	71%
9225 Berry St.; Omaha	27.3	20.4	24.8	24.2	69%
2912 Coffey Ave., Bellevue	27.3	28.1	23.5	26.3	75%
2242 Wright St., Blair	25.8	21.8	24.1	23.9	68%
3130 C Ave., Council Bluffs, IA ⁽⁴⁾	32.3	20.8	28.5	27.2	78%
Montgomery Co., IA (outside Omaha MSA) ^{(4) (5)}	27.4	21.5	20.5	23.1	66%
Lincoln MSA Site					
3140 N Street, Lincoln	25.6	21.1	20.0	22.2	64%
Sioux City MSA & Near-By Sites					
821 30th St, Sioux City, IA ⁽⁴⁾	34.0	23.4	24.9	27.4	78%
31986 475th Ave, Union Co, SD ⁽⁶⁾	27.8	22.3	19.7	23.3	66%
31307 473rd Ave, Union Co, SD ⁽⁶⁾	29.2	22.1	20.8	24.0	69%
Emmetsburg, IA (outside Sioux City MSA) ⁽⁴⁾⁽⁷⁾	20.9	23.9	22.4	22.4	64%
Other Nebraska Sites					
Grand Island Senior High	21.1	17.7	17.5	18.8	54%
Scottsbluff	14.0	12.6	17.9	14.8	42%
Notes and Explanations:					
(1) The Design Values are the 3-year average of the annual 98 th percentile values. To determine attainment status, the Design Values are compared to the 35 µg/m ³ -NAAQS. Concentrations are in units of µg/m ³ .					
(2) NAAQS History: The 24-hour PM _{2.5} NAAQS was initially established at 65µg/m ³ in 1997. It was lowered to 35 mg/m ³ in 2006 and retained at the 35 µg/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., Emmetsburg 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 sites are operated by the South Dakota Department of Environment & Natural Resources					
(7) Emmetsburg is located outside the Sioux City located approximately 97 miles northeast of Sioux City. Data from this site is included here for comparison purposes only.					

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

Table B-6b: PM_{2.5} - Annual Average Data ^{(1) (2)}

Site	2010	2011	2012	Design Value ⁽¹⁾	% NAAQS
Omaha MSA & Near-By Sites					
Omaha NCore ⁽³⁾	8.7	9.2	8.4	8.8	73%
9225 Berry St.; Omaha	10.4	10.6	11.7	10.9	91%
2912 Coffey Ave., Bellevue	12.4	11.7	10.4	11.5	96%
2242 Wright St., Blair	9.7	9.1	9.2	9.3	78%
3130 C Ave., Council Bluffs, IA ⁽⁴⁾	12.2	10.2	10.8	11.1	92%
Montgomery Co., IA (outside Omaha MSA) ^{(4) (5)}	9.9	9.0	8.8	9.2	77%
Lincoln MSA Site					
3140 N Street, Lincoln	9.0	8.5	8.7	8.8	73%
Sioux City MSA & Near-By Sites					
821 30th St, Sioux City, IA ⁽⁴⁾	10.7	9.2	9.7	9.9	66%
31986 475th Ave, Union Co, SD ⁽⁶⁾	9.6	9.3	9.9	9.6	64%
31307 473rd Ave, Union Co, SD ⁽⁶⁾	9.6	8.2	7.5	8.4	56%
Emmetsburg, IA (outside Sioux City MSA) ⁽⁴⁾⁽⁷⁾	8.7	9.2	8.7	8.8	59%
Other Nebraska Sites					
Grand Island Senior High	7.3	7.0	7.6	7.3	61%
Scottsbluff ⁽⁸⁾	5.3	4.8	5.6	5.2	44%
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 µg/m ³ NAAQS. Concentrations are in units of µg/m ³ .					
(2) NAAQS History: The annual average PM _{2.5} NAAQS was initially established in 1997 at 15 µg/m ³ . It was retained at this level in the 2006 review and then lowered to 12 µg/m ³ in December 2012.					
(2) The Omaha NCore site is located at 4102 Woolworth Street. It is a multi-pollutant monitoring site.					
(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) The Union Co., SD sites are operated by the South Dakota Department of Environment & Natural Resources					
(6) Emmetsburg is located well outside the Sioux City located approximately 97 miles northeast of Sioux City. Data from this site is included here for comparison purposes only.					
(7) The Scottsbluff site was relocated from 1809 3 rd St. (shut-down on 5/11/09) to the Scottsbluff High School at Hwy 26 and 5 th St (start-up 5/13/09). Combined data for both sites is presented above.					

Nebraska 2013 Ambient Air Monitoring Network Plan

Attachment B: Comparison of Ambient Air Monitoring Data to NAAQS

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

Comparison of 3-Year Maximum Values of 3-Month Average Values ⁽¹⁾⁽²⁾					
Site	2010	2011	2012	DV ⁽¹⁾	% NAAQS
Sioux City MSA					
Auburn ⁽³⁾	0.09	0.12	0.05	0.12	80%
Fremont ⁽⁴⁾	0.07	0.03	0.14	0.14	93%
Omaha NCore ⁽⁵⁾⁽⁶⁾	nd	nd	0.006	0.006	7%
Notes and Explanations:					
(1) Concentrations are in units of $\mu\text{g}/\text{m}^3$. The 3-month average NAAQS = $0.15 \mu\text{g}/\text{m}^3$. 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 $1.5 \mu\text{g}/\text{m}^3$ calendar quarter average. In 2008, it was modified to $0.15 \mu\text{g}/\text{m}^3$ 3-month running average.					
(3) Auburn Data Completeness: 2010- Monitoring initiated 5/8/10; Six valid 3-month averages obtained 2011- Invalid data from 10/6 thru 12/5 due to flow control issues. Nine valid 3-mo averages; Aug-Oct, Sep-Nov & Oct-Dec were lost. 2012- Data lost to sampler repair 8/25 thru 9/30. Nine 3 mo averages were obtained; Jul-Sep, Aug-Oct & Sep-Nov were lost					
(4) Fremont Data Completeness: 2010- Monitoring initiated in 3/9; Seven valid 3-mo averages obtained (Apr-Jun thru Oct-Dec) 2011- Invalid data from 2/26 thru 5/21 and 8/1 thru 11/29 due to flow control issues. Two valid 3-mo averages obtained (Nov-Jan & Dec-Feb) 2012- Invalid data in Nov 2011, resulted in the loss of the Nov-Jan 3-mo average; Eleven 3-mo averages obtained.					
(5) The Omaha NCore site is a multi-pollutant monitoring site located at 4102 Woolworth Street.					
(6) Omaha NCore Data Completeness: Began operation on 1/4/12. Ten 3-month averages obtained starting with Jan-Mar 2012.					
Abbreviation: nd – no data, site not operating					

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	2010	2011	2012	Maximum Value	% NE Std
Sioux City MSA					
501 Pine St. Dakota City	0.207	0.075	0.180	0.207	2.1%
Comparison of 3-Year Maximum Value for 30-Minute TRS to the State Standard ⁽¹⁾⁽³⁾					
Site	2010	2011	2012	Maximum Value	% NE Std
Sioux City MSA					
501 Pine St. Dakota City	0.137 ⁽⁴⁾	0.049	0.086	0.137	137% ⁽⁴⁾
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) In 2010, the Pine Street monitor recorded 40 minutes above the 0.10 ppm 30-minute average standard on 5/27/10, from 05:12-05:51 CST (40 min).					

Nebraska 2013 Ambient Air Monitoring 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 data from the US Census Bureau from 2000, 2010 and 2012 was used in this attachment. The US 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. Population data from the decennial census is more reliable than that from the annual survey estimates.

Population Growth Summary:

Five counties (Douglas, Lancaster, Sarpy, Hall and Buffalo Counties) have consistently ranked as the fastest growing counties in terms of actual population growth over the 2000 – 2012 time frame. See Table C-1 below. These are also the counties with the highest populations as shown in Table C-2, with 59% of Nebraska's population residing in these 5 counties.

Also as shown in Table C-1, the counties of Douglas, Lancaster and Sarpy Counties accounted for most of the population growth within Nebraska (i.e., 106%). The total population growth in these 3 counties was able to exceed 100% of the Nebraska's total population growth because many other counties lost population (see Table C-7 at the end of this attachment for population data for all of Nebraska's counties). Douglas, Lancaster and Sarpy Counties are also the highest population counties (see Table C-2) and the most densely populated counties (see Table C-3).

Percent growth rates of counties (in contrast to actual population growth) provide a somewhat different picture of population growth as seen in Table C-4. However, a high growth rate in a low population county does not have that much impact on pollution potential because of the relatively small number of additional people involved. For example, the 10-year growth rate in Johnson County was 1.5%, which equates to a population gain of 73 people; vs. Lancaster County with a growth rate of 1.3% and a population gain of 3,461 people (i.e., a 47 fold higher population gain in the lower percent growth county).

From a potential air pollution source perspective, the population growth trends remain basically unchanged from previous years. Most of the population growth is occurring in the Omaha and Lincoln MSAs, and specifically in Douglas, Lancaster and Sarpy Counties. These counties have the highest populations and population densities. There are other counties growing at similar or even slightly higher rates, but their smaller populations equate to smaller population increases.

Note: this attachment focuses on population dynamics because it is a factor that can impact air pollution potential. It is recognized that there are many other factors and those are examined elsewhere in the 2013 Network Plan.

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Attachment C – Population Dynamics

Table C-1: Population Growth Rate Data for the 15 Nebraska Counties Demonstrating the Highest Population Gains from 2010 thru 2012					
County Rank ⁽¹⁾	Geographic Area	2-Year Annualized Growth ⁽²⁾	10-Year Annualized Growth ⁽³⁾	Percent of NE Population Gain ⁽⁴⁾	Cumulative Percent ⁽⁵⁾
na	Nebraska	12,692	11 ,686	na	na
1	Douglas County	6,300	5,384	47%	47%
2	Lancaster County	3,623	3,461	29%	76%
3	Sarpy County	3,075	3,646	30%	106%
4	Hall County	787	521	5%	111%
5	Buffalo County	655	382	4%	114%
6	Platte County	206	72	1%	115%
7	Saline County	169	34	0%	117%
8	Seward County	70	30	0%	118%
9	Colfax County	59	10	0%	118%
10	Madison County	55	-31	0%	118%
11	Adams County	54	17	0%	118%
12	York County	51	-92	-1%	117%
13	Chase County	51	-8	0%	117%
14	Cheyenne County	50	16	0%	117%
15	Howard County	38	-27	0%	117%
Footnotes:					
<p>(1) County Rank based on the 2-year annualized population growth.</p> <p>(2) The 2-Year Annualized Growth is calculated by dividing the 2010-12 population gain by 2.</p> <p>(3) The 10-Year Annualized Growth is calculated by dividing the 2000-2010 population gain by 10.</p> <p>(4) The % of NE Population Gain is calculated by dividing the population gain of each county from 2000 to 2012 and dividing by the population gain of Nebraska over this same time frame.</p> <p>(5) The Cumulative Percent is calculated by adding the % of NE Population Gain from each successive county.</p>					
Explanatory Notes:					
<ul style="list-style-type: none"> • The 2-year and 10-year population gains are calculated on exclusive time frames. The 2-year uses 2010-12 data, while the 10 year uses 2000-10 data. • The 2-year population gains (2010-12) rely on estimated data for 7/1/10 and 7/1/12. While the 10-year population gains (2010-12) rely on 7/1/00 and 7/1/10 estimated data. The 10-year estimates are more closely tied to the decennial census, and thus more reliable. • The % of Ne Population Gain is based on the entire 12 year time frame over which the 2-year and the 10-year population gains were examined: 2000-12. • The Cumulative Percent exceeds 100% because many NE counties are losing population. See Table C-7 below. • Sarpy County was the only county listed in this table that grew at a slower rate in 2010 -12 than in 2000-10. • Table C-7 at the end of this attachment contains population and population density data for all of Nebraska's counties. 					

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Attachment C – Population Dynamics

Table C-2: Population Data for Nebraska’s 15 Most Highly Populated Counties					
Co. Rank	Geographic Area	MSA/MiSA	Population 7/1/2012	Percent Nebraska ⁽¹⁾	Cumulative Percent ⁽²⁾
	Nebraska	na	1,855,525	100%	na
1	Douglas County	Omaha MSA	531,265	29%	29%
2	Lancaster County	Lincoln MSA	293,407	16%	44%
3	Sarpy County	Omaha MSA	165,853	9%	53%
6	Hall County	Grand Island MSA	60,345	3.3%	57%
7	Buffalo County	Kearney MiSA	47,463	2.6%	59%
8	Scotts Bluff County	Scottsbluff MiSA	36,964	2.0%	61%
9	Dodge County	Fremont MiSA	36,427	2.0%	63%
10	Lincoln County	North Platte MiSA	36,099	1.9%	65%
11	Madison County	Norfolk MiSA	35,031	1.9%	67%
12	Platte County	Columbus MiSA	32,681	1.8%	69%
13	Adams County	Hastings MiSA	31,459	1.7%	70%
14	Cass County	Omaha MSA	25,133	1.4%	72%
6	Dawson County	Lexington MiSA	24,220	1.3%	73%
14	Gage County	Beatrice MiSA	21,806	1.2%	74%
15	Dakota County	Sioux City MSA	20,918	1.1%	75%
Footnotes:					
(1) Percent Nebraska: The percent of Nebraska’s population that resides in that county					
(2) Cumulative Percent: The cumulative total of the percentages in the preceding column. For example: 44% of Nebraska’s residents reside in Douglas and Lancaster Counties, and 75% reside in the 15 counties listed.					
Notes:					
<ul style="list-style-type: none"> • All 15 of the most populated counties are located within MSA’s or MiSA’s. • Table C-7 at the end of this attachment contains population data for all of Nebraska’s counties. 					

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Attachment C – Population Dynamics

Table C-3: The 15 Most Densely Populated Nebraska Counties					
Rank	Geographic Area	MSA/MiSA	Population Density	Population 7/1/12	Area (sq. mi.)
	Nebraska	na	24	1,855,525	76,872
1	Douglas County	Omaha MSA	1605	531,265	331
2	Sarpy County	Omaha MSA	690	165,853	241
3	Lancaster County	Lincoln MSA	350	293,407	839
4	Hall County	Grand Island MSA	110	60,345	546
5	Dakota County	Sioux City MSA	79	20,918	264
6	Dodge County	Fremont MiSA	68	36,427	534
7	Madison County	Norfolk MiSA	61	35,031	573
8	Adams County	Hastings MiSA	56	31,459	563
9	Washington County	Omaha MSA	52	20,252	390
10	Scotts Bluff County	Scottsbluff MiSA	50	36,964	739
11	Buffalo County	Kearney MiSA	49	47,463	968
12	Platte County	Columbus MiSA	48	32,681	678
13	Cass County	Omaha MSA	45	25,133	559
14	Seward County	Lincoln MSA	30	16,935	575
15	Saunders County	Omaha MSA	28	20,823	754
Notes:					
<ul style="list-style-type: none"> • All 15 of the most densely populated counties are located within MSA's or MiSA's. • Table C-7 at the end of this attachment contains population and population density data for all of Nebraska's counties. 					

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Attachment C – Population Dynamics

Table C-4: Percent Growth Rates: 15 Counties with the Highest 10-Year and 2-Year Rates							
10-Year 2000-2010				2-Year: 2010-2012			
Rank	Geographic Area	Percent Growth (¹)	Annual Population Gain (²)	Rank	Geographic Area	Percent Growth (³)	Annual Population Gain (⁴)
	Nebraska	0.7%	11,686		Nebraska	0.7%	12,692
1	Sarpy Co.	2.6%	3,646	1	Banner Co.	4.3%	32
2	Johnson Co.	1.5%	73	2	Blaine Co.	4.2%	21
3	Lancaster Co.	1.3%	3,461	3	Arthur Co.	2.2%	11
4	Douglas Co.	1.1%	5,384	4	Thomas Co.	2.0%	14
5	Hall Co.	0.9%	521	5	Sarpy Co.	1.9%	3,075
6	Buffalo Co.	0.9%	382	6	Buffalo Co.	1.4%	655
7	Garfield Co.	0.8%	15	7	Grant Co.	1.4%	9
8	Washington Co.	0.8%	148	8	Hall Co.	1.3%	787
9	Arthur Co.	0.5%	2	9	Chase Co.	1.3%	50
10	Saunders Co.	0.5%	103	10	Lancaster Co.	1.3%	3,623
11	Lincoln Co.	0.5%	162	11	Douglas Co.	1.2%	6,300
12	Cass Co.	0.4%	88	12	Saline Co.	1.2%	169
13	Dakota Co.	0.4%	73	13	Deuel Co.	0.8%	16
14	Saline Co.	0.2%	34	14	Platte Co.	0.6%	206
15	Platte Co.	0.2%	72	15	Howard Co.	0.6%	38
Footnotes:							
(1) 10-Year Percent Growth = (100%)(pop. 2010 – pop. 2000)(2) / (pop. 2000 + pop. 2010)							
(2) 10-Year Annual Population Gain = (pop. 2010 – pop. 2000) / 10							
(3) 2-Year Percent Growth = (100%)(pop. 2012 – pop. 2010)(2) / (pop. 2010 + pop. 2012)							
(4) 2-Year Annual Population Gain = (pop. 2012 – pop. 2010) / 10							
Note: Table C-7 at the end of this attachment contains growth rate information for all of Nebraska’s counties.							

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Attachment C – Population Dynamics

Metropolitan Statistical Areas and Micropolitan Statistical Areas

The U.S. Office of Management and Budget (OMB) defines Metropolitan Statistical Areas (MSAs), Micropolitan Statistical Areas (MiSAs) and Combined Statistical Areas (CSAs) based upon urban population data and *urbanized areal/urban cluster* definitions provided by the US Census Bureau.

Metropolitan Statistical Areas (MSAs) contain an *urbanized area*, where an *urbanized area* is a densely settled territory delineated by the US Census Bureau that contains 50,000 or more people.

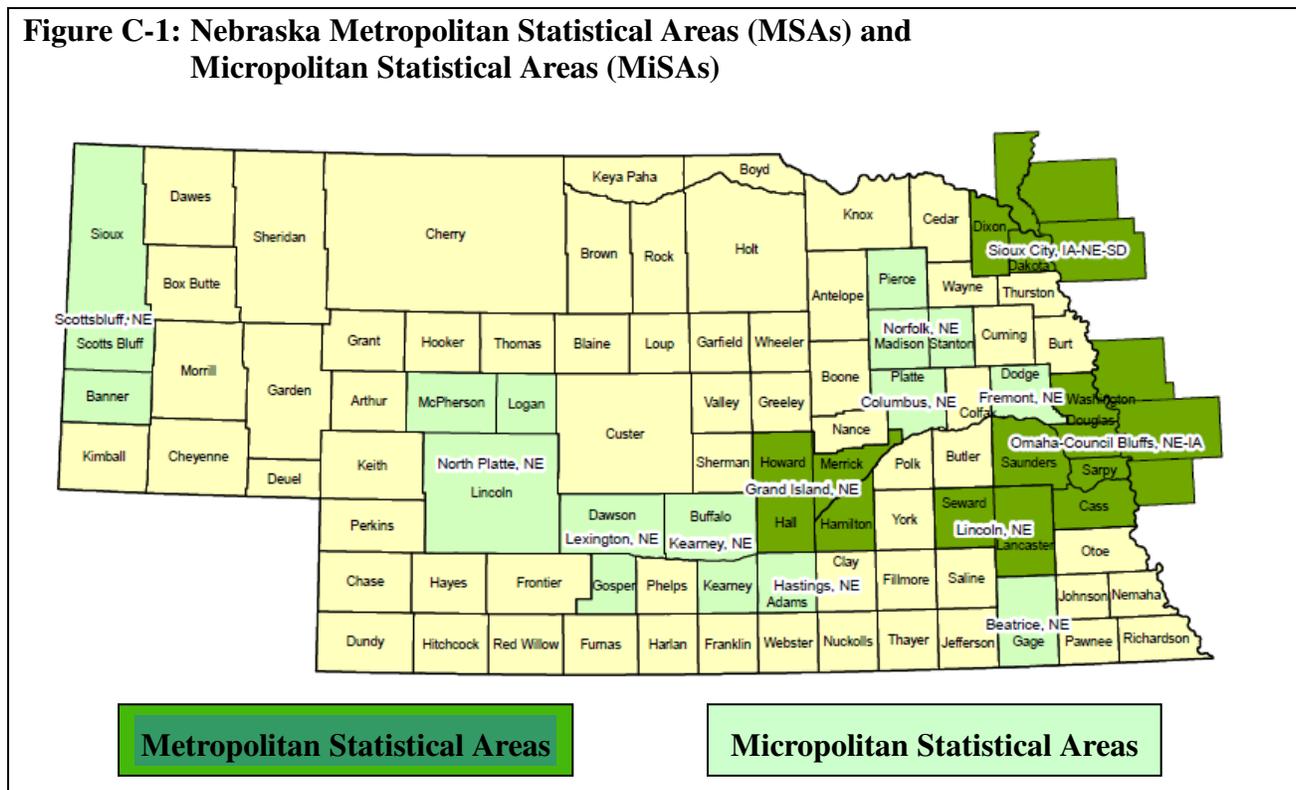
Micropolitan Statistical Area (MiSAs) contain an *urban cluster* with a population of 10,000 to 49,999, where an *urban cluster* is a densely settled territory delineated by the US Census Bureau that contains at least 2,500 people, but fewer than 50,000 people.

Combined Statistical Areas (CSAs) are adjacent MSAs and MiSAs with social and economic ties. Of these 3 designations, the MSA is of the most importance from an ambient monitoring perspective because:

- It is sometimes used in defining minimum monitoring requirements, and
- It is often the default boundary when defining non-attainment areas.

The OMB released a revised listing of CSAs, MSAs and MiSAs on February 28, 2013, which were based on 2010 decennial census data. The Nebraska MSAs and MiSAs are shown in Figure C-1. Table C-5 lists the Nebraska CSAs, MSAs & MiSAs and the counties that comprise them.

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



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Attachment C – Population Dynamics

Table C-5: Nebraska CSAs, MSAs and MiSAs: Summary Information	
Urbanized Area	Subparts & Basic Information
Omaha-Council Bluffs-Fremont NE-IA CSA	Omaha-Council Bluffs, NE-IA MSA & Fremont NE MiSA CSA Population: 922,051
Omaha-Council Bluffs NE-IA MSA	NE Counties: Cass, Douglas, Saunders, Sarpy & Washington IA Counties: Harrison, Mills & Pottawattamie Principal Cities: Omaha, NE & Council Bluffs, IA MSA Population: 885,624
Fremont NE MiSA	NE Counties: Dodge Principal City: Fremont MiSA Population: 36,427
Lincoln-Beatrice NE CSA	Lincoln NE MSA & Beatrice NE MiSA CSA Population: 332,148
Lincoln NE MSA	Lancaster and Seward Counties Principal City: Lincoln MSA Population: 310,342
Beatrice NE MiSa	Gage County Principal City: Beatrice MiSA Population: 21,806
Sioux City-Vermillion IA-SD-NE CSA	Sioux City, IA-SD-NE MSA & Vermillion, SD MiSA CSA Population: 183,052
Sioux City IA-SD-NE MSA	NE Counties: Dakota & Dixon IA Counties: Plymouth & Woodbury SD Counties: Union Principal City: Sioux City, IA MSA Population: 168,921
Vermillion SD MiSA	Clay County SD Principal City: Vermillion, SD MiSA Population: 14,141
Table continued on next page	

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Attachment C – Population Dynamics

Table C-5: Nebraska CSAs, MSAs and MiSAs: Summary Information (continued)	
Urbanized Area	Subparts & Basic Information
Grand Island NE MSA	NE Counties: Hall, Hamilton, Howard & Merrick Principal City: Grand Island MSA Population: 83,472
Kearney NE MiSA	NE Counties: Buffalo & Kearney Principal City: Kearney MiSA Population: 53,948
Norfolk NE MiSA	NE Counties: Madison, Pierce & Stanton Principal City: Norfolk MiSA Population: 48,286
Scottsbluff NE MiSA	NE Counties: Banner, Scotts Bluff & Sioux Principal City: Scottsbluff MiSA Population: 39,039
North Platte NE MiSA	Ne Counties: Lincoln, Logan & McPherson Principal City: North Platte MiSA Population: 37,373
Hastings NE MiSA	Ne Counties: Adams Principal City: Hastings MiSA Population: 31,459
Columbus NE MSA	Ne Counties: Platte Principal City: Columbus MiSA Population: 32,681
Lexington NE MiSA	Ne Counties: Dawson & Gosper Principal City: Lexington MiSA Population: 26,249
<p>Data Sources:</p> <p>CSA, MSA & MiSA definitions, including counties and principal cities, from OMB Bulletin No. 13-01 (February 28, 2013).</p> <p>Population data from US Census survey estimates for July 1, 2012.</p>	

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Attachment C – Population Dynamics

Table C-6 below provides population, population density and population growth information on Nebraska MSAs and MiSAs, and the counties within them. Table C-6 shows that the Omaha and Lincoln MSAs have the highest growth rates, and that most of this growth is occurring in Douglas, Lancaster and Sarpy Counties. The Grand Island MSA and the Kearney MiSA have the next highest growth rates. This is the same basic growth pattern recognizes in the county analysis at the beginning of this attachment.

Also see Figures C-2 and C-3 below. Most (86%) of the population in the Omaha-Council Bluffs MSA resides in Nebraska. While in the Sioux City MSA, most (75%) of the population resides in Iowa.

Table C-6: Nebraska MSAs and MiSAs: Population Data					
Geographic Area	2012 Population	Population Density	10-Year Annualized Population Growth	2-Year Annualized Population Growth	12-Year Annualized Percent Growth
Omaha-Council Bluffs MSA	885,624	202	9882	8754	1.2%
NE Counties	763,326	336	9369	9296	1.3%
Cass Co NE	25,133	56	88	-63	0.3%
Douglas Co NE	531,265	1605	5384	6300	1.1%
Sarpy Co NE	165,853	690	3646	3075	2.5%
Saunders Co NE	20,823	28	103	-9	0.4%
Washington Co NE	20,252	52	148	-8	0.7%
IA Counties	122,298	58	514	-542	0.3%
Harrison Co IA	14,548	21	-76	-190	-0.6%
Mills Co IA	14,837	34	49	-107	0.2%
Pottawattamie Co IA	92,913	97	541	-246	0.5%
Lincoln MSA	310,342	220	3492	3693	1.2%
Lancaster Co	293,407	350	3461	3623	1.3%
Seward Co	16,935	29	30	70	0.2%
Sioux City MSA	168,921	57	98	48	0.1%
NE Counties	26,836	68	44	-84	0.1%
Dakota Co NE	20,918	79	73	-60	0.2%
Dixon Co NE	5,918	12	-28	-24	-0.5%
IA Counties	127,230	10	-137	-54	-0.1%
Woodbury Co IA	102,323	117	-149	-23	-0.1%
Plymouth Co IA	24,907	29	12	-31	0.02%
SD – Union Co	14,855	32	191	186	1.4%
Grand Island MSA	83,472	39	440	736	0.6%
Hall Co	60,345	110	521	787	1.0%
Hamilton Co	9,011	17	-26	-56	-0.3%
Howard Co	6,336	11	-27	38	-0.3%
Merrick Co	7,780	16	-28	-33	-0.4%

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Attachment C – Population Dynamics

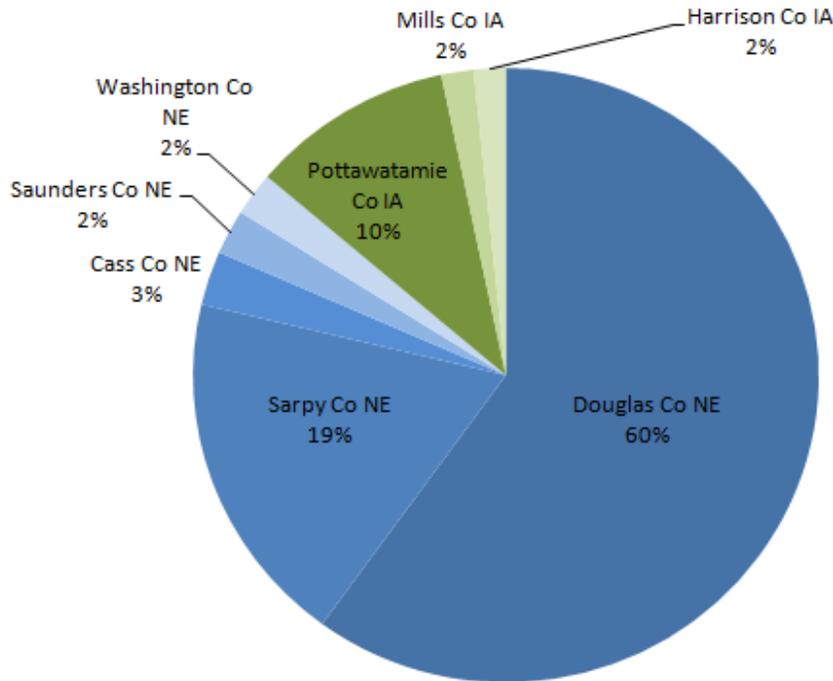
Table C-6: Nebraska MSAs and MiSAs: Population Data					
Geographic Area	2012 Population	Population Density	10-Year Annualized Population Growth	2-Year Annualized Population Growth	12-Year Annualized Percent Growth
Kearney MiSA	53,948	36	337	652	0.8%
Buffalo Co	47,463	49	382	655	1.0%
Kearney Co	6,485	13	-45	-3	-0.6%
Norfolk MSA	48,286	31	-117	-6	-0.2%
Madison Co	35,031	61	-31	55	-0.05%
Pierce Co	7,166	12	-56	-45	-0.7%
Stanton Co	6,089	14	-30	-16	-0.4%
Scottsbluff MSA	39,039	11	-23	-19	-0.1%
Banner Co	819	1.0	-12	32	-0.6%
Scotts Bluff Co	36,964	50	5	-52	-0.01%
Sioux Co	1,315	0.6	-16	2	-0.1%
North Platte MiSA	37,373	9	162	-102	0.3%
Lincoln Co	36,099	14	162	-85	0.3%
Logan Co	765	1.3	0	-3	-0.1%
McPherson Co	509	0.6	1	-15	-0.4%
Fremont MiSA	36,427	68	49	-140	0.05%
Dodge Co	36,427	68	49	-140	0.05%
Columbus MiSA	32,681	48	72	206	0.3%
Adams Co	32,681	48	72	206	0.3%
Hastings MiSA	31,459	56	17	54	0.1%
Adams Co	31,459	56	17	54	0.1%
Lexington MiSA	26,249	18	-18	-77	-0.1%
Dawson Co	24,220	24	-8	-68	-0.1%
Gosper Co	2,029	4	-9	-9	-0.4%
Beatrice MiSA	21,806	25	-64	-248	-0.4%
Gage Co	21,806	25	-64	-248	-0.4%

Term Definitions:
2012 Population – The US Census survey estimate for 7/1/12
10-Year Annualized Population Growth – The change in population between 7/1/00 and 7/1/10 based on US Census Bureau survey estimate data.
2-Year Annualized Population Growth – The change in population between 7/1/10 and 7/1/12 based on US Census Bureau survey estimate data.
12-Year Annualized Population Growth – The change in population from 7/1/00 to 7/1/12 divided by the average of the 7/1/00 and 7/1/12 populations and divided by 12 years, express as a percent. US Census Bureau survey estimate data was used for the calculations.

Nebraska 2013 Ambient Air Monitoring Network Plan

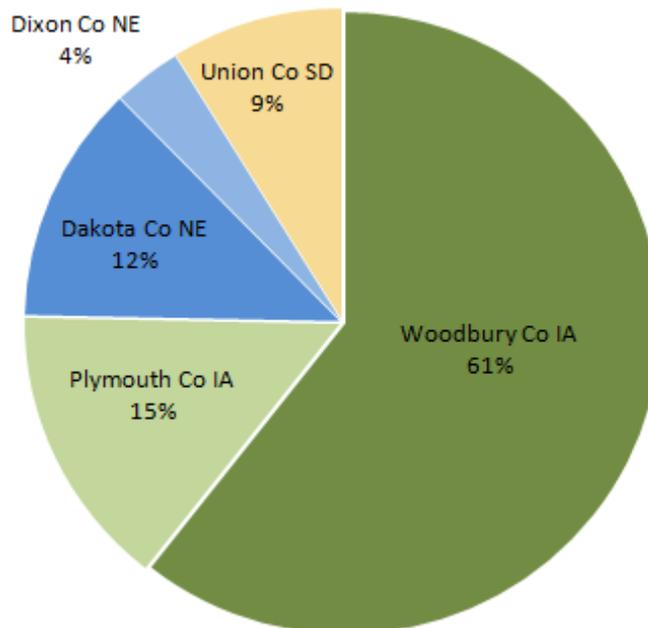
Attachment C – Population Dynamics

Figure C-2: Population Distribution within the Omaha MSA



Nebraska Counties: 86% of the Omaha MSA population & a growth rate of 1.3 % per year from 2000 thru 2012.
Iowa Counties: 14% of the Omaha MSA population & a growth rate of 0.3 % per year from 2000 to 2012.

Figure C-3: Population Distribution within the Sioux City MSA



Nebraska Counties: 16% of the Sioux City MSA population with a growth rate of 0.1% per year from 2000 thru 2012.
Iowa Counties: 75% of the Sioux City MSA population with a growth rate of -0.1 % per year from 2000 to 2012
South Dakota Counties: 9% of the Sioux City MSA population with a growth rate of 1.4 % per year from 2000-12.

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Attachment C – Population Dynamics

Geographic Area	Area (sq mi)	Population 7/1/2012	Population Density	10-Year Annualized Growth	10-Year Annualized Percent Growth	2-Year Annualized Growth	2-Year Annualized Percent Growth
Nebraska	76,872	1,855,525	24.1	11,686	0.7%	12,692	0.7%
Adams Co	563	31,459	55.8	17	0.1%	54	0.2%
Antelope Co	857	6,545	7.6	-77	-1.1%	-55	-0.8%
Arthur Co	715	486	0.7	2	0.5%	11	2.2%
Banner Co	746	760	1.0	-12	-1.6%	32	4.3%
Blaine Co	711	514	0.7	-11	-2.1%	21	4.2%
Boone Co	687	5,417	7.9	-71	-1.2%	-40	-0.7%
Box Butte Co	1,075	11,317	10.5	-95	-0.8%	21	0.2%
Boyd Co	540	2,054	3.8	-33	-1.5%	-23	-1.1%
Brown Co	1,221	3,023	2.5	-39	-1.2%	-61	-2.0%
Buffalo Co	968	47,463	49.0	382	0.9%	655	1.4%
Burt Co	493	6,659	13.5	-94	-1.3%	-92	-1.4%
Butler Co	584	8,295	14.2	-44	-0.5%	-41	-0.5%
Cass Co	559	25,133	44.9	88	0.4%	-63	-0.2%
Cedar Co	740	8,746	11.8	-76	-0.8%	-38	-0.4%
Chase Co	895	4,064	4.5	-8	-0.2%	51	1.3%
Cherry Co	5,961	5,727	1.0	-42	-0.7%	8	0.1%
Cheyenne Co	1,196	10,068	8.4	16	0.2%	50	0.5%
Clay Co	573	6,411	11.2	-47	-0.7%	-66	-1.0%
Colfax Co	413	10,653	25.8	10	0.1%	59	0.6%
Cuming Co	572	9,072	15.9	-102	-1.1%	-34	-0.4%
Custer Co	2,576	10,740	4.2	-84	-0.7%	-86	-0.8%
Dakota Co	264	20,918	79.3	73	0.4%	-60	-0.3%
Dawes Co	1,396	9,152	6.6	13	0.1%	-8	-0.1%
Dawson Co	1,013	24,220	23.9	-8	0.0%	-68	-0.3%
Deuel Co	440	1,972	4.5	-14	-0.7%	16	0.8%
Dixon Co	476	5,918	12.4	-28	-0.5%	-24	-0.4%
Dodge Co	534	36,427	68.2	45	0.1%	-118	-0.3%
Douglas Co	331	531,265	1605.1	5,384	1.1%	6,300	1.2%
Dundy Co	920	2,021	2.2	-26	-1.2%	7	0.3%
Fillmore Co	576	5,771	10.0	-73	-1.2%	-55	-0.9%
Franklin Co	576	3,188	5.5	-28	-0.8%	-25	-0.8%
Frontier Co	975	2,741	2.8	-31	-1.1%	-6	-0.2%
Furnas Co	718	4,907	6.8	-33	-0.6%	-23	-0.5%
Gage Co	855	21,806	25.5	-64	-0.3%	-248	-1.1%

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Attachment C – Population Dynamics

Table C-7: Nebraska Population Data: All Counties							
Geographic Area	Area (sq mi)	Population 7/1/2012	Population Density	10-Year Annualized Growth	10-Year Annualized Percent Growth	2-Year Annualized Growth	2-Year Annualized Percent Growth
Garden Co	1,704	1,953	1.1	-20	-0.9%	-63	-3.1%
Garfield Co	570	2,007	3.5	15	0.8%	-17	-0.8%
Gosper Co	458	2,029	4.4	-9	-0.4%	-9	-0.4%
Grant Co	776	629	0.8	-12	-1.8%	9	1.4%
Greeley Co	570	2,458	4.3	-16	-0.6%	-42	-1.7%
Hall Co	546	60,345	110.4	521	0.9%	787	1.3%
Hamilton Co	544	9,011	16.6	-26	-0.3%	-56	-0.6%
Harlan Co	553	3,410	6.2	-33	-0.9%	-3	-0.1%
Hayes Co	713	953	1.3	-11	-1.1%	-4	-0.4%
Hitchcock Co	710	2,887	4.1	-20	-0.7%	-5	-0.2%
Holt Co	2,413	10,396	4.3	-100	-0.9%	-23	-0.2%
Hooker Co	721	727	1.0	-4	-0.5%	-4	-0.5%
Howard Co	569	6,336	11.1	-27	-0.4%	38	0.6%
Jefferson Co	573	7,521	13.1	-79	-1.0%	4	0.1%
Johnson Co	376	5,140	13.7	73	1.5%	-37	-0.7%
Kearney Co	516	6,485	12.6	-45	-0.7%	-3	0.0%
Keith Co	1,061	8,220	7.7	-46	-0.5%	-73	-0.9%
Keya Paha Co	773	804	1.0	-16	-1.8%	-9	-1.1%
Kimball Co	952	3,783	4.0	-23	-0.6%	-20	-0.5%
Knox Co	1,108	8,573	7.7	-63	-0.7%	-51	-0.6%
Lancaster Co	839	293,407	349.8	3,461	1.3%	3,623	1.3%
Lincoln Co	2,564	36,099	14.1	162	0.5%	-85	-0.2%
Logan Co	571	765	1.3	0	0.0%	-3	-0.3%
Loup Co	570	589	1.0	-8	-1.2%	-19	-3.1%
McPherson Co	859	509	0.6	1	0.1%	-15	-2.8%
Madison Co	573	35,031	61.2	-31	-0.1%	55	0.2%
Merrick Co	485	7,780	16.0	-28	-0.4%	-33	-0.4%
Morrill Co	1,424	4,889	3.4	-37	-0.7%	-75	-1.5%
Nance Co	441	3,715	8.4	-32	-0.8%	-4	-0.1%
Nemaha Co	409	7,154	17.5	-29	-0.4%	-48	-0.7%
Nuckolls Co	575	4,438	7.7	-53	-1.1%	-32	-0.7%
Otoe County	616	15,747	25.6	29	0.2%	-13	-0.1%
Pawnee Co	432	2,765	6.4	-32	-1.1%	0	0.0%
Perkins Co	883	2,931	3.3	-20	-0.6%	-25	-0.8%
Phelps Co	540	9,215	17.1	-54	-0.6%	15	0.2%

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Attachment C – Population Dynamics

Geographic Area	Area (sq mi)	Population 7/1/2012	Population Density	10-Year Annualized Growth	10-Year Annualized Percent Growth	2-Year Annualized Growth	2-Year Annualized Percent Growth
Pierce Co	574	7,166	12.5	-56	-0.7%	-45	-0.6%
Platte Co	678	32,681	48.2	72	0.2%	206	0.6%
Polk Co	439	5,320	12.1	-22	-0.4%	-30	-0.6%
Red Willow Co	717	10,975	15.3	-43	-0.4%	-36	-0.3%
Richardson Co	553	8,290	15.0	-114	-1.3%	-29	-0.3%
Rock Co	1,008	1,376	1.4	-24	-1.4%	-66	-4.5%
Saline Co	575	14,557	25.3	34	0.2%	169	1.2%
Sarpy Co	241	165,853	689.6	3,646	2.6%	3,075	1.9%
Saunders Co	754	20,823	27.6	103	0.5%	-9	0.0%
Scotts Bluff Co	739	36,964	50.0	5	0.0%	-52	-0.1%
Seward Co	575	16,935	29.5	30	0.2%	70	0.4%
Sheridan Co	2,441	5,319	2.2	-69	-1.2%	-70	-1.3%
Sherman Co	566	3,108	5.5	-15	-0.5%	-19	-0.6%
Sioux Co	2,067	1,315	0.6	-16	-1.1%	2	0.1%
Stanton Co	430	6,089	14.2	-30	-0.5%	-16	-0.3%
Thayer Co	575	5,134	8.9	-81	-1.4%	-40	-0.8%
Thomas Co	713	676	0.9	-8	-1.2%	14	2.0%
Thurston Co	394	7,020	17.8	-15	-0.2%	24	0.3%
Valley Co	568	4,229	7.4	-37	-0.8%	-17	-0.4%
Washington Co	390	20,252	51.9	148	0.8%	-8	0.0%
Wayne Co	443	9,554	21.5	-24	-0.2%	-27	-0.3%
Webster Co	575	3,725	6.5	-21	-0.5%	-47	-1.2%
Wheeler Co	575	805	1.4	-6	-0.7%	-9	-1.0%
York Co	576	13,746	23.9	-92	-0.7%	51	0.4%

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Attachment D: Verification of Compliance with 40 CFR Part 58

This attachment reviews compliance with 40 CFR Part 58 Appendixes A, C, D and F as set forth on February 28, 2013. The review found the Nebraska Ambient Monitoring Network to be 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. To ensure compliance with these requirements, the NDEQ has a *Quality Assurance Project Plan (QAPP) for the Nebraska Ambient Air Monitoring Program for PM₁₀, PM_{2.5}, CO, O₃, SO₂ and TRS*. EPA Region 7 reviewed and approved this QAPP in June 2006. Actual procedures for operating monitors, as well as for collecting, reviewing and submitting data are set forth in Standard Operating Procedures (SOPs) that were developed to comply with the requirements of the QAPP.

Appendix A also sets forth requirements specifying the number of collocated monitors required for PM_{2.5}, PM₁₀, PM_{10-2.5} and Lead (Pb) monitors. Table D-1 summarizes the collocated sites in Nebraska. It appears that Nebraska is meeting these collocation requirements. It is noted, as it was previously in the 2011 and 2012 Network Plans, that DCHD is meeting the collocation requirement for its PM_{2.5} network of 3 sites (1 MetOne BAM and 2 2025 sequential samplers) with a 2025 sequential sampler collocated at the MetOne BAM site.

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 the TRS monitors used to evaluate compliance with Nebraska's TRS standard.

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Attachment D: Verification of Compliance with 40 CFR Part 58

Table D-1: Compliance Summary: Collocation Requirements of Appendix A							
Parameter	Method	NDEQ/LLCHD ⁽¹⁾			DCHD ⁽¹⁾		
		# of Sites	# Collocated	% Collocated	# of Sites	# Collocated	% Collocated
PM ₁₀	Hi-Vol Sampler	0	0	na	2	1	50%
PM ₁₀	Sequential 2025 Sampler	3	1	33%	0	0	na
PM ₁₀	Continuous Monitor	1	0	See Footnote (2)	1	0	See Footnote (2)
PM _{2.5}	Sequential 2025 Sampler	3	1	33%	2	See Footnote (3)	33% ⁽³⁾
PM _{2.5}	Met One BAM Method ⁽⁵⁾	0	0	na	2	1	
PM _{10-2.5}	Met One BAM Method	0	0	na	1	0	See Footnote (4)
TSP-Lead	Hi-Vol Sampler	2	1	50%	0	0	See Footnote (4)
<p>Collocation Requirement: Appendix A requires 15% of the sites in each parameter/method category to have collocated monitors with certain exceptions and additional requirements explained in the footnotes below.</p> <p>Footnotes:</p> <p>(1) The 15% collocation requirements applies to each Primary Quality Assurance Organization (PQAO) separately. There are two PQAO's in Nebraska: DCHD and NDEQ/LLCHD.</p> <p>(2) Collocated monitors are not required for continuous PM10 monitors.</p> <p>(3) The sequential 2025 sampler collocated with the MetOne BAM sampler at the NCore site is currently being used to meet the collocation requirement for the DCHD PM_{2.5} monitoring network of 3 sites: one Met One BAM and two 2025 sequential samplers.</p> <p>(4) Only EPA designated NCore sites are required to have collocated monitors for PM_{10-2.5} and TSP-Lead sites, The PM_{10-2.5} and TSP-Lead monitors operated by DCHD are located at the Omaha NCore site, and EPA has not required collocation for these monitors at this site.</p>							
<p>Network Descriptions</p> <p>NDEQ Sequential 2025 PM₁₀: Weeping Water (collocated), Cozad & Gothenburg</p> <p>NDEQ Continuous PM₁₀: Weeping Water Farm (collocation not required)</p> <p>NDEQ Sequential 2025 PM_{2.5}: LLCHD (collocated), Grand island & Scottsbluff</p> <p>NDEQ TSP-Lead: Fremont (collocated) & Auburn</p>				<p>DCHD Hi-Vol PM₁₀: 19& Burt (collocated) and South Omaha</p> <p>DCHD Continuous PM₁₀: 46th & Farnam (collocation not required)</p> <p>DCHD Sequential 2025 PM_{2.5}: Berry St & Blair (collocation at NCore)</p> <p>DCHD MetOne BAM PM_{2.5}: NCore (collocated) & Bellevue</p> <p>DCHD Met MetOne BAM PM_{10-2.5}: NCore (collocation not required)</p> <p>DCHD TSP-Lead: NCore (collocation not required)</p>			

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Attachment D: Verification of Compliance with 40 CFR Part 58

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 µg/m³ to 12 µg/m³, 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:

1. Provide air pollution data to the general public in a timely manner.
2. Support compliance with ambient air quality standards and emissions strategy development.
3. 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 data base 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. Air Quality Index reporting is performed by DCHD and LLCHD for their respective jurisdictions. The AQI information is made available on their respective city websites.
- c. Monitoring data from continuous particulate, ozone and CO monitors in the Omaha and Lincoln MSA report directly to the EPA AirNow system. The general public can access air quality index information on-line at: www.airnow.gov
- d. Daily maximum TRS monitoring data is available to the public on the NDEQ web site. This data is typically entered on a monthly basis. The NDEQ also responds to telephone or email requests for more timely or detailed information.
- e. 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.

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

The annual Network Plans and Five Year Assessments are an important element in meeting this objective. They examine historical pollutant trends, NAAQS attainment, source impacts and population growth. All of this information is important not only to network planning, but air quality planning in general.

In addition, the NDEQ, DCHD and LLCHD review monitoring data on a quarterly or more frequent basis to evaluate attainment with the standards. The purpose of these reviews is to identify any non-attainment or near non-attainment circumstances. 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. Three examples are described below

- In the fall of 2011, the 3 month average lead concentration at the Fremont site exceeded the NAAQS. EPA and the one known source were notified. The data was 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 to disseminate this information to the primary known source. 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 the primary known source. 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.

- From September 2011 thru June 2012, the 46th & Farnam site recorded four (4) 24-hour average PM₁₀ values greater than the 150 $\mu\text{g}/\text{m}^3$ standard. The 46th & Farnam site is source-oriented with respect to Omaha Steel Castings Company. 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 PM₁₀ sources and controls. Omaha Steel proceeded with process-handling and housekeeping changes intended to reduce PM₁₀ emissions. Omaha Steel is anticipated to move from this site by April 2014 as part of a planned facility relocation.
- 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).

This information was disseminated within the NDEQ Air Quality Division and to DCHD, OAQC and LLCHD. The periodic updating of the 4th high values to DCHD and OAQC facilitated the timely transfer of attainment status information to stakeholders in the Omaha/Council Bluffs Ozone-Reduction Community Based Planning Process was facilitated, which encouraged Omaha/Council Bluffs-area residents to take voluntary measures to help reduce ground-level ozone.

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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 data base. 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 thru 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). None 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 (O₃) – (40 CFR Part 58 App. D Sec. 4.1) No sites required or operated.

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

Previously, EPA had proposed requiring rural ozone monitoring sites. These proposed regulations would have required 1 to 3 rural monitoring sites in Nebraska. These regulations were not issued, but ozone NAAQS is currently under review. Proposed regulations, which may include rural ozone monitoring requirements, are anticipated in 2013.

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.

Nitrogen Dioxide (NO₂) – (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 NO₂ monitoring outside the MSAs.

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Sulfur Dioxide (SO₂) – (40 CFR Part 58 App. D Sec. 4.4) No sites required or operated.

At this time there is no requirement or plan to conduct SO₂ monitoring outside the Omaha MSA.

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Lead (Pb) – (40 CFR Part 58 App. D Sec. 4.5) Two or three sites required and 2 sites operated.

Two source-oriented sites with lead emissions ≥ 1 tpy were required to be established in 2010. One site is in Fremont near Magnus Farley (established in March 2010). The other site is in Auburn near Magnolia Metals (established in May 2010).

The emission threshold for source-oriented sites was lowered to ≥ 0.5 tpy with additional sites needing to be established in 2012. Emission estimates for Nucor Steel in Norfolk exceeded the 0.5 tpy threshold. There was an allowance for not conducting monitoring if it could be shown that ambient lead concentrations would not exceed 50% of the NAAQS. Nucor Steel submitted a modeling study to the NDEQ that ambient lead concentrations would not exceed 50% of the NAAQS. The NDEQ reviewed the modeling study; and based on the findings of the study submitted it to the EPA Region 7 Administrator with a request for waiver pursuant to 40 CFR Part 58 Appendix D Section 4.5(a)(ii). EPA R7 was continuing to review the waiver request as of May 1, 2013. If the waiver is approved, a source-oriented lead monitor near the Nucor Steel plant will not be required. If the waiver is denied, a source-oriented lead monitor near the Nucor Steel plant will need to be established, with an anticipated time frame of within 6 months of the waiver denial, or possibly longer if funding issues arise.

PM₁₀ Particulate Matter (40 CFR Part 58 App. D Sec. 4.6). No sites required. Two sites operated.

There are no minimum PM₁₀ monitoring requirements for areas outside of MSAs. Both of the Nebraska PM₁₀ sites located outside of the Omaha MSA are source and population oriented. One is deployed in downtown Cozad; the other one is in downtown Gothenburg. These sites were established to monitor for possible impacts from agricultural processing facilities, primarily alfalfa processing facilities in these two communities.

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 O₃. 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.

**Nebraska 2013 Ambient Air Monitoring Network Plan
Attachment D: Verification of Compliance with 40 CFR Part 58**

Tables D-2.a thru D-2.c: Minimum Monitoring Reviews for Each Nebraska MSA

Table D-2.a: 40 CFR Part 58 Appendix D Review: Omaha MSA (MSA Population ~ 886,000) *					
Pollutant	App. D Citation	Review Criteria & Comments	Sites Required	Sites Operated	Criteria Met?
Ozone	Sec. 4.1 Table D-2	Omaha's MSA population is between 350K to 4M and O ₃ levels are ≥ 85% of NAAQS (<i>See Design Values in Attachment B</i>).	2	3 Includes NCore	Y
CO	Sec. 4.2	A near-road CO monitor will be required to be located at the near-road NO _x monitor site (see near-road NO _x below).	0	2 Includes NCore	Y
NO₂	Sec. 4.3.2	One near road NO _x monitor for CBSA ≥ 500K to be operational by 1/1/2013. However, under EPA's proposed regulation of 10/5/12, a near-road NO ₂ monitor will not be required in Omaha until 1/1/17.	0	0	Y
	Sec.4.3.3	Area-Wide monitoring if CBSA ≥ 1M (Omaha CBSA population < 1 M)	0	1 @ NCore	Y
	Sec. 4.3.4	Regional Administrator required monitoring	0	0	Y
SO₂	Sec. 4.4	The need for SO ₂ sites is based on the <i>Population Weighted Emissions Index</i> (PWEI) with any newly required sites to be operational by 1/1/2013. Omaha's PWEI = 42906, which falls within the 5000 to 100000 range requiring 1 site. <i>The current network of one highest concentration site and one NCore site exceeds the minimum requirements. No changes are proposed.</i>	1	2 Includes NCore	Y
		Regional Administrator required monitoring	0	0	Y
Lead	Sec. 4.5 (a)	Near sources emitting ≥ 0.5 tpy of lead	0	0	Y
	Sec. 4.5 (b)	One community-based site if CBSA population ≥ 500K by 1/1/2012 at the NCore site.	1	1	Y
	Sec. 4.5 (c)	Regional Administrator required monitoring	0	0	Y
PM₁₀	Sec. 4.6 Table D-4	Omaha has a CBSA population between 500K – 1M. and a high PM ₁₀ concentration range with max values at Weeping Water > 120% of NAAQS (<i>See Design Values in Attachment B</i>).	4-8	6 Includes NCore & 2 sites @ Weeping Water	Y
PM_{2.5}	Sec 4.7 Table D-5	Omaha has a CBSA population between 500K – 1M. and PM _{2.5} levels ≥ 85% of NAAQS range (<i>See Design Values in Attachment B</i>).	2	4 Includes NCore	Y
	Sec 4.7.2	Continuous monitor	1	1 @ NCore	Y
	Sec. 4.7.4	PM _{2.5} Speciation Trends Network	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 NO _x /NO _y monitoring.	1	1	Y

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

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Table D-2.b: 40 CFR Part 58 Appendix D Review: Lincoln MSA (Population ~ 310,000)					
Pollutant	App. D Citation	Review Criteria & Comments	Sites Required	Sites Operated	Criteria Met?
Ozone	Sec. 4.1 Table D-2	Lincoln's 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
NO₂	Sec. 4.3.2	Near-road monitoring: No requirement for CBSA < 500K.	0	0	Y
	Sec.4.3.3	Area-Wide monitoring: No requirements for CBSA < 1M	0	0	Y
	Sec. 4.3.4	Regional Administrator required monitoring	0	0	Y
SO₂	Sec. 4.4	Based on the <i>Population Weighted Emissions Index (PWEI)</i> with any newly required sites to be operational by 1/1/2013. Lincoln's PWEI = 3301, which falls below 5000 where sites are required.	0	0	Y
		Regional Administrator required monitoring	0	0	Y
Lead	Sec. 4.5 (a)	Near sources emitting ≥ 0.5 tpy of lead	0	0	Y
	Sec. 4.5 (b)	Community-based monitor required if CBSA population ≥ 500K by 1/1/2011	0	0	Y
	Sec. 4.5 (c)	Regional Administrator required monitoring	0	0	Y
PM₁₀	Sec. 4.6 Table D-4	Lincoln's CBSA population between 250K – 500K and PM ₁₀ assumed < 80% of NAAQS. <i>The highest 24-hr value found from 1988-98 was 102 µg/m³ or 68% of the NAAQS</i>	0-1	0	Y
PM_{2.5}	Sec 4.7 Table D-5	Lincoln's CBSA population 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	0	1	Y
	Sec. 4.7.4	PM _{2.5} Speciation Trends Network	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

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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	Sioux City MSA population is between 50K -350K and O ₃ levels assumed < 85% of NAAQS in accordance with footnote 4 in Table D-2. There is one ozone site in the SC MSA. It is located in Union County SD. The 2009-11 3 year DV is 81% of NAAQS (<i>See Design Values in Attachment B</i>).	0	0	Y
CO	Sec. 4.2	No minimum requirement.	0	0	Y
NO₂	Sec. 4.3.2	Near-road monitoring: No requirement for CBSA < 500K.	0	0	Y
	Sec.4.3.3	Area-Wide monitoring: No requirements for CBSA ≥1M	0	0	Y
	Sec. 4.3.4	Regional Administrator required monitoring	0	0	Y
SO₂	Sec. 4.4	Based on the <i>Population Weighted Emissions Index</i> (PWEI) with any newly required sites to be operational by 1/1/2013. Sioux City MSA's PWEI = 6073, which falls within the 5000 to 100000 range requiring 1 site. <i>It appears that existing monitoring sites in South Dakota may meet the minimum SO₂ monitoring requirements for the Sioux City MSA.</i> Also, the IA DNR installed a source-oriented near in Sergeant Bluff in 2012.	(1 in 2013)	0	Y
		Regional Administrator required monitoring	0	0	Y
Lead	Sec. 4.5 (a)	Near sources emitting ≥ 0.5 tpy of lead	0	0	Y
	Sec. 4.5 (b)	Community-based if CBSA population ≥ 500K by 1/1/2011	0	0	Y
	Sec. 4.5 (c)	Regional Administrator required monitoring	0	0	Y
PM₁₀	Sec. 4.6 Table D-4	Sioux City's CBSA population is between 100K – 250K and PM ₁₀ levels are < 80% of NAAQS (<i>See Design Values in Attachment B</i>).	0	0	Y
PM_{2.5}	Sec 4.7 Table D-5	Sioux City's CBSA population is between 50K – 500K and PM _{2.5} levels are < 85% of NAAQS (<i>See Design Values in Attachment B</i>).	0	0	Y
	Sec 4.7.2	Continuous monitor	0	0	Y
	Sec. 4.7.4	PM _{2.5} Speciation Trends Network	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
* Unless noted otherwise, this analysis does not count monitors located in IA and SD toward meeting the minimum monitoring requirements. It does use pollutant levels measured at IA and SD monitoring sites, when determining minimum monitoring needs for ozone and PM.					

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Table d: 40 CFR Part 58 Appendix D Review: Grand Island MSA (Population ~ 83,500) **					
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 and O ₃ levels assumed < 85% of NAAQS, although no monitoring has been conducted. See Section V.F.2 in this Network Plan for further discussion.	0	0	Y
CO	Sec. 4.2	No minimum requirement.	0	0	Y
NO₂	Sec. 4.3.2	Near-road monitoring: No requirement for CBSA < 500K.	0	0	Y
	Sec.4.3.3	Area-Wide monitoring: No requirements for CBSA ≥1M	0	0	Y
	Sec. 4.3.4	Regional Administrator required monitoring	0	0	Y
SO₂	Sec. 4.4	<i>Population Weighted Emissions Index (PWEI) = 271, which falls below 5000. No minimum number of sites required. See Table D-3 below for PWEI calculation data</i>	0	0	Y
		Regional Administrator required monitoring	0	0	Y
Lead	Sec. 4.5 (a)	Near sources emitting ≥ 0.5 tpy of lead	0	0	Y
	Sec. 4.5 (b)	Community-based if CBSA population ≥ 500K by 1/1/2011	0	0	Y
	Sec. 4.5 (c)	Regional Administrator required monitoring	0	0	Y
PM₁₀	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 (<i>See Design Values in Attachment B</i>)	0	0	Y
	Sec 4.7.2	Continuous monitor	0	0	Y
	Sec. 4.7.4	PM _{2.5} Speciation Trends Network	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

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Table D-3: Population Weighted Emissions Index (PWEI) Data for Nebraska Core Based Statistical Areas (CBSAs)				
CBSA ⁽¹⁾	County	Population ⁽²⁾	SO₂ Emissions ⁽³⁾ (tons/yr)	PWEI ⁽⁴⁾
Omaha - Council Bluffs - Fremont	Cass Co NE	25,133	1226.2	37884
	Dodge Co NE	36,427	1999.2	
	Douglas Co NE	531,265	15288.4	
	Sarpy Co NE	165,853	57.8	
	Saunders Co NE	20,823	179.1	
	Washington Co NE	20,252	25.4	
	Harrison Co IA	14,548	40.8	
	Mills Co IA	14,837	26.7	
	Pottawattamie Co IA	92,913	22242.6	
	Totals	922,051	41086	
Lincoln - Beatrice	Gage Co NE	21,806	49.5	1700
	Lancaster Co NE	293,407	5026.8	
	Seward Co NE	16,935	40.4	
	Total	332,148	5,117	
Sioux City- Vermillion	Dakota Co NE	20,918	16.9	6555
	Dixon Co NE	5,918	25.0	
	Woodbury Co IA	102,323	35698.2	
	Plymouth Co IA	24,907	34.6	
	Clay Co SD	14,131	15.8	
	Union Co SD	14,855	17.2	
	Total	183,052	35,808	
Grand Island	Hall Co NE	60,345	3145.8	271
	Hamilton Co NE	9,011	33.0	
	Howard Co NE	6,336	17.9	
	Merrick Co NE	7,780	44.3	
	Total	83,472	3,241	
Footnotes:				
(1) CBSAs as defined in OMB Bulliten 13-01 (February 28, 2013)				
(2) Population based on the US Census Bureau 2012 population estimates				
(3) SO ₂ emission estimates from the 2008 NEI. This was the most recent NEI data available at www.epa.gov/ttnchie1/net/2008inventory.html				
(4) PWEI = (population) x (SO ₂ tons/yr) / 1,000,000 (ref. 40 CFR Part 58 App. D Sec 4.4.2)				
Minimum CBSA SO₂ Monitoring Site Requirements:				
PWEI ≥ 1,000,000 => 3 sites				
PWEI range 100,000 to < 1,000,000 => 2 sites				
PWEI range 5,000 to < 100,000 => 1 site				
PWEI < 5,000 => no minimum site requirement				