

# State of Nebraska

## Volkswagen Environmental Trust Beneficiary Mitigation Plan



Revised  
April 15, 2020

**NEBRASKA**  
Good Life. Great Resources.  
DEPARTMENT OF ENVIRONMENT AND ENERGY

**State of Nebraska**  
**Volkswagen Environmental Trust**  
**Beneficiary Mitigation Plan**

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## Introduction

The Nebraska Department of Environment and Energy (NDEE; formerly the Department of Environmental Quality) has been designated by Governor Ricketts as the lead agency to administer funds allocated to Nebraska from the Volkswagen Environmental Mitigation Trust for State Beneficiaries<sup>1</sup> (“State Mitigation Trust”). As directed by the State Mitigation Trust Agreement, these funds are to be used to undertake authorized actions to reduce nitrogen oxide emissions in Nebraska. The initial allocation to Nebraska from the State Mitigation Trust is approximately \$12.25 million. This document outlines Nebraska’s Mitigation Plan for utilizing State Mitigation Trust funds in Nebraska.

After assessing the initial rounds of project funding, Nebraska has modified the Plan to reflect project demand and changing priorities. The State is redirecting unallocated funds to increase funding for school bus replacements from 25% to 52% and increase funding for electric vehicle (EV) charging infrastructure from 10% to 15% of funds (consistent with public comments favoring maximum funding for EV charging projects). Funding for projects through the Diesel Emissions Reduction Act (DERA) option have been reduced from 25% to 18% of total funds.

## Background

A series of partial court settlements have resolved civil actions brought by the United States against Volkswagen AG, Audi AG, Porsche AG, and their subsidiaries (collectively “Volkswagen”) for the installation and use of emission test “defeat devices” in approximately 590,000 diesel vehicles sold in the United States from 2009 to 2016. In normal operation these vehicles emitted excess nitrogen oxide gases (NOx) in violation of the Clean Air Act. Nitrogen oxides are a group of highly-reactive gases that have a number of adverse effects on air quality and human health. Breathing air with high concentrations of NOx can irritate the human respiratory system and aggravate diseases such as asthma. Long-term exposures to NOx may contribute to the development of asthma and respiratory infections. Nitrogen oxides also interact with water, oxygen, and other chemicals in the air to form ground-level ozone, which is also harmful to the human respiratory system when inhaled, and acid rain, which harms sensitive ecosystems such as lakes and forests.

A partial court settlement approved on October 25, 2016 regarding Volkswagen 2.0-liter diesel vehicles authorized an Environmental Mitigation Trust to provide funding to states and tribes to take actions to fully offset the excess NOx emissions from the offending vehicles. This settlement required Volkswagen to contribute \$2.7 billion to fund the Trust, which would be administered by an independent Trustee appointed by the court. A second partial settlement

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<sup>1</sup> The Environmental Mitigation Trust Agreement for State Beneficiaries can be found at: <https://www.epa.gov/sites/production/files/2017-10/documents/statebeneficiaries.pdf>.

approved on December 20, 2016 regarding Volkswagen 3.0-liter diesel vehicles required that Volkswagen contribute an additional \$225 million to the Trust.

Wilmington Trust, N.A. was appointed by the court on March 15, 2017 to act as Trustee. Subsequent negotiations resulted in a decision to establish separate trusts for state beneficiaries and Indian tribes. The State Mitigation Trust and Indian Tribe Mitigation Trust were both approved by court order on September 19, 2017, and final executed versions were filed with the court on October 2, 2017, which is the effective date of establishment of each trust.

Governor Ricketts designated NDEE as the lead agency to administer State Mitigation Trust funds in September 2017. The Department filed forms with the court and with the Trustee to certify Nebraska as a beneficiary of the Trust; certification was received in January 2018.

Each state's initial allocation from the State Mitigation Trust was determined by the court based on the number of offending diesel vehicles that were registered there. The initial allocation to Nebraska under the 2.0-liter settlement is \$11,528,812.23. The initial allocation under the 3.0-liter settlement is \$719,535.25, for a total initial allocation of \$12,248,347.48. Nebraska may receive further funds in the future if Volkswagen does not meet other terms of the court settlements, if other states do not expend their allocations within the prescribed timeframe, and from investment income provided by the Trustee.

The State Mitigation Trust will have a 15-year time span. A state beneficiary may request no more than one-third of its initial allocation in the first year of the Trust and no more than two-thirds of its initial allocation in the first two years. Each state beneficiary must expend at least 80% of its initial allocation by the tenth anniversary of the Trust effective date, otherwise the unexpended funds will be reallocated to other beneficiaries that have complied with that guideline.

## **Eligible Mitigation Actions**

Appendix D-2 of the State Mitigation Trust agreement lists ten categories of mitigation actions that are eligible for funding; that detailed list (along with definitions of terms) is included in this document as Appendix A. The goal of each of these actions is to achieve reductions in NOx emissions in the United States. A brief summary of these eligible action categories is provided below.

### *Diesel Vehicle or Engine Replacements by Diesel, Alternate-fueled, or Electric:*

1. Large Local Freight Trucks and Port Drayage Trucks (Gross Vehicle Weight Class 8)
2. School, Shuttle, and Transit Buses (Gross Vehicle Weight Classes 4 to 8)
3. Freight Switcher Locomotives
4. Ferries and Tugs (engine replacement only)
5. Ocean Going Vessels Shorepower
6. Medium Local Freight Trucks (Gross Vehicle Weight Classes 4 to 7)

*Replacement of Specialty Equipment by All-Electric:*

- 7. Airport Ground Support Equipment
- 8. Forklifts with lift capacity greater than 8,000 pounds, and port cargo handling equipment

*Other Actions:*

- 9. Light Duty Zero Emission Vehicle Supply Equipment (maximum 15% of allocation)
- 10. Actions available to states under the Diesel Emissions Reduction Act (DERA)

## Previous Public Outreach and Comments

In September 2017 the Department issued a press release and posted a page on the agency website providing an overview of available mitigation actions and soliciting public comment on development of a plan to use Trust funds in Nebraska. The web page included a link to a more detailed Request for Comment document that provided background information on NOx emissions in Nebraska and the distribution of offending diesel vehicles. This document sought answers to a number of key questions to guide Nebraska’s planning process. Public information meetings were held in Lincoln on October 16, 2017 and in North Platte on October 18, 2017. Written comments were accepted at these meetings and also through a web portal and via e-mail from September 21 through November 3, 2017. A tabulation of the written comments is available as Appendix B of this document.

Table 1 below and Figure 1 on the next page record the results from 57 public comments that expressed support for one or more of the eligible mitigation actions available under the Trust. The total in favor is greater than 57 because a number of commenters expressed support for more than one of the eligible actions.

Action	Description	In Favor	Percent
1 & 6	Large & Medium Local Freight Trucks	17	19.8%
2	School, Shuttle, and Transit Buses	26	30.2%
3	Freight Switcher Locomotives	1	1.2%
7	Airport Ground Support Equipment	1	1.2%
8	Large Forklifts & Port Cargo Handling Equip.	2	2.3%
9	Zero Emission Vehicle Supply Equipment	28	32.6%
10	Diesel Emissions Reduction Act	11	12.8%
	TOTAL	86	100.0%

Table 1. Tabulation of public comments in favor of particular mitigation actions. Actions 1 and 6 are grouped because a number of respondents did not distinguish between large and medium trucks.

The mitigation action that received the largest percentage of comments in favor (32.6%) was Zero Emission Vehicle Supply Equipment, specifically charging stations for electric vehicles; only two comments opposed this option. Most of these comments favored spending the

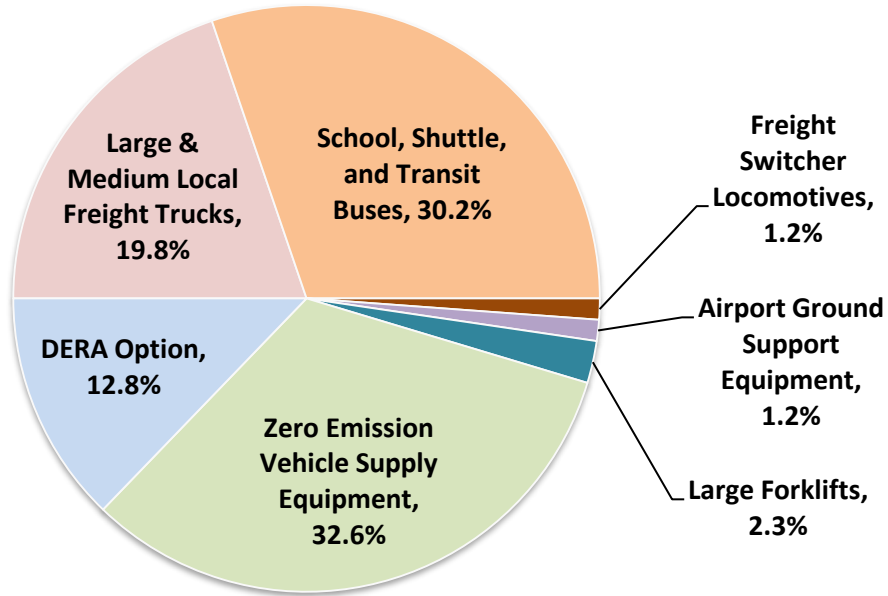


Figure 1. Pie chart of percentages of public comments in favor of particular mitigation actions.

maximum 15% of the state’s allocation on this action. Support for this option came from city governments (Lincoln and Omaha), public utilities (Omaha Public Power District and Nebraska Public Power District) as well as the general public. Strong support was also expressed for replacement of buses (30.2%), local freight trucks (19.8%), and use of the DERA option (12.8%). A large majority of respondents that addressed fuel/power type for replacement vehicles supported replacement electric vehicles, followed by cleaner alternative fuels such as Compressed Natural Gas (CNG) and propane.

## Requirements for Mitigation Plans

The State Mitigation Trust agreement requires each state beneficiary to submit and make publicly available a Beneficiary Mitigation Plan (this document) that summarizes how the beneficiary plans to use the funds allocated to it under the Trust, addressing:

- ❖ The State’s overall goal for the use of the funds;
- ❖ The categories of eligible mitigation actions anticipated to be appropriate to achieve the stated goals and a preliminary assessment of the percentage of funds to be used for each type of action;
- ❖ How the State will consider the potential beneficial impact of the selected mitigation actions on air quality in areas within the State that bear a disproportionate share of the air pollution burden;



- ❖ The expected ranges of emission benefits that would be realized by implementation of the mitigation actions identified in the plan; and
- ❖ The process by which the State will seek and consider public input on the Mitigation Plan.

The Beneficiary Mitigation Plan need only provide the level of detail reasonably ascertainable at the time of submission. The plan is intended to provide the public with insight into Nebraska's high-level vision for use of the mitigation funds and information about the specific uses for which funding is expected to be requested. Nothing in this plan is binding, nor does it create any rights in any person to claim an entitlement of any kind.

Nebraska must submit this Beneficiary Mitigation Plan to the Trustee not later than 30 days prior to submitting its first funding request. Nebraska may adjust its goals and specific spending plans at its discretion by providing an updated Beneficiary Mitigation Plan to the Trustee. Such adjustments may be made based on changes in the availability and costs of technologies, future changes in air quality conditions across affected areas, and cumulative experience with various mitigation actions.

## **Nebraska's Overall Goals**

Nebraska's overall goal is to achieve significant, sustainable, and cost-effective reductions in NOx emissions to improve air quality in the state. Other goals of the plan include:

- Achieving reductions in diesel engine emissions especially in areas of the state that bear an undue share of the impact of NOx emissions, while also providing funding for emission reduction projects in other areas of the state;
- Achieving reductions in ground level ozone, for which NOx is a precursor, and which occurs in some areas of the state at levels approaching those that would violate federal ambient air quality standards;
- Providing project funding to both public and private entities;
- Spurring investment in cleaner alternative-fuel vehicles and infrastructure;
- Supporting long-term investments in the zero-emission transportation sector in Nebraska.

## **Selected Eligible Mitigation Actions**

Several mitigation actions authorized by the Trust (4 and 5) are not available to Nebraska as an inland state without marine ports. NDEE has assessed the remaining categories in the context of Nebraska's air pollution issues, population distribution, existing transportation infrastructure, estimated project cost-effectiveness, potential public health benefits, and public comments. Table 2 and Figure 2 on the next page present the project types initially selected for funding in Nebraska and the percentage of funds expected to be allocated to each.

Category	Action	Percent	Dollars
2	Transit Bus Alternative Fuel Replacements	10%	\$1,224,835
2	School Bus Diesel & Propane Replacements	52%	\$6,369,141
9	Zero Emission Vehicle (ZEV) Charging Infrastructure	15%	\$1,818,224
10	DERA: Irrigation engines, Refuse Trucks	18%	\$2,223,729
	Administrative Costs*	5%	\$612,417
	<b>TOTAL</b>	100%	\$12,248,347.48

\* The State Mitigation Trust agreement allows reimbursement of administrative costs up to 15% of each funded project.

Table 2. Selected mitigation actions and funding percentages.

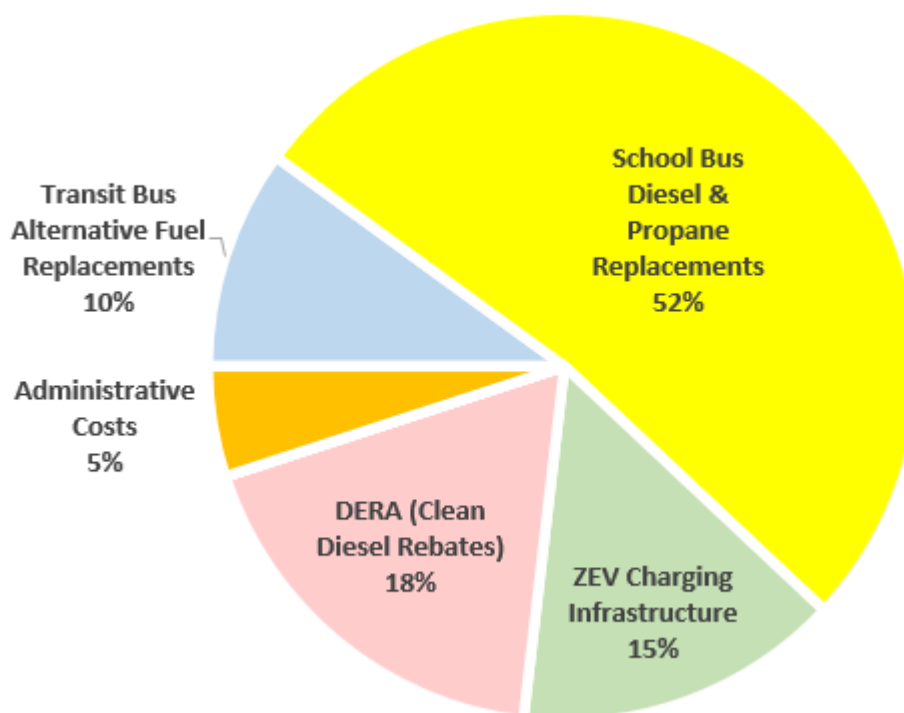


Figure 2. Pie chart showing selected mitigation actions and assigned funding percentages.

### Transit Bus Alternative Fuel Replacements (10%)

NDEE is utilizing 10% of Nebraska’s initial allocation, or approximately \$1.2 million, to provide rebates to replace four diesel public transit buses (Class 4 to 8, with engine model year 2009 or older) as authorized under Eligible Mitigation Action 2. Entities eligible for this funding were the public transit agencies of the Omaha metropolitan area (Metro Area Transit) and Lincoln (StarTran). Funding was available to replace diesel buses with new buses fueled by compressed natural gas (CNG) or with new electric buses. Replaced vehicles and engines must be scrapped.

Both StarTran and Metro have begun transitioning their bus fleets from diesel to CNG. By spring 2018, StarTran expected to have 13 out of 67 full-size buses using CNG, which has lower

emissions than diesel, operates more quietly, and on average costs less per gallon than diesel<sup>2</sup>. StarTran has also recently received grants to purchase ten electric buses and charging stations<sup>2</sup>.

However, both agencies still have many diesel buses eligible for replacement. For example, as of April 2016 StarTran had 42 diesel buses with model year 2006 or older<sup>3</sup>. Omaha Metro Transit currently has approximately 25 older diesel buses eligible for replacement by CNG and electric buses<sup>4</sup>. Funding from the State Mitigation Trust will help both agencies accelerate the replacement of these older diesel buses.

NDEE has awarded \$724,901 to Omaha Metro to partially fund the replacement of two diesel transit buses with two CNG-fueled Bus Rapid Transit vehicles. Lincoln StarTran has been awarded \$489,934 to partially fund the replacement of two diesel buses with two battery-electric buses.

### **School Bus Diesel and Alternative Fuel Replacements (25%)**

NDEE proposes to use 52% of Nebraska's initial allocation, or approximately \$6.4 million, to provide rebates to replace diesel school buses (Class 4 to 8, with engine model year 2009 or older), as authorized under Eligible Mitigation Action 2. Entities eligible for this funding are public school districts and private schools in Nebraska. Funding is available to replace diesel buses with new buses fueled by diesel, propane, or compressed natural gas (CNG). Replaced buses and engines must be scrapped.

NDEE anticipates providing public school districts with funding covering 50% of the base cost of a new cleaner-burning diesel bus, or 60% of the base cost of a new propane or CNG bus meeting stricter NOx emissions standards. Private schools will be eligible for a maximum reimbursement of 25% of the base cost of a new diesel, propane, or CNG bus as prescribed in the State Mitigation Trust agreement. Because propane is readily available in rural areas, and propane fueling infrastructure is less expensive than CNG fueling equipment, NDEE believes that smaller public school districts interested in converting to a cleaner alternative fuel would be more likely to choose propane.

The proposed funding allocation would aid in the replacement of up to 145 diesel public school buses depending on the choice of replacement bus fuel.

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<sup>2</sup> City Advances Two Sustainability Efforts (press release):  
<https://lincoln.ne.gov/city/mayor/media/2020/022720.htm>

<sup>3</sup> Lincoln Transit Development Plan, Final Report, April 2016, available at  
<http://lincoln.ne.gov/city/pworks/startran/tdp/pdf/tdp-final-report.pdf?april2016>

<sup>4</sup> Personal communication from Metro Area Transit, November 2017.

### Zero Emission Vehicle Charging Infrastructure (10%)

NDEE expects to utilize 15% of Nebraska’s initial allocation, or approximately \$1.8 million, to provide rebates to facilitate the acquisition, installation, operation, and maintenance of light-duty electric vehicle charging stations in Nebraska, as authorized by Eligible Mitigation Action 9. Priority projects will include installation of DC fast-charging stations along highway corridors and community charging stations available to the public. NDEE anticipates reimbursing 50% of the costs for charging stations available to the public on government owned or non-government owned property. The Department expects that this option will fund charging stations at over 30 new locations.

As noted previously, a majority of respondents during the initial public comment period favored use of State Mitigation Trust funds for funding electric vehicle infrastructure in Nebraska. Battery-electric vehicles are becoming an increasing factor in the transportation mix both nationally and in Nebraska. As shown in Figure 3 below, registrations of battery-electric vehicles in Nebraska increased from 192 in mid-2013 to 588 in mid-2017, and the rate of new registrations is increasing.

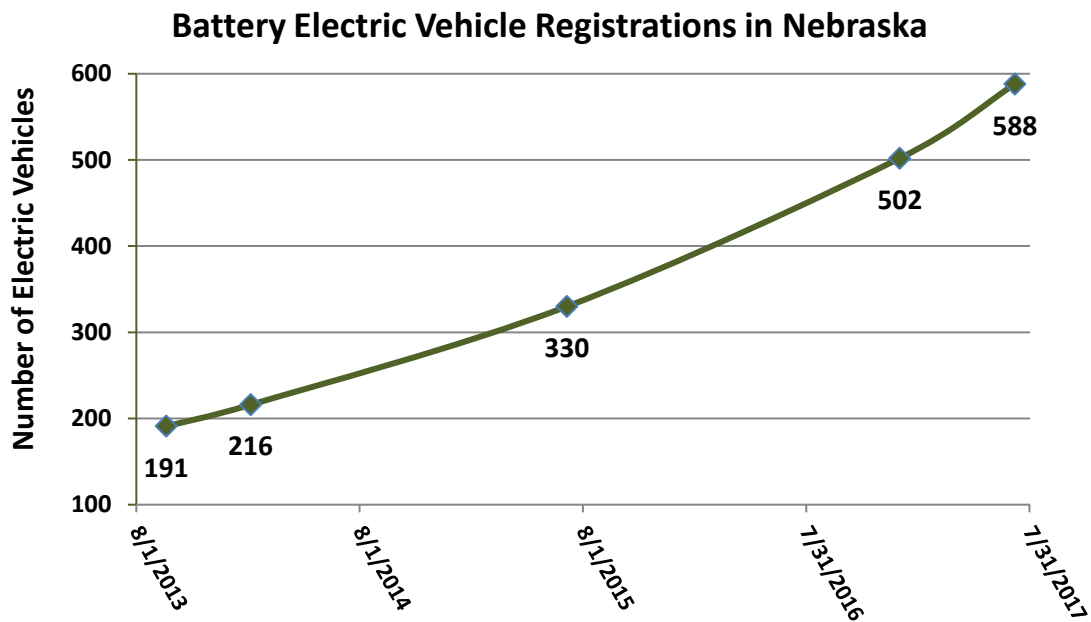


Figure 3. Graph of the number of registered battery-electric vehicles in Nebraska from 2013 through 2017. Data courtesy of the Nebraska Department of Motor Vehicles and the Nebraska Community Energy Alliance.

NDEE believes that devoting the specified portion of the Trust funds to electric vehicle charging stations will complement efforts in other states to facilitate long-distance travel by battery-electric vehicles along major transportation corridors.

## Diesel Emissions Reduction Act (25%)

As provided by Eligible Mitigation Action 10, Nebraska may also use funds from the State Environmental Mitigation Trust as a voluntary state match or overmatch for annual EPA funding of the Nebraska Clean Diesel Program authorized by the Diesel Emissions Reduction Act (DERA). NDEE proposes to use 18% of Nebraska’s initial allocation, or approximately \$2,2 million, for this option.

The DERA option allows use of Trust funds for any actions that are authorized by the DERA program, whether or not they are specifically authorized by the other Eligible Mitigation Actions in the Trust Agreement. The DERA program provides a wider range of diesel emission reduction actions than the Trust, including engine replacements for non-road diesel equipment, such as construction equipment, farm equipment, and agricultural irrigation engines. Available actions and maximum reimbursement percentages under the DERA program are shown in Table 3 below. Historically, NDEE has used DERA funding for early replacement of diesel vehicles such as school buses, to perform diesel exhaust control retrofit projects for public fleet vehicles, and other idle-reduction and emissions reduction projects for private vehicles and equipment.

Diesel Vehicle / Equipment Type	Vehicle or Equipment Replacement	Diesel Engine Replacement	Diesel Engine Upgrade	Idle Reduction Technologies	Exhaust Controls	Cleaner Fuels Use
Buses (school, transit)	25% diesel 35% low NOx 45% electric	40% diesel 50% low NOx 60% electric		25% (school bus)	100%	Fuel Cost Differential  (Only in combination with alternative fuel conversion, engine upgrade, vehicle replacement, or exhaust control.)
Medium to Heavy Duty Trucks	25% diesel 35% low NOx 45% electric	40% diesel 50% low NOx 60% electric		25% (long haul trucks)	100%†	
Drayage Trucks (railyard use)	50%				100%	
Locomotives	25% diesel 45% electric	40% diesel 60% electric	40%	40%	100%	
Nonroad Engines*	25%	40% diesel 60% electric	40%	100%	100%	
Truck Stop Parking Space Electrification				30%		

\* Engines, equipment, and vehicles used in construction, cargo handling, agriculture, mining, or energy production.

† Aerodynamic technologies and low rolling resistance tires on long haul trucks can also be funded at 100% in combination with exhaust controls.

Table 3. Eligible vehicles/equipment, emission reduction methods, and maximum reimbursement percentages for actions under the Diesel Emissions Reduction Act (DERA)<sup>5</sup>.

<sup>5</sup> National Clean Diesel Campaign, FY 2017 State Clean Diesel Grant Program Information Guide, <https://www.epa.gov/sites/production/files/2017-02/documents/fy17-state-program-guide-2017-02.pdf>.

Nebraska's provision of a voluntary match at least equal to the base DERA grant results in EPA providing a matching incentive equal to 50% of the base grant. For Fiscal Year 2019 EPA awarded Nebraska a base DERA grant of \$317,220. By providing an equivalent voluntary match using State Mitigation Trust funds, Nebraska will receive a matching incentive from EPA of \$158,600. Total DERA program funds for the current grant year will therefore be \$793,040. The amount of Trust funds NDEE proposes to utilize through the DERA program will increase funding for the Nebraska Clean Diesel Program in the following years. Nebraska's use of Trust funds for the DERA option beyond the current fiscal year is contingent upon reauthorization of the Diesel Emissions Reduction Act by Congress and upon future federal budget allocations.

Any Trust funds used in the DERA program must be used according to the guidelines and requirements of that program. Unlike most mitigation actions authorized by the Trust, the DERA program specifies the same maximum reimbursement percentages for projects with public or private funding recipients (and thus requires the same mandatory cost-share percentage from either). Voluntary matching funds from the State cannot be used to reduce the amount of the mandatory cost-share, but must be used to fund additional projects. Other federal funding sources also cannot be used to reduce the mandatory recipient cost-share for a DERA project.

NDEE proposes to use State Mitigation Trust funds to augment the Nebraska Clean Diesel Program in order to fund projects that are not authorized by Eligible Mitigation Actions 1 through 9 of the Trust, and for Trust-eligible projects in which a higher reimbursement percentage can be provided under the DERA program. In the current fiscal year NDEE intends to use Trust funds for two such DERA projects:

1. Replacement of agricultural irrigation pump diesel engines with electric motors. This equipment is not eligible for replacement under Eligible Mitigation Actions 1 through 9 of the Trust. The DERA program provides for 60% reimbursement of the cost of the engine, installation, and the required electric power infrastructure. This option will provide benefits from Trust funds to the agricultural sector in Nebraska.
2. Replacement of diesel refuse trucks with new trucks powered by a compressed natural gas engine that meets the California Air Resources Board's Optional Low-NOx emissions standards (35% reimbursement). Most Nebraska municipalities contract with private refuse haulers for service. Although these replacements could be funded under Eligible Mitigation Action 1 of the Trust, under that option private companies would only be eligible for 25% reimbursement for replacement with a diesel or alternative-fuel truck. Use of this DERA action will provide an extra financial incentive to refuse haulers to choose an alternative-fuel vehicle with much lower NOx emissions than a diesel truck.

NDEE estimates that the proposed allocation of Trust funds could aid in the replacement of approximately 22 diesel refuse trucks and 47 diesel irrigation engines. These numbers would be reduced if other types of eligible DERA projects were funded in subsequent years.

## **Administrative Costs (5%)**

The State Mitigation Trust agreement places a cap of 15% on administrative costs that states may charge to projects funded under the Trust. NDEE proposes to expend Nebraska’s initial allocation over a period of five years and to allocate up to 5% of this allocation, or approximately \$612,000, for administrative costs.

Nebraska will implement Trust projects transparently and in a cost-effective manner. Documentation of Trust expenses will be made available to the public in accordance with Nebraska Public Records statutes and Trust requirements. NDEE will account for Trust expenditures, conduct audits as necessary to ensure compliance with applicable requirements, and provide semi-annual reports to the Trustee as required by the State Mitigation Trust agreement. Documents submitted by project applicants in support of funding requests will also be made publicly available, subject to applicable laws governing the publication of confidential business information and personally identifiable information.

## **Geographic Distribution of Funding and Beneficial Impact on Areas with Undue Air Pollution Burden**

The State Mitigation Trust agreement states that Trust funds are “to be used for environmental mitigation projects that reduce emissions of nitrogen oxides (“NOx”) where the Subject Vehicles were, are, or will be operated.”<sup>6</sup> The Trust also requires the Beneficiary Mitigation Plan to describe how projects will benefit air quality in “areas that bear a disproportionate share of the air pollution burden.”<sup>7</sup>

Appendix C of this plan, entitled “Identification of Areas that Bear a Disproportionate Share of Air Pollution in Nebraska” presents details of the Department’s analysis of these concerns. NDEE has identified nine priority counties with a disproportionate share of NOx air pollution impact based on diesel NOx emissions per square mile and county population density: Buffalo, Cass, Dodge, Douglas, Hall, Lancaster, Sarpy, and Scottsbluff. These counties also are among the top twelve counties in terms of number of registrations of the subject Volkswagen diesel vehicles.

NDEE’s selection of Eligible Mitigation Actions was designed to provide emissions reductions in these priority counties while also balancing the environmental and economic benefits of funded projects among the state’s cities, counties, and statewide interests. Replacement of transit buses in Lancaster County and in the Omaha metropolitan area will provide direct NOx emissions reductions in priority counties with high population density. Projects in the other

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<sup>6</sup> State Mitigation Trust agreement, Appendix D, Purpose and Recitals.

<sup>7</sup> State Mitigation Trust agreement, Appendix D, Paragraph 4.1.

funding categories will be open to applicants from any location in Nebraska, but preference may be given to projects located in the priority counties.

## Emission Reduction Benefits

NDEE expects that the selected mix of mitigation actions will achieve significant reductions in NOx emissions from diesel engines, as well as reductions in emissions of other diesel pollutants such as fine particulates and carbon monoxide. Reductions in NOx emissions should also reduce production of secondary ground level ozone in the atmosphere.

The Department estimated the reduction in NOx emissions for a hypothetical set of vehicle and equipment replacement projects consisting of Low-NOx CNG transit bus replacements, diesel and propane public school bus replacements, and DERA replacement projects including Low-NOx CNG refuse trucks and electric irrigation pump motors. Emission reductions were estimated using the U.S. Environmental Protection Agency’s Diesel Emissions Quantifier<sup>8</sup>. As shown in Table 5 below, this set of mitigation actions would be expected to reduce NOx emissions in Nebraska by a total of 35.4 tons annually.

Replacement Vehicle/Equipment	Number	Unit Cost	Unit Reimbursement	Total Reimbursement	Tons NOx Reduced per Year
Low-NOx CNG Transit Bus	5	\$500,000	\$250,000	\$1,250,000	4.4
Diesel Public School Bus	45	\$85,000	\$42,500	\$1,912,500	7.2
Low-NOx Propane Public School Bus	20	\$95,500	\$57,300	\$1,146,000	3.3
Low-NOx CNG Refuse Truck (DERA)	22	\$300,000	\$105,000	\$2,310,000	10.8
Electric Irrigation Pump Motor (DERA)	47	\$27,000	\$16,200	\$761,400	9.7
<b>TOTAL</b>				<b>\$7,379,900</b>	<b>35.4</b>

Table 4. Estimated reductions in NOx emissions from selected mitigation actions calculated using the EPA Diesel Emissions Quantifier, assuming replacement in 2019. A baseline model year of 2000 and default values for fuel volume, vehicle miles traveled, and idling hours were used for transit bus, refuse truck, and irrigation pump engine replacements. Calculations for school buses used average values for Nebraska buses replaced from 2013 to 2016 in the Nebraska Clean Diesel Program, including an average model year of 1998. The Diesel Emissions Quantifier currently does not include emission factors for CNG-fueled or Low-NOx propane engines; it calculates emissions reductions assuming a replacement diesel engine of the same model year. NOx emissions reductions were adjusted in the table by assuming that the equivalent diesel engine exactly meets current EPA NOx emissions of 0.2 grams NOx per bhp-hr, whereas the Low-NOx CNG and propane engines will meet the California Air Resources Board’s Optional Low-NOx standard of 0.02 grams NOx per bhp-hr.

<sup>8</sup> <https://www.epa.gov/cleandiesel/diesel-emissions-quantifier-deq>



## Public Comments on the Draft Plan

Comments on the Public Review Draft of Nebraska’s Volkswagen Environmental Trust Beneficiary Mitigation Plan were accepted from December 8 to December 31, 2017. Fourteen comments were received via the comment portal on the NDEE website or via e-mail. The table below summarizes the main recommendations provided in the comments and the number of comments in favor of each.

<b>Recommendation</b>	<b>In Favor</b>
Allocate the maximum 15% of funds for electric vehicle charging stations	6
Provide electric vehicles for public entities and public transportation	5
Support projects in areas with more air pollution & more offending VW diesels	2
Expand the DERA program to replace diesel irrigation engines with electric motors	2
Fund replacement of publicly-owned diesel vehicles	1
Fund replacement of diesel vehicles by natural gas-fueled vehicles	1
Fund alternative transportation and bike lanes	1

Table 6. Tabulation of main recommendations in public comments on the Public Review Draft of Nebraska’s Volkswagen Environmental Trust Beneficiary Mitigation Plan.

No changes were made to the plan at this time in response to these comments. However, the Department will consider these recommendations along with ongoing demand for eligible projects to determine if modifications to the plan are warranted in the future.

## Appendix A

### Eligible Mitigation Actions, Administrative Expenditures, and Definitions

#### Eligible Mitigation Actions

The following mitigation action descriptions and definitions are copied without modification from Appendix D-2 of the Environmental Mitigation Trust Agreement for State Beneficiaries.

#### 1. Class 8 Local Freight Trucks and Port Drayage Trucks (Eligible Large Trucks)

- a. Eligible Large Trucks include 1992-2009 engine model year Class 8 Local Freight or Drayage. For Beneficiaries that have State regulations that already require upgrades to 1992-2009 engine model year trucks at the time of the proposed Eligible Mitigation Action, Eligible Large Trucks shall also include 2010-2012 engine model year Class 8 Local Freight or Drayage.
- b. Eligible Large Trucks must be Scrapped.
- c. Eligible Large Trucks may be Repowered with any new diesel or Alternate Fueled engine or All-Electric engine, or may be replaced with any new diesel or Alternate Fueled or All-Electric vehicle, with the engine model year in which the Eligible Large Trucks Mitigation Action occurs or one engine model year prior.
- d. For Non-Government Owned Eligible Class 8 Local Freight Trucks, Beneficiaries may only draw funds from the Trust in the amount of:
  1. Up to 40% of the cost of a Repower with a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) engine, including the costs of installation of such engine.
  2. Up to 25% of the cost of a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) vehicle.
  3. Up to 75% of the cost of a Repower with a new All-Electric engine, including the costs of installation of such engine, and charging infrastructure associated with the new All-Electric engine.
  4. Up to 75% of the cost of a new All-Electric vehicle, including charging infrastructure associated with the new All-Electric vehicle.
- e. For Non-Government Owned Eligible Drayage Trucks, Beneficiaries may only draw funds from the Trust in the amount of:
  1. Up to 40% of the cost of a Repower with a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) engine, including the costs of installation of such engine.
  2. Up to 50% of the cost of a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) vehicle.
  3. Up to 75% of the cost of a Repower with a new All-Electric engine, including the costs of installation of such engine, and charging infrastructure associated with the new All-Electric engine.
  4. Up to 75% of the cost of a new all-electric vehicle, including charging infrastructure associated with the new All-Electric vehicle.

- f. For Government Owned Eligible Class 8 Large Trucks, Beneficiaries may draw funds from the Trust in the amount of:
  - 1. Up to 100% of the cost of a Repower with a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) engine, including the costs of installation of such engine.
  - 2. Up to 100% of the cost of a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) vehicle.
  - 3. Up to 100% of the cost of a Repower with a new All-Electric engine, including the costs of installation of such engine, and charging infrastructure associated with the new All-Electric engine.
  - 4. Up to 100% of the cost of a new All-Electric vehicle, including charging infrastructure associated with the new All-Electric vehicle.
  
- 2. Class 4-8 School Bus, Shuttle Bus, or Transit Bus (Eligible Buses)
  - a. Eligible Buses include 2009 engine model year or older class 4-8 school buses, shuttle buses, or transit buses. For Beneficiaries that have State regulations that already require upgrades to 1992-2009 engine model year buses at the time of the proposed Eligible Mitigation Action, Eligible Buses shall also include 2010-2012 engine model year class 4-8 school buses, shuttle buses, or transit buses.
  - b. Eligible Buses must be Scrapped.
  - c. Eligible Buses may be Repowered with any new diesel or Alternate Fueled or All-Electric engine, or may be replaced with any new diesel or Alternate Fueled or All-Electric vehicle, with the engine model year in which the Eligible Bus Mitigation Action occurs or one engine model year prior.
  - d. For Non-Government Owned Buses, Beneficiaries may draw funds from the Trust in the amount of:
    - 1. Up to 40% of the cost of a Repower with a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) engine, including the costs of installation of such engine.
    - 2. Up to 25% of the cost of a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) vehicle.
    - 3. Up to 75% of the cost of a Repower with a new All-Electric engine, including the costs of installation of such engine, and charging infrastructure associated with the new All-Electric engine.
    - 4. Up to 75% of the cost of a new All-Electric vehicle, including charging infrastructure associated with the new All-Electric vehicle.
  - e. For Government Owned Eligible Buses, and Privately Owned School Buses Under Contract with a Public School District, Beneficiaries may draw funds from the Trust in the amount of:
    - 1. Up to 100% of the cost of a Repower with a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) engine, including the costs of installation of such engine.

2. Up to 100% of the cost of a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) vehicle.
3. Up to 100% of the cost of a Repower with a new All-Electric engine, including the costs of installation of such engine, and charging infrastructure associated with the new All-Electric engine.
4. Up to 100% of the cost of a new All-Electric vehicle, including charging infrastructure associated with the new All-Electric vehicle.

### 3. Freight Switchers

- a. Eligible Freight Switchers include pre-Tier 4 switcher locomotives that operate 1000 or more hours per year.
- b. Eligible Freight Switchers must be Scrapped.
- c. Eligible Freight Switchers may be Repowered with any new diesel or Alternate Fueled or All-Electric engine(s) (including Generator Sets), or may be replaced with any new diesel or Alternate Fueled or All-Electric (including Generator Sets) Freight Switcher, that is certified to meet the applicable EPA emissions standards (or other more stringent equivalent State standard) as published in the C FR for the engine model year in which the Eligible Freight Switcher Mitigation Action occurs.
- d. For Non-Government Owned Freight Switchers, Beneficiaries may draw funds from the Trust in the amount of :
  1. Up to 40% of the cost of a Repower with a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) engine(s) or Generator Sets, including the costs of installation of such engine(s).
  2. Up to 25% of the cost of a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) Freight Switcher.
  3. Up to 75% of the cost of a Repower with a new All-Electric engine(s), including the costs of installation of such engine(s), and charging infrastructure associated with the new All-Electric engine(s).
  4. Up to 75% of the cost of a new All-Electric Freight Switcher, including charging infrastructure associated with the new All-Electric Freight Switcher.
- e. For Government Owned Eligible Freight Switchers, Beneficiaries may draw funds from the Trust in the amount of:
  1. Up to 100% of the cost of a Repower with a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) engine(s) or Generator Sets, including the costs of installation of such engine(s).
  2. Up to 100% of the cost of a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) Freight Switcher.
  3. Up to 100% of the cost of a Repower with a new All-Electric engine(s), including the costs of installation of such engine(s), and charging infrastructure associated with the new All-Electric engine(s).

4. Up to 100% of the cost of a new All-Electric Freight Switcher, including charging infrastructure associated with the new All-Electric Freight Switcher.

#### 4. Ferries/Tugs

- a. Eligible Ferries and/or Tugs include unregulated, Tier 1, or Tier 2 marine engines.
- b. Eligible Ferry and/or Tug engines that are replaced must be Scrapped.
- c. Eligible Ferries and/or Tugs may be Repowered with any new Tier 3 or Tier 4 diesel or Alternate Fueled engines, or with All-Electric engines, or may be upgraded with an EPA Certified Remanufacture System or an EPA Verified Engine Upgrade.
- d. For Non-Government Owned Eligible Ferries and/or Tugs, Beneficiaries may only draw funds from the Trust in the amount of:
  1. Up to 40% of the cost of a Repower with a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) engine(s), including the costs of installation of such engine(s).
  2. Up to 75% of the cost of a Repower with a new All-Electric engine(s), including the costs of installation of such engine(s), and charging infrastructure associated with the new All-Electric engine(s).
- e. For Government Owned Eligible Ferries and/or Tugs, Beneficiaries may draw funds from the Trust in the amount of:
  1. Up to 100% of the cost of a Repower with a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) engine(s), including the costs of installation of such engine(s).
  2. Up to 100% of the cost of a Repower with a new All-Electric engine(s), including the costs of installation of such engine(s), and charging infrastructure associated with the new All-Electric engine(s).

#### 5. Ocean Going Vessels (OGV) Shorepower

- a. Eligible Marine Shorepower includes systems that enable a compatible vessel's main and auxiliary engines to remain off while the vessel is at berth. Components of such systems eligible for reimbursement are limited to cables, cable management systems, shore power coupler systems, distribution control systems, and power distribution. Marine shore power systems must comply with international shore power design standards (ISO/IEC/IEEE 80005-1-2012 High Voltage Shore Connection Systems or the IEC/PAS 80005-3:2014 Low Voltage Shore Connection Systems) and should be supplied with power sourced from the local utility grid. Eligible Marine Shorepower includes equipment for vessels that operate within the Great Lakes.
- b. For Non-Government Owned Marine Shorepower, Beneficiaries may only draw funds from the Trust in the amount of up to 25% for the costs associated with the shore-side system, including cables, cable management systems, shore power coupler systems, distribution control systems, installation, and power distribution components.

- c. For Government Owned Marine Shorepower, Beneficiaries may draw funds from the Trust in the amount of up to 100% for the costs associated with the shore-side system, including cables, cable management systems, shore power coupler systems, distribution control systems, installation, and power distribution components.

6. Class 4-7 Local Freight Trucks (Medium Trucks)

- a. Eligible Medium Trucks include 1992-2009 engine model year class 4-7 Local Freight trucks, and for Beneficiaries that have State regulations that already require upgrades to 1992-2009 engine model year trucks at the time of the proposed Eligible Mitigation Action, Eligible Trucks shall also include 2010-2012 engine model year class 4-7 Local Freight trucks.
- b. Eligible Medium Trucks must be Scrapped.
- c. Eligible Medium Trucks may be Repowered with any new diesel or Alternate Fueled or All-Electric engine, or may be replaced with any new diesel or Alternate Fueled or All-Electric vehicle, with the engine model year in which the Eligible Medium Trucks Mitigation Action occurs or one engine model year prior.
- d. For Non-Government Owned Eligible Medium Trucks, Beneficiaries may draw funds from the Trust in the amount of:
  - 1. Up to 40% of the cost of a Repower with a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) engine, including the costs of installation of such engine.
  - 2. Up to 25% of the cost of a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) vehicle.
  - 3. Up to 75% of the cost of a Repower with a new All-Electric engine, including the costs of installation of such engine, and charging infrastructure associated with the new All-Electric engine.
  - 4. Up to 75% of the cost of a new All-Electric vehicle, including charging infrastructure associated with the new All-Electric vehicle.
- e. For Government Owned Eligible Medium Trucks, Beneficiaries may draw funds from the Trust in the amount of:
  - 1. Up to 100% of the cost of a Repower with a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) engine, including the costs of installation of such engine.
  - 2. Up to 100% of the cost of a new diesel or Alternate Fueled (e.g., CNG, propane, Hybrid) vehicle.
  - 3. Up to 100% of the cost of a Repower with a new All-Electric engine, including the costs of installation of such engine, and charging infrastructure associated with the new All-Electric engine.
  - 4. Up to 100% of the cost of a new All-Electric vehicle, including charging infrastructure associated with the new All-Electric vehicle.

## 7. Airport Ground Support Equipment

- a. Eligible Airport Ground Support Equipment includes:
  1. Tier 0, Tier 1, or Tier 2 diesel powered airport ground support equipment; and
  2. Uncertified, or certified to 3 g/bhp-hr or higher emissions, spark ignition engine powered airport ground support equipment.
- b. Eligible Airport Ground Support Equipment must be Scrapped.
- c. Eligible Airport Ground Support Equipment may be Repowered with an All-Electric engine, or may be replaced with the same Airport Ground Support Equipment in an All-Electric form.
- d. For Non-Government Owned Eligible Airport Ground Support Equipment, Beneficiaries may only draw funds from the Trust in the amount of:
  1. Up to 75% of the cost of a Repower with a new All-Electric engine, including costs of installation of such engine, and charging infrastructure associated with such new All-Electric engine.
  2. Up to 75% of the cost of a new All-Electric Airport Ground Support Equipment, including charging infrastructure associated with such new All-Electric Airport Ground Support Equipment.
- e. For Government Owned Eligible Airport Ground Support Equipment, Beneficiaries may draw funds from the Trust in the amount of:
  1. Up to 100% of the cost of a Repower with a new All-Electric engine, including costs of installation of such engine, and charging infrastructure associated with such new All-Electric engine.
  2. Up to 100% of the cost of a new All-Electric Airport Ground Support Equipment, including charging infrastructure associated with such new All-Electric Airport Ground Support Equipment.

## 8. Forklifts and Port Cargo Handling Equipment

- a. Eligible Forklifts includes forklifts with greater than 8000 pounds lift capacity.
- b. Eligible Forklifts and Port Cargo Handling Equipment must be Scrapped.
- c. Eligible Forklifts and Port Cargo Handling Equipment may be Repowered with an All-Electric engine, or may be replaced with the same equipment in an All-Electric form.
- d. For Non-Government Owned Eligible Forklifts and Port Cargo Handling Equipment, Beneficiaries may draw funds from the Trust in the amount of:
  1. Up to 75% of the cost of a Repower with a new All-Electric engine, including costs of installation of such engine, and charging infrastructure associated with such new All-Electric engine.
  2. Up to 75% of the cost of a new All-Electric Forklift or Port Cargo Handling Equipment, including charging infrastructure associated with such new All-Electric Forklift or Port Cargo Handling Equipment.

- e. For Government Owned Eligible Forklifts and Port Cargo Handling Equipment, Beneficiaries may draw funds from the Trust in the amount of:
  - 1. Up to 100% of the cost of a Repower with a new All-Electric engine, including costs of installation of such engine, and charging infrastructure associated with such new All-Electric engine.
  - 2. Up to 100% of the cost of a new All-Electric Forklift or Port Cargo Handling Equipment, including charging infrastructure associated with such new All-Electric Forklift or Port Cargo Handling Equipment.
  
- 9. Light Duty Zero Emission Vehicle Supply Equipment. Each Beneficiary may use up to fifteen percent (15%) of its allocation of Trust Funds on the costs necessary for, and directly connected to, the acquisition, installation, operation and maintenance of new light duty zero emission vehicle supply equipment for projects as specified below. Provided, however, that Trust Funds shall not be made available or used to purchase or rent real estate, other capital costs (e.g., construction of buildings, parking facilities, etc.) or general maintenance (i.e., maintenance other than of the Supply Equipment).
  - a. Light duty electric vehicle supply equipment includes Level 1, Level 2 or fast charging equipment (or analogous successor technologies) that is located in a public place, workplace, or multi-unit dwelling and is not consumer light duty electric vehicle supply equipment (i.e., not located at a private residential dwelling that is not a multi-unit dwelling).
  - b. Light duty hydrogen fuel cell vehicle supply equipment includes hydrogen dispensing equipment capable of dispensing hydrogen at a pressure of 70 megapascals (MPa) (or analogous successor technologies) that is located in a public place.
  - c. Subject to the 15% limitation above, each Beneficiary may draw funds from the Trust in the amount of:
    - 1. Up to 100% of the cost to purchase, install and maintain eligible light duty electric vehicle supply equipment that will be available to the public at a Government Owned Property.
    - 2. Up to 80% of the cost to purchase, install and maintain eligible light duty electric vehicle supply equipment that will be available to the public at a Non-Government Owned Property.
    - 3. Up to 60% of the cost to purchase, install and maintain eligible light duty electric vehicle supply equipment that is available at a workplace but not to the general public.
    - 4. Up to 60% of the cost to purchase, install and maintain eligible light duty electric vehicle supply equipment that is available at a multi-unit dwelling but not to the general public.
    - 5. Up to 33% of the cost to purchase, install and maintain eligible light duty hydrogen fuel cell vehicle supply equipment capable of dispensing at least 250 kg/day that will be available to the public.



6. Up to 25% of the cost to purchase, install and maintain eligible light duty hydrogen fuel cell vehicle supply equipment capable of dispensing at least 100 kg/day that will be available to the public.
10. **Diesel Emission Reduction Act (DERA) Option.** Beneficiaries may use Trust Funds for their non-federal voluntary match, pursuant to Title VII, Subtitle G, Section 793 of the DERA Program in the Energy Policy Act of 2005 (codified at 42 U.S.C. § 16133), or Section 792 (codified at 42 U.S.C. § 16132) in the case of Tribes, thereby allowing Beneficiaries to use such Trust Funds for actions not specifically enumerated in this Appendix D-2, but otherwise eligible under DERA pursuant to all DERA guidance documents available through the EPA. Trust Funds shall not be used to meet the nonfederal mandatory cost share requirements, as defined in applicable DERA program guidance, of any DERA grant.

### **Eligible Mitigation Action Administrative Expenditures**

For any Eligible Mitigation Action, Beneficiaries may use Trust Funds for actual administrative expenditures (described below) associated with implementing such Eligible Mitigation Action, but not to exceed 15% of the total cost of such Eligible Mitigation Action. The 15% cap includes the aggregated amount of eligible administrative expenditures incurred by the Beneficiary and any third-party contractor(s).

1. Personnel including costs of employee salaries and wages, but not consultants.
2. Fringe Benefits including costs of employee fringe benefits such as health insurance, FICA, retirement, life insurance, and payroll taxes.
3. Travel including costs of Mitigation Action-related travel by program staff, but does not include consultant travel.
4. Supplies including tangible property purchased in support of the Mitigation Action that will be expensed on the Statement of Activities, such as educational publications, office supplies, etc. Identify general categories of supplies and their Mitigation Action costs.
5. Contractual including all contracted services and goods except for those charged under other categories such as supplies, construction, etc. Contracts for evaluation and consulting services and contracts with sub-recipient organizations are included.
6. Construction including costs associated with ordinary or normal rearrangement and alteration of facilities.
7. Other costs including insurance, professional services, occupancy and equipment leases, printing and publication, training, indirect costs, and accounting.

### **Definitions/Glossary of Terms**

“Airport Ground Support Equipment” shall mean vehicles and equipment used at an airport to service aircraft between flights.

“All-Electric” shall mean powered exclusively by electricity provided by a battery, fuel cell, or the grid.

“Alternate Fueled” shall mean an engine, or a vehicle or piece of equipment that is powered by an engine, which uses a fuel different from or in addition to gasoline fuel or diesel fuel (e.g., CNG, propane, diesel-electric Hybrid).

“Certified Remanufacture System or Verified Engine Upgrade” shall mean engine upgrades certified or verified by EPA or CARB to achieve a reduction in emissions.

“Class 4-7 Local Freight Trucks (Medium Trucks)” shall mean trucks, including commercial trucks, used to deliver cargo and freight (e.g., courier services, delivery trucks, box trucks moving freight, waste haulers, dump trucks, concrete mixers) with a Gross Vehicle Weight Rating (GVWR) between 14,001 and 33,000 lbs.

“Class 4-8 School Bus, Shuttle Bus, or Transit Bus (Buses)” shall mean vehicles with a Gross Vehicle Weight Rating (GVWR) greater than 14,001 lbs. used for transporting people. See definition for School Bus below.

“Class 8 Local Freight, and Port Drayage Trucks (Eligible Large Trucks)” shall mean trucks with a Gross Vehicle Weight Rating (GVWR) greater than 33,000 lbs. used for port drayage and/or freight/cargo delivery (including waste haulers, dump trucks, concrete mixers).

“CNG” shall mean Compressed Natural Gas.

“Drayage Trucks” shall mean trucks hauling cargo to and from ports and intermodal rail yards.

“Forklift” shall mean nonroad equipment used to lift and move materials short distances; generally includes tines to lift objects. Eligible types of forklifts include reach stackers, side loaders, and top loaders.

“Freight Switcher” shall mean a locomotive that moves rail cars around a rail yard as compared to a line-haul engine that moves freight long distances.

“Generator Set” shall mean a switcher locomotive equipped with multiple engines that can turn off one or more engines to reduce emissions and save fuel depending on the load it is moving.

“Government” shall mean a State or local government agency (including a school district, municipality, city, county, special district, transit district, joint powers authority, or port authority, owning fleets purchased with government funds), and a tribal government or native village. The term “State” means the several States, the District of Columbia, and the Commonwealth of Puerto Rico.

“Gross Vehicle Weight Rating (GVWR)” shall mean the maximum weight of the vehicle, as specified by the manufacturer. GVWR includes total vehicle weight plus fluids, passengers, and cargo.

- Class 1: < 6000 lb.
- Class 2: 6001-10,000 lb.
- Class 3: 10,001-14,000 lb.
- Class 4: 14,001-16,000 lb.
- Class 5: 16,001-19,500 lb.
- Class 6: 19,501-26,000 lb.
- Class 7: 26,001-33,000 lb.
- Class 8: > 33,001 lb.

“Hybrid” shall mean a vehicle that combines an internal combustion engine with a battery and electric motor.

“Infrastructure” shall mean the equipment used to enable the use of electric powered vehicles (e.g., electric vehicle charging station).

“Intermodal Rail Yard” shall mean a rail facility in which cargo is transferred from drayage truck to train or vice-versa.

“Port Cargo Handling Equipment” shall mean rubber-tired gantry cranes, straddle carriers, shuttle carriers, and terminal tractors, including yard hostlers and yard tractors that operate within ports.

“Plug-in Hybrid Electric Vehicle (PHEV)” shall mean a vehicle that is similar to a Hybrid but is equipped with a larger, more advanced battery that allows the vehicle to be plugged in and recharged in addition to refueling with gasoline. This larger battery allows the car to be driven on a combination of electric and gasoline fuels.

“Repower” shall mean to replace an existing engine with a newer, cleaner engine or power source that is certified by EPA and, if applicable, CARB, to meet a more stringent set of engine emission standards. Repower includes, but is not limited to, diesel engine replacement with an engine certified for use with diesel or a clean alternate fuel, diesel engine replacement with an electric power source (e.g., grid, battery), diesel engine replacement with a fuel cell, diesel engine replacement with an electric generator(s) (genset), diesel engine upgrades in Ferries/Tugs with an EPA Certified Remanufacture System, and/or diesel engine upgrades in Ferries/Tugs with an EPA Verified Engine Upgrade. All-Electric and fuel cell Repowers do not require EPA or CARB certification.

“School Bus” shall mean a Class 4-8 bus sold or introduced into interstate commerce for purposes that include carrying students to and from school or related events. May be Type A-D.

“Scrapped” shall mean to render inoperable and available for recycle, and, at a minimum, to specifically cut a 3-inch hole in the engine block for all engines. If any Eligible Vehicle will be replaced as part of an Eligible project, Scrapped shall also include the disabling of the chassis by cutting the vehicle’s frame rails completely in half.

“Tier 0, 1, 2, 3, 4” shall refer to corresponding EPA engine emission classifications for nonroad, locomotive, and marine engines.

“Tugs” shall mean dedicated vessels that push or pull other vessels in ports, harbors, and inland waterways (e.g., tugboats and towboats).

“Zero Emission Vehicle (ZEV)” shall mean a vehicle that produces no emissions from the onboard source of power (e.g., All-Electric or hydrogen fuel cell vehicles).

## Appendix B

### Summary of Public Comments on Development of Nebraska's Volkswagen Environmental Mitigation Plan

NDEE solicited public comments on development of Nebraska's Beneficiary Mitigation Plan for using funds from the State Mitigation Trust to reduce emissions of nitrogen oxides (NOx) in Nebraska. NDEE accepted comments through a web portal and via e-mail from September 21, 2017 through November 3, 2017. A total of 83 comments were received through these means. Of these, 20 advocated solely for actions that are not authorized under the Trust Agreement or under the Diesel Emissions Reduction Act (DERA) and 6 were identified as duplicate submissions from the same individual or organization. Thus 57 of the comments were considered valid and form the basis of the following tally.

In its solicitation of comments, NDEE sought answers to ten key questions to guide the planning process. Responses to these questions are tallied below. Some respondents addressed these questions directly, but the majority did not use the question list and instead provided independent comments. For the purposes of this summary we have examined these independent comments to determine how they conform to the question list. The list below thus attempts to reflect the views expressed in all valid comments.

#### 1. Which of the mitigation actions eligible under the Trust should be part of the Nebraska Mitigation Plan?

Strong support was expressed in the comments for funding electric vehicle charging stations, replacement of school and transit buses, replacement of local freight trucks, and for use of the DERA option. Two commenters expressed opposition to funding electric vehicle charging.

Electric vehicle charging stations	28
School buses	11
School, shuttle, and transit buses	8
Transit buses	6
School and transit buses	1
Local freight trucks/refuse trucks	12
Large (Class 8) freight trucks	3
Medium (Class 4-7) freight trucks	2
Airport ground support equipment	1
Large forklifts	2
Switcher locomotives	1
DERA Option	11
No electric vehicle charging stations	2
Most funds for mobile sources	1
All actions but prioritize on cost-effectiveness of NOx reduction	1

**2. Should Nebraska limit the number of eligible mitigation actions to best suit the needs of Nebraska and to ensure effective administration of the funds?**

Yes	9
No	1
Mostly or only school buses	3

**3. What percentage of Mitigation Trust funds, if any, should Nebraska reserve for light-duty zero-emission vehicle charging infrastructure (maximum 15%)?**

Maximum (15%)	14
Favored charging stations but no percentage provided	15
None	4

**4. Should Nebraska utilize Trust funds for the DERA option, and if so, which of the DERA program actions should be eligible?**

Utilize DERA option	11
Emphasize zero-emission vehicles and engines	2
Emission reduction retrofits in large trucks	2
Replace diesel irrigation engines with propane or electric	3
Idle reduction technologies	1
Truck stop parking space electrification	1
Don't use DERA option	3

**5. To provide additional benefits to taxpayers through reduced costs for acquisition, operation, and fuel, should Nebraska's mitigation program give preference to replacement of publicly-owned diesel vehicles and equipment?**

A large majority of commenters favored giving preference to public entities, many while advocating for particular owners or vehicle types.

Give priority to publicly-owned vehicles	9
Public school/community college/university vehicles	7
Public transit buses	5
State fleet vehicles	2
Public utility vehicles	1
Electric vehicles for public use	2
Electric vehicle chargers only for public use	1
Electric vehicle charges for residential use	1
Mix of public and private	1
Give no preference to publicly owned vehicles	3
Rebates for private diesel truck owners	1

**6. Should mitigation projects for governmental entities be funded at 100% as allowed by the Trust, or should state agencies, municipalities, and school districts be required to cost-share funds, and if so, what cost-share percentage should be required?**

A small number of commenters addressed this question. There was no clear consensus provided by the responses, though 5 out of 15 advocated for full funding with no cost-share.

No cost-share (100% funding)	5
10% cost-share	2
15% cost-share	1
20% cost-share	1
25% cost-share	1
25-50% cost-share	1
50% cost-share	1
60% cost-share	1
Cost-share deemed reasonable by NDEQ	1
Same cost-share for public and private	1

**7. To ensure efficient use of funds and effective administration, should Nebraska establish a minimum overall project cost for mitigation projects and if so, what is an appropriate minimum cost?**

A very small number of commenters addressed this question. Responses ranged from no minimum to \$1,000,000.

No minimum project cost.	4
Minimum \$2,000	1
Minimum \$10,000	1
Minimum \$50,000	1
Minimum \$500,000	2
Minimum \$1,000,000	1
Large enough to minimize project cost	1
Award projects with large capital investment	1

**8. Should Nebraska’s plan give preference to certain power sources, such as diesel, compressed natural gas, propane, battery electric, or hydrogen fuel cell?**

About half of the comments favored electric vehicles. There was also strong support for cleaner alternative fuels (propane, compressed or liquid natural gas) in comparison to “clean diesel” replacements.

Electric vehicles	23
Majority of funds for Low-NOx alternative fuels	3
Propane	3
Hybrid vehicles	2
No diesel-fueled replacements	2
Compressed/Liquid/Renewable natural gas	3
All fuels meeting CARB Low NOx standards should have equal funding percentage	1
Diesel	1
Equal priority for all power sources	2
Diesel or alternative fuels (no electric)	1
No alternative fuel replacements	1
Maximum 10% reimbursement for new diesel	1

**9. How should Nebraska design a program to ensure that benefits occur in areas with a disproportionate share of NOx emissions?**

**10. Should Nebraska distribute Trust funds across the state or focus on those counties with higher NOx emissions?**

Because of the similarity of these questions and their responses, a single tally is presented.

Prioritize areas with greater air pollution	10
Prioritize areas with higher registration of offending vehicles	5
Favor projects with large NOx reduction in areas with high population density	3
Prioritize areas with the largest diesel fleets	1
Priority to counties with higher NOx emissions from on-road sources	1
Use funds across the state	2
Use funds across the state and prioritize school buses	1
Use funds for a statewide network of electric vehicle charging stations	9

## **Summary of Other Comments**

Limit administrative costs to no more than 8%.

Establish a broad-based advisory committee to provide ongoing citizen input into the process.

Fund battery auxiliary power units for utility trucks (would require waiver of DERA requirements that limit APUs to long-haul trucks).

Prioritize grantees/partners with previous experience purchasing and operating near-zero emission vehicles.

Prioritize projects that leverage existing fueling infrastructure.

## **Actions Proposed by Commenters that are not Authorized by the Trust or under the Diesel Emissions Reduction Act**

Support STEM education with focus on the environment.

Fund bike lanes, bike trails, bike safety/education.

Install solar panels.

Fund a Compressed Natural Gas filling station in Grand Island.

Purchase fleet of Tesla cars for state official use.

Install more ambient air quality monitors.

Solar and wind energy generation.

Extend StarTran hours in south Lincoln.

Convert small diesel pickup trucks to biodiesel.

Development of fuel-cell locomotives.

Expand ethanol distribution infrastructure.

Auxiliary power units for public utility trucks.



## Appendix C

### Identification of Areas that Bear a Disproportionate Share of Air Pollution in Nebraska

#### Introduction

The Nebraska Department of Environment and Energy has examined several metrics in order to identify areas of the State that bear a disproportionate share of the air pollution burden as well as areas where large populations are exposed to these pollutants. Such areas may especially benefit from projects to reduce nitrogen oxide emissions under the Volkswagen Environmental Mitigation Trust. These metrics include:

- The number of offending vehicles subject to the Volkswagen consent decrees that are located in each county;
- The amount of nitrogen oxides (NO<sub>x</sub>) emitted by diesel engines in each county;
- Measured levels of nitrogen dioxide (NO<sub>2</sub>), ozone, and fine particulate matter (PM<sub>2.5</sub>) in comparison to the National Ambient Air Quality Standards (NAAQS); and
- Variations in population density by county.

This Appendix provides an overview of the data evaluated for each of these four metrics.

#### Volkswagen Diesel Vehicles in Nebraska

The Nebraska Department of Motor Vehicles has determined that as of January 2017 there were 2,204 offending diesel Volkswagen, Audi, and Porsche vehicles, model years 2009-2015, registered in Nebraska<sup>1</sup>. Table C-1 below shows a breakdown of vehicle numbers by make and model. As shown in Figures C-1 and C-2 on the next page, the majority of these vehicles are registered in the more urbanized counties in the state, with 60% registered in Douglas, Lancaster, or Sarpy County.

<b>Volkswagen</b>	<b>2,036</b>	<b>Audi</b>	<b>145</b>
Beetle	36	A6 Quattro	10
Jetta & Golf	1,397	A7 Quattro	1
Passat	527	A8 / A8L	5
Touareg	76	A3	11
		Q5	44
<b>Porsche</b>	<b>23</b>	Q7	74
Cayenne	23	<b>Total</b>	<b>2,204</b>

Table C-1. Numbers of offending diesel Volkswagen, Audi, and Porsche vehicles (model years 2009-2015) in Nebraska as of January 2017 (courtesy of Nebraska Department of Motor Vehicles).

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<sup>1</sup> Personal communication from Nebraska Department of Motor Vehicles.

**Top 24 Nebraska Counties for Diesel VW, Audi, & Porsche Vehicles  
(Model Years 2009-2015)**

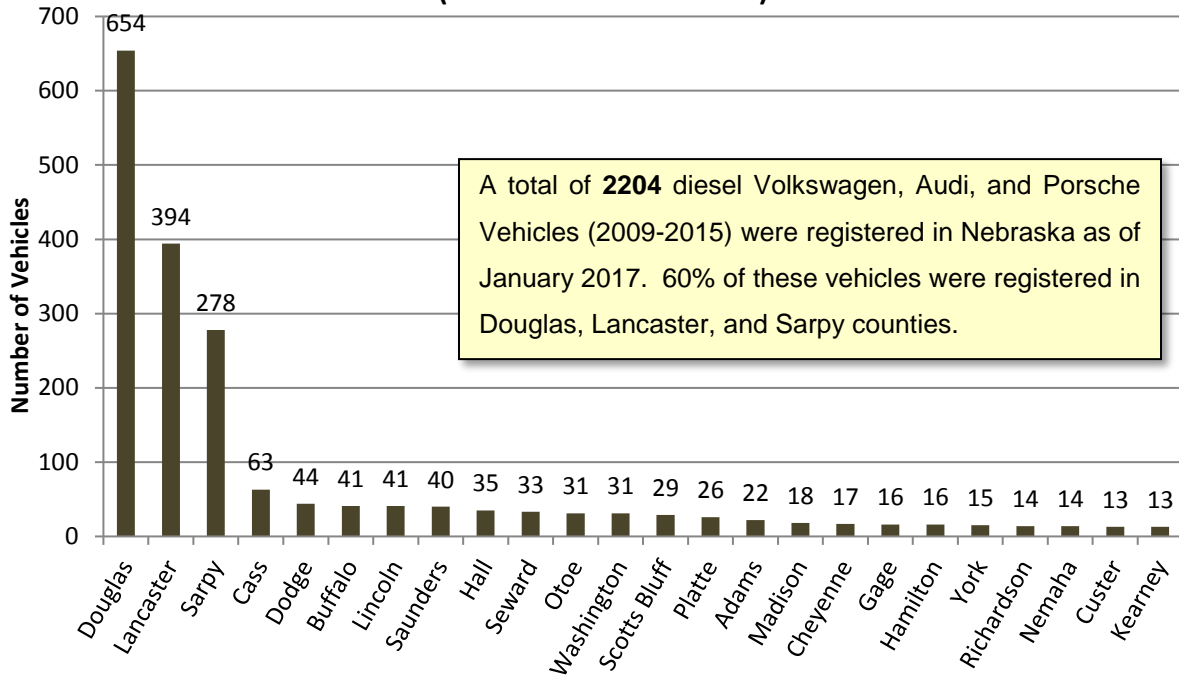


Figure C-1. Column graph showing the number of diesel Volkswagen, Audi, and Porsche vehicles in each of the twenty-four counties with the most such vehicles. Data courtesy of the Nebraska Department of Motor Vehicles.

**Nebraska Diesel VW-Audi-Porsche Registrations by County (2009-2015 Model Years)**

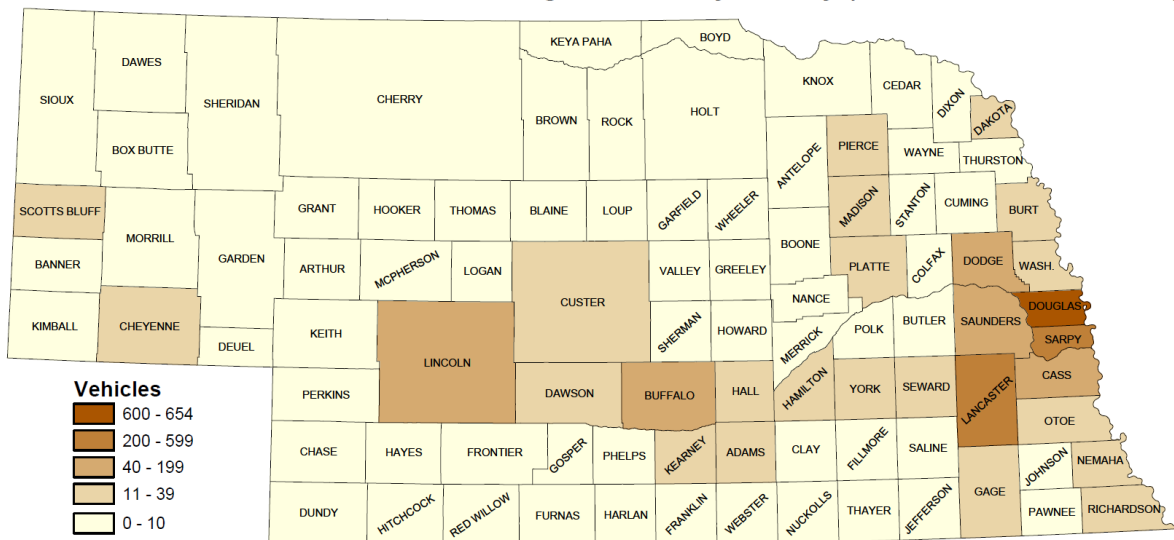


Figure C-2. Map of Nebraska counties ranked by the number of 2009-2015 diesel Volkswagen, Audi, and Porsche vehicles. Data courtesy of the Nebraska Department of Motor Vehicles.

## Nitrogen Oxides Emitted by Mobile Sources in Nebraska

Nitrogen oxide (NO<sub>x</sub>) pollution is caused primarily by the burning of fuel. Nitrogen oxides are emitted by on-road mobile sources such as cars, trucks, and buses; off-road mobile sources such as diesel locomotives and construction and farm equipment; and stationary sources such as coal- or gas-fired power plants. A breakdown of NO<sub>x</sub> emissions in Nebraska from the U.S. Environmental Protection Agency's latest (2014) National Emissions Inventory is shown in Figure C-3 below.

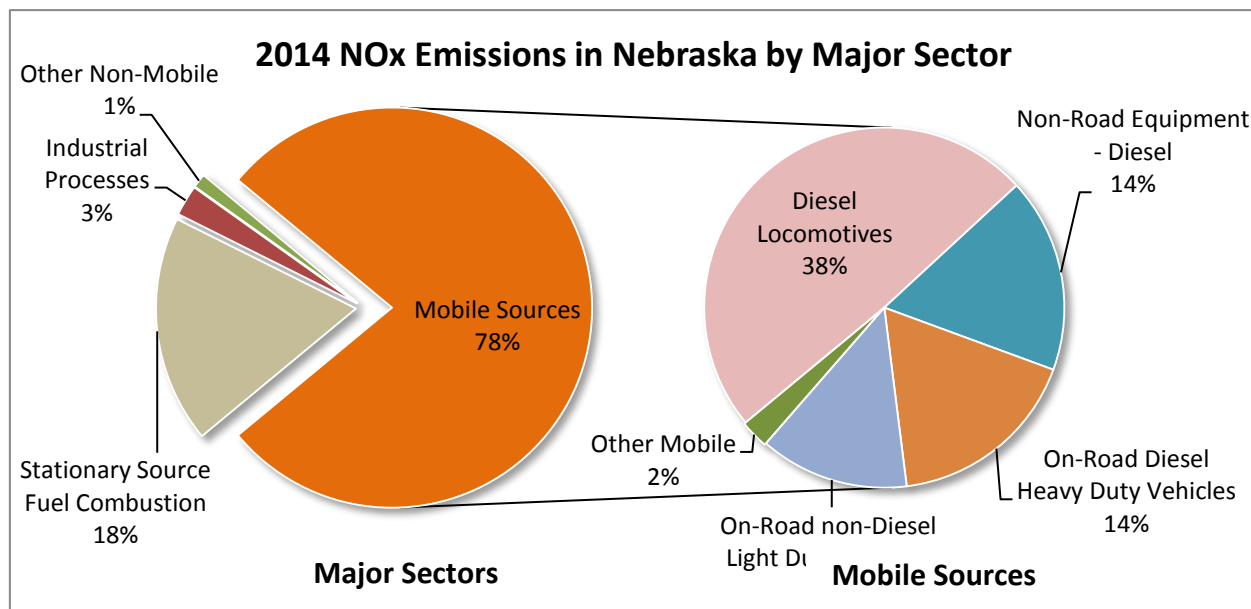


Figure C-3. Breakdown of nitrogen oxide (NO<sub>x</sub>) emissions in Nebraska by major source sector. The pie chart on the right shows a breakdown of the Mobile Sources segment of the chart on the left. Data from EPA 2014 National Emissions Inventory<sup>2</sup>.

78% of NO<sub>x</sub> emissions in Nebraska in 2014 were from mobile sources, and 66% were from diesel engines, including on-road heavy-duty vehicles (trucks and buses), non-road diesel equipment, and diesel locomotives. The majority of the eligible mitigation actions authorized by the Volkswagen Environmental Mitigation Trust are targeted toward the reduction of diesel emissions. Reducing diesel emissions will reduce not only NO<sub>x</sub> pollution and the formation of secondary ozone, but also emissions of fine particulate matter, which is also a regulated pollutant that has a number of adverse health effects.

Figure C-4 and Table C-2 on the next page show the 2014 NO<sub>x</sub> emissions from diesel engines in tons per square mile for the 27 Nebraska counties with the highest values. The raw emissions were divided by the county area in square miles in order to adjust for the widely differing areas

<sup>2</sup> U.S. Environmental Protection Agency 2014 National Emissions Inventory, version 1; <https://www.epa.gov/air-emissions-inventories>

## Nebraska 2014 Top Counties for NOx Emissions per Square Mile from Diesel Engines

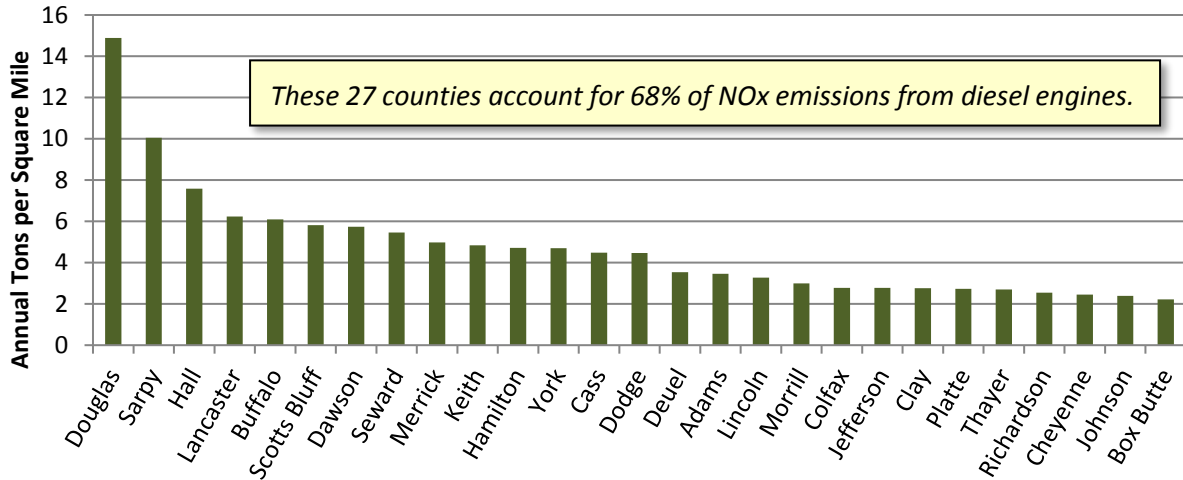


Figure C-4. Column graph showing NOx emissions (tons per square mile) for the 27 counties with the highest values in 2014.

Tons / Sq Mi	Douglas	Sarpy	Hall	Lancaster	Buffalo	Scotts Bluff	Dawson	Seward	Merrick
	14.88	10.05	7.58	6.23	6.10	5.82	5.75	5.46	4.98
Tons / Sq Mi	Keith	Hamilton	York	Cass	Dodge	Deuel	Adams	Lincoln	Morrill
	4.84	4.71	4.70	4.49	4.47	3.53	3.46	3.27	3.00
Tons / Sq Mi	Colfax	Jefferson	Clay	Platte	Thayer	Richardson	Cheyenne	Johnson	Box Butte
	2.77	2.77	2.76	2.74	2.7	2.54	2.46	2.39	2.22

Table C-2. NOx emissions in tons per square mile for the 27 counties with the highest values in 2014.

## 2014 Diesel NOx Emissions per Square Mile by County

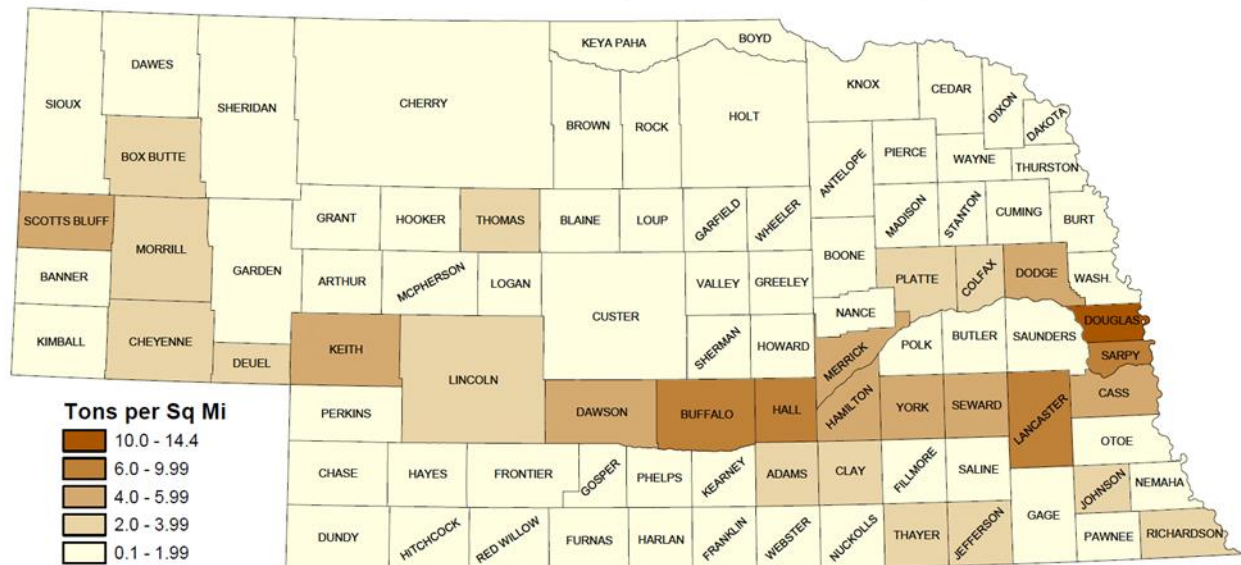


Figure C-5. Map of Nebraska counties ranked by 2014 NOx emissions per square mile.

of Nebraska counties, providing a clearer sense of the variation in pollutant concentration. Figure C-5 on the previous page shows a map ranking all Nebraska counties in NO<sub>x</sub> emissions per square mile.

It is clear from the data shown above that the Nebraska counties most impacted by NO<sub>x</sub> emissions from diesel engines are primarily those along the major highway and rail transportation corridors (such as the Interstate 80 and Platte River valley corridors) including the urban centers of the Omaha metropolitan area, Lincoln, Fremont, Columbus, Grand Island, Kearney, North Platte, and Scottsbluff.

### **Measured Levels of Diesel Pollutants in Nebraska**

Diesel engines emit nitrogen oxide pollutants, which are also precursors to the formation of ground-level ozone, as well as fine particulate matter (PM<sub>2.5</sub>, particles less than 2.5 micrometers in diameter).

#### ***NO<sub>2</sub>***

The U.S. Environmental Protection Agency (EPA) regulates nitrogen dioxide (NO<sub>2</sub>) levels in outdoor air as the indicator for the family of NO<sub>x</sub> compounds. EPA has established National Ambient Air Quality Standards (NAAQS) for NO<sub>2</sub> to protect public health (primary standard) and public welfare and the environment (secondary standard). The primary standard for short-term exposure to NO<sub>2</sub>, based on the daily maximum of one-hour average concentrations, is 100 parts per billion. The 98<sup>th</sup> percentile of the annual distribution of the daily one-hour maximum concentrations, averaged over three years (termed the design value), should not exceed this standard. There is also a primary and secondary long-term exposure standard (annual mean NO<sub>2</sub> concentration) of 53 parts per billion.

No areas in Nebraska or in the remainder of the United States currently exceed these standards for NO<sub>2</sub>. An ambient air quality monitor in Omaha measures several nitrogen oxides to provide an approximation of NO<sub>2</sub> concentration (which may overestimate the true concentration). The approximated NO<sub>2</sub> design values for this monitor have remained at 40% or less of the 1-hour standard and less than 16% of the annual mean standard. Monitors near Sioux City, Iowa record NO<sub>2</sub> concentrations consistently below 10% of the annual mean standard<sup>3</sup>.

#### ***Ozone***

Ground-level ozone (O<sub>3</sub>) is formed in the air from precursor pollutants produced by burning fuel (including NO<sub>x</sub>, volatile organic compounds, and carbon monoxide) that are exposed to sunlight. Ozone production is enhanced during the summer because of higher temperatures and longer exposure to sunlight. Chemical reactions in the air can both create and destroy ozone, but the

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<sup>3</sup> Data from NDEQ Ambient Air Monitoring Network Plans for 2016 and 2017, available at [http://deq.ne.gov/Publications/Pubs\\_Air\\_Amb.xsp](http://deq.ne.gov/Publications/Pubs_Air_Amb.xsp)

average lifetime of an O<sub>3</sub> molecule in the lower atmosphere is three weeks, so ozone can be transported long distances downwind from sources. Ground-level ozone concentrations may actually be higher in downwind suburban and rural areas in comparison to urban source areas, where fresh emissions of other pollutants may react with and deplete ozone.

EPA's primary and secondary ambient air quality standard for ground-level ozone was 75 parts per billion from 2008 until October 1, 2015, when it was lowered (made more stringent) to 70 parts per billion (based on the 4<sup>th</sup> highest value in the annual set of daily maximum 8-hour average concentrations). Ozone values based on this standard and measured at monitors in eastern Nebraska and surrounding states have ranged between 58 and 65 parts per billion in the last three years (83 to 90% of the 2015 standard)<sup>4</sup>. Ozone levels are relatively high across eastern Nebraska, with the highest levels being found in the Omaha metropolitan area and near Santee in northeast Nebraska. Although these values are below the NAAQS threshold, they are nevertheless close to it, and weather conditions, wildfires, and controlled burns have resulted in short-term exceedances. Mitigation efforts that reduce precursor NO<sub>x</sub> emissions are expected to lower ground-level ozone concentration and assist Nebraska in maintaining attainment of the ozone NAAQS, especially in the Omaha metropolitan area.

### ***Fine Particulate Matter (PM<sub>2.5</sub>)***

Fine particulate matter (PM<sub>2.5</sub>) is a mixture of solid particles and liquid droplets, many of which form as a result of reactions in the air between chemicals such as sulfur dioxide and nitrogen oxides. PM<sub>2.5</sub> has many sources, including agricultural dust, fires, fuel combustion (stationary and mobile sources), and industrial processes. In urban areas diesel exhaust is a significant source of fine solid carbon particles (soot), organic compounds, and precursor chemicals that form secondary fine particles in the air. These particles are small enough to be inhaled deep into the lungs, where they can cause a variety of respiratory problems. Fine particles can even migrate into the bloodstream and cause adverse effects on the heart.

EPA has established a primary and secondary standard for short-term exposure to PM<sub>2.5</sub> at 35 micrograms per cubic meter of air. The 98<sup>th</sup> percentile of the annual set of 24-hour average concentrations, averaged over three years, should not exceed this value. EPA has also set a long-term primary standard of 12 micrograms per cubic meter and a secondary standard at 15 micrograms per cubic meter, based on the annual mean concentration averaged over three years.

PM<sub>2.5</sub> concentrations are measured in Scottsbluff, Grand Island, and in the Omaha, Lincoln, and Sioux City areas in and adjacent to eastern Nebraska. All sites measure concentrations that do not exceed these standards. Both 24-hour and annual mean PM<sub>2.5</sub> concentrations are generally lower in Scottsbluff and Grand Island than in the eastern metropolitan areas. For example, from 2014

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<sup>4</sup> Data from NDEQ 2017 Ambient Air Monitoring Network Plan, available at [http://deq.ne.gov/Publications/Pubs\\_Air\\_Amb.xsp](http://deq.ne.gov/Publications/Pubs_Air_Amb.xsp)

to 2016, annual average PM<sub>2.5</sub> concentrations measured by monitors in the Omaha metropolitan area ranged from 58 to 73% of the NAAQS, whereas values in Grand Island and Scottsbluff measured values 50% or less of the NAAQS. Actions to reduce diesel emissions in urban areas in eastern Nebraska would likely have a small but positive impact on ambient PM<sub>2.5</sub> concentrations in these areas.

### Population Density

The U.S. Census Bureau conducts a comprehensive population census every ten years. The last such decennial census was completed in 2010. In addition, the Census Bureau conducts annual surveys to provide population estimates of each interim year. The following discussion primarily uses Census Bureau population estimates for 2015.

The U.S. Office of Management and Budget uses the decennial census data to identify Metropolitan and Micropolitan Statistical Areas, which are counties or groups of counties containing an urbanized core as well as adjacent communities with a high degree of economic and social integration with that core. A Metropolitan Statistical Area (MSA) contains an urbanized area with a population of 50,000 or more; a Micropolitan Statistical Area (MiSA) contains an urban cluster with a population of 10,000 to 49,999.

Figure C-6 below shows the location and boundaries of MSAs and MiSAs in Nebraska based on the 2010 decennial census.

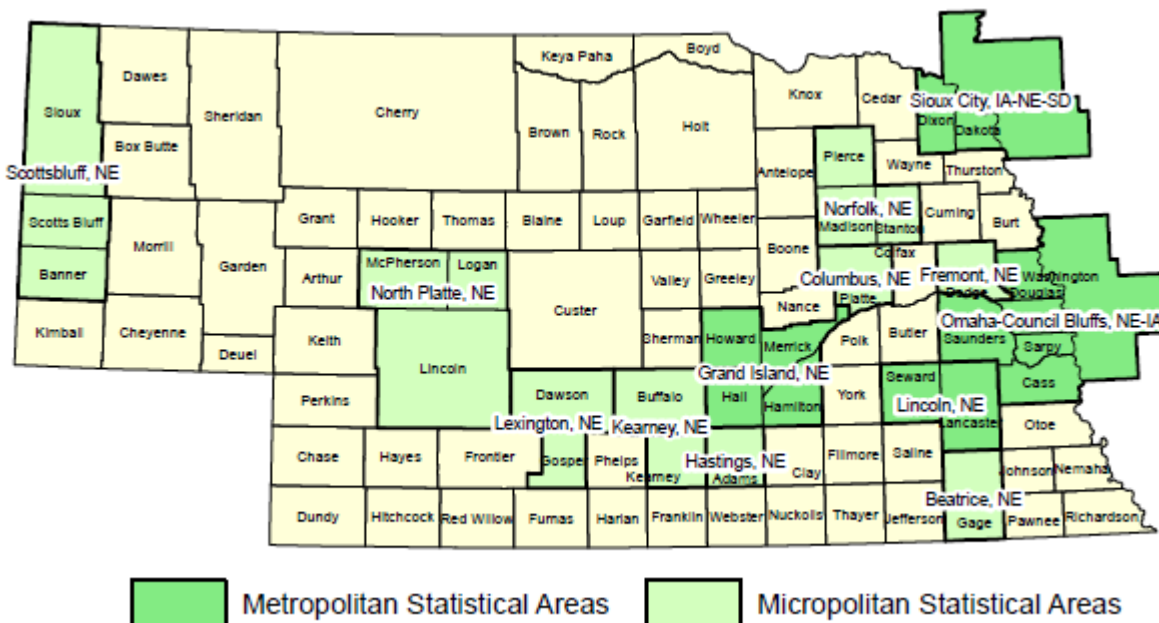


Figure C-6. Nebraska Metropolitan Statistical Areas and Micropolitan Statistical Areas based on the 2010 decennial census.

Most of the area of Nebraska is rural and used for agricultural production (farming and ranching). Conversely, most of the population of Nebraska (59%) resides in the Omaha and Lincoln MSAs, and 82% of the population resides within the boundaries of the designated MSAs and MiSAs (see Table C-3 below).

Area	Population	% NE <sup>(b)</sup>	Cum % NE <sup>(c)</sup>
Nebraska	1,896,190	100%	na
Omaha MSA <sup>(a)</sup>	792,532	42%	42%
Lincoln MSA	323,578	17%	59%
Grand Island MSA	85,066	4%	64%
Sioux City MSA <sup>(a)</sup>	26,578	1%	65%
Kearney MiSA	55,448	3%	68%
Norfolk MiSA	48,184	3%	70%
Hastings MiSA	38,309	2%	72%
Scottsbluff MiSA	36,908	2%	74%
North Platte MiSA	36,706	2%	76%
Fremont MiSA	32,847	2%	78%
Columbus MiSA	31,587	2%	80%
Lexington MiSA	25,859	1%	81%
Beatrice MiSA	21,900	1%	82%
<p>(a) Only Nebraska residents within the Omaha and Sioux City MSAs were used in the population counts shown in this table.</p> <p>(b) <u>% NE</u> refers to the percent of Nebraska residents residing in each MSA or MiSA.</p> <p>(c) <u>Cum % NE</u> refers to the cumulative sum of the <u>% NE</u> column. Thus 59% of Nebraska's residents live in the Omaha and Lincoln MSAs, while 82% live in an MSA or MiSA.</p>			

Table C-3. Estimated populations within Nebraska's Metropolitan and Micropolitan Statistical Areas as of 1 July 2015, from U.S. Census Bureau.

Population density (population per square mile) has been calculated for each Nebraska county using the 2015 population estimates to provide a measure of the significance of potential population exposure to air pollutants. Figure C-7 on the next page shows a graph of the top Nebraska counties by population density, and Figure C-8 on the next page shows a map that ranks counties by population density. The more urbanized counties have population density greater than 45 persons per square mile, whereas the more rural counties have population density of 30 or fewer persons per square mile. All but one of the top 13 counties by population density are in eastern Nebraska; the exception is Scottsbluff County in western Nebraska.



## Nebraska 2015 Population Density - Top Counties

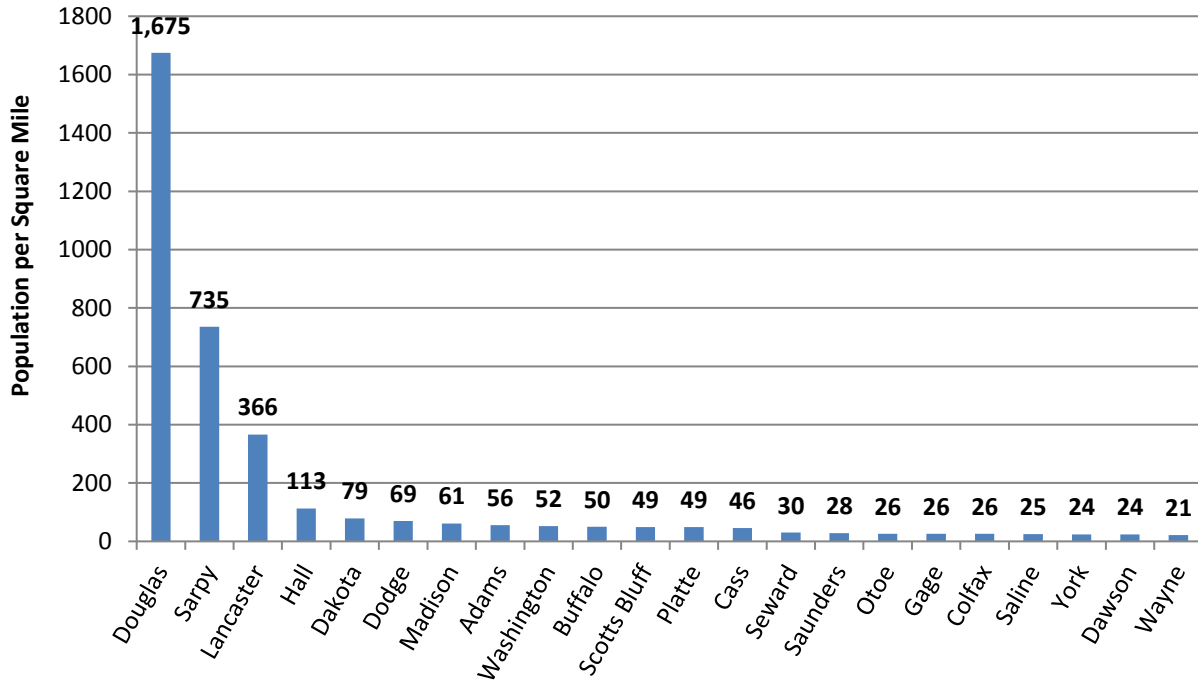


Figure C-7. Column graph showing the 22 top Nebraska counties by 2015 population density. Data from U.S. Census Bureau.

## Nebraska Estimated 2015 Population Density by County

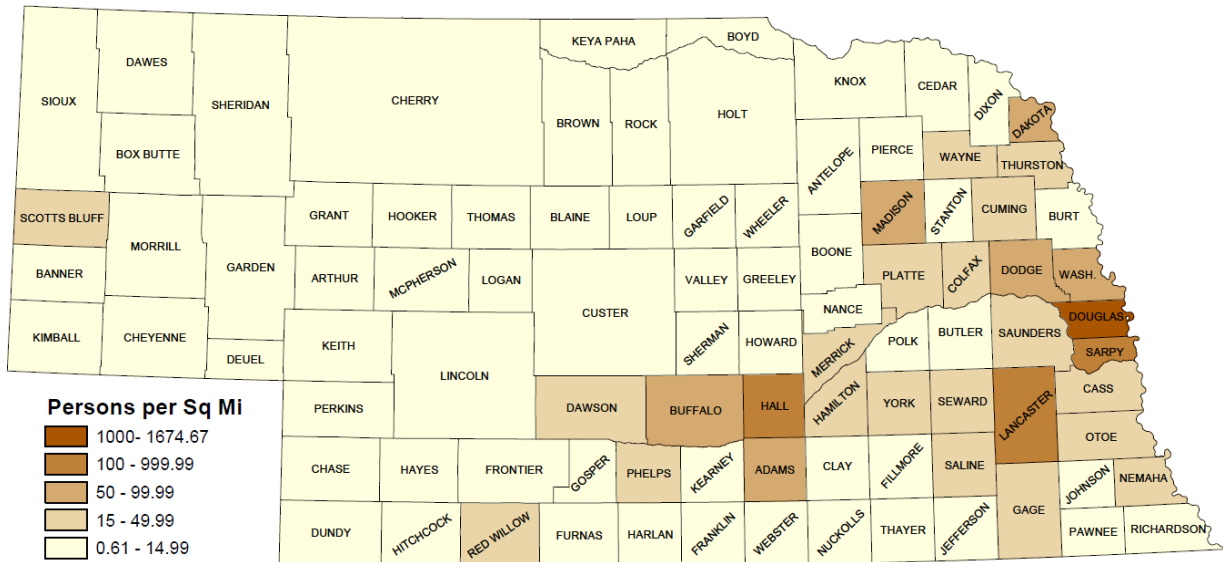


Figure C-8. Map of Nebraska counties ranked by 2015 population density (persons per square mile). Data from U.S. Census Bureau.

## Priority Counties that Bear a Disproportionate Share of NOx Air Pollution

In order to identify areas that bear a disproportionate share of air pollution impact from nitrogen oxides, NDEQ focused on areas with higher diesel NOx emissions per square mile and areas with higher population density. Eight priority counties have been identified that have NOx emissions per square mile greater than 4.0 tons per year and population density greater than 45 persons per square mile. These counties, which are listed in Table C-4 and shown on the map in Figure C-9 below, are also among the top counties for registrations of the offending Volkswagen diesel vehicles.

County	NOx Emissions Per Square Mile (tons/year)	2015 Population per Square Mile
Buffalo	6.10	50.47
Cass	4.49	45.77
Dodge	4.47	69.43
Douglas	14.88	1674.68
Hall	7.58	112.91
Lancaster	6.23	365.91
Sarpy	10.05	735.14
Scottsbluff	5.82	49.04

Table C-4. Counties with disproportionate share of NOx air pollution impact based on NOx emissions per square mile and population density.

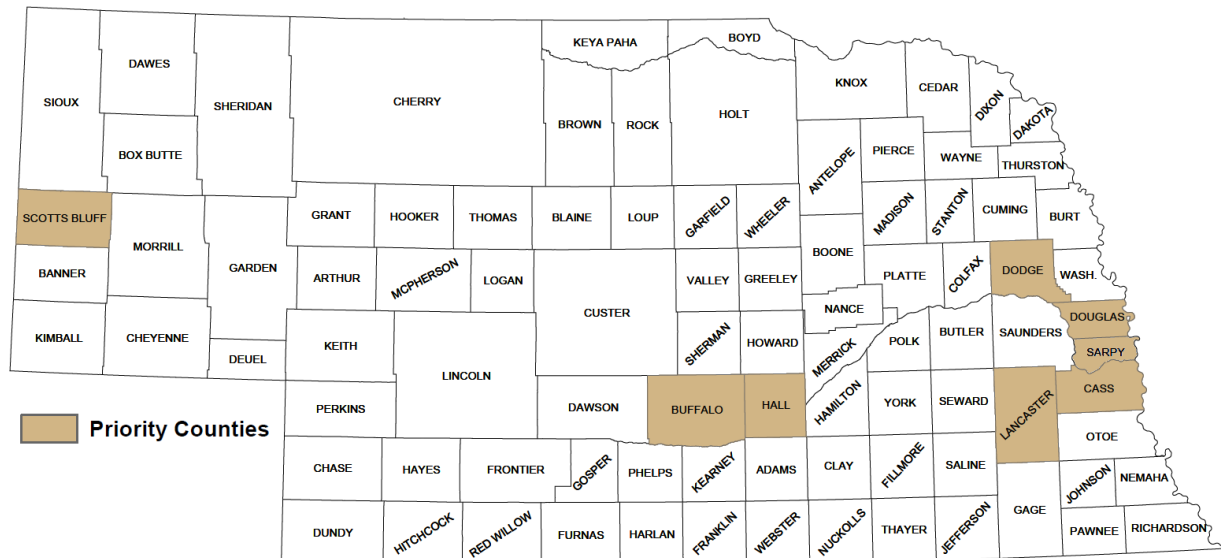


Figure C-9. Map of eight Nebraska priority counties with a disproportionate share of NOx air pollution impact based on NOx emissions per square mile and population density.