

State of Arkansas

Volkswagen Environmental Trust Beneficiary Mitigation Plan



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and November 2019

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I. Background

Arkansas has been allocated \$14,647,709.09 toward award to projects that reduce emissions from motor vehicles as a result of two partial consent decrees in a case filed against the Volkswagen corporation for alleged violations of the federal Clean Air Act by the sale of approximately 500,000 model year 2009–2015 vehicles containing two-liter (L) and approximately 80,000 model year 2009–2016 three-L diesel engines equipped with emissions control defeat devices (collectively referred to as “subject vehicles”). Use of the defeat devices resulted in significant increases in nitrogen oxide (NOx) emissions and adverse impacts to air quality, violating the Clean Air Act. NOx emissions contribute to the formation of ground-level ozone, which impairs lung function and cardiovascular health.

As part of a partial consent decree finalized between the U.S. Department of Justice and the Volkswagen Corporation and its subsidiaries on October 18, 2016, an Environmental Mitigation Trust (Trust) was created to mitigate the air quality impacts resulting from use of the defeat devices. The Trust establishes a process to administer the funds, a process for states and tribes to receive the funds and develop state and tribal beneficiary mitigation plans, and the types of mitigation actions allowable under the Trust. Arkansas is a Beneficiary under the Trust and the Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ), is the lead agency for implementing programs in Arkansas under the Trust.

II. Mitigation Plan Overview and Goal

DEQ has developed this mitigation plan (Plan) to describe the State’s approach to funding mitigation actions under the Trust. The primary goal of the Plan is to achieve significant and sustained reductions of NOx emissions. The State of Arkansas is invested in our future and ensuring that projects funded in Arkansas under the Trust can be leveraged to ensure additional continued reductions in NOx emissions through private investment. Other goals of the Plan include:

- Achieving reductions in emissions of other pollutants, including diesel particulate matter and greenhouse gases;
- Spurring private investment in alternative fueling infrastructure and vehicles;
- Creating jobs by increasing alternative fuel production in Arkansas; and
- Establishing alternative fuel corridors along interstates to link to corridors established in other states.¹

¹ See Appendix C for details on the Alternative Fuel Corridors program.

III. Available Funding

The initial allocation from the Trust fund under the first partial consent decree for Arkansas is \$13,951,016. Arkansas has been allocated an additional \$696,692.86 under the second partial consent decree.

Arkansas may request one-third of its total allocation during the first year or two-thirds of its total allocation during the first two years after initial funding of the Trust. Project funding will be awarded in accordance with Arkansas's procurement laws. Specific funding requests will be made after submission of this Plan to the Trustee.

DEQ will maintain all documentation associated with funding requests and expenditures on eligible mitigation projects. All materials will be available for public review.

IV. Funding Priorities for Categories of Eligible Mitigation Project Types

DEQ has developed an approach to funding programs consistent with the Eligible Mitigation Actions established under Appendix D of the first partial consent decree. The full list of Eligible Mitigation Actions can be found in Appendix A of this Plan. The approach discussed below was developed to advance Arkansas's goals listed in section II of this Plan.

DEQ plans to allocate funding to four new programs—an advanced bus pilot program, an electric vehicle (EV) infrastructure rebate program, a state-wide clean fuels grant program, and a state fleet emission reduction program. In addition, DEQ would also set aside a portion of the funds to supplement the State's Diesel Emission Reduction Act program "Go RED!"

DEQ's approach targets NOx reductions in the following priority areas:

- Areas that have historically had national ambient air quality standard (NAAQS) attainment issues;
- Areas that receive a disproportionate quantity of mobile NOx emissions, including Volkswagen two-L and three-L vehicles; and
- Areas where alternative fuel infrastructure is lacking.

A. Advanced Bus and Clean (ABC) Transportation Pilot Program

DEQ would fund a percentage of the purchase price of alternative-fueled² buses for school districts and public transit agencies. The program would fund the purchase of a minimum of five and up to twenty buses to replace eligible diesel buses per pilot. A cost share would be required. Preference would be given to proposals for pilot projects located in areas where the installation

² Alternative-fueled means an engine, or vehicle or piece of equipment that is powered by an engine, that uses a fuel different from or in addition to gasoline fuel or diesel fuel (e.g. compressed natural gas (CNG), liquified natural gas (LNG), propane (LPG), all-electric (EV), or diesel-electric hybrid).

of alternative-fuel infrastructure would contribute to establishment of alternative fuel corridors. Applicants must demonstrate that fueling infrastructure will be in place to service vehicles funded by the pilot project by the time funds are distributed. The ABC pilot program is authorized under the terms of the Trust and shall meet the requirements under Eligible Mitigation Action Two.³

B. Light-Duty Electric Vehicle Infrastructure Program

DEQ would implement a funding assistance program for the installation of new EV charging stations. DEQ will provide rebates for eligible level 2 electric vehicle supply equipment and issue a request for proposals for direct current fast-charging electric vehicle supply equipment. Such a program is authorized under the terms of the Trust and will meet the requirements for light-duty EV supply equipment under Eligible Mitigation Action Nine.⁴

C. Arkansas Clean Fuels Funding Assistance Program

DEQ would implement a statewide funding assistance program to reduce NOx emissions by repowering or replacing Class 4–8, model years 1992–2009 diesel vehicles with alternative fueled engines or vehicles. Such a program is authorized under the terms of the Trust and shall meet the requirements for heavy-duty and medium-duty vehicle repower and replacement under Eligible Mitigation Actions One, Two, and Six.⁵ This grant program could be used to target school districts that fall outside of the pilot areas and to assist other entities with converting their fleets to alternative-fueled technologies. Funding would be awarded on a competitive basis and project proposals would be scored based on whether the project would benefit one of the priority areas and the cost effectiveness in dollars per ton of NOx reduced.

Applicants must demonstrate that fueling/charging infrastructure will be in place to service vehicles funded by the project by the time funds are awarded. A cost-share would be required for projects funded under the Arkansas Clean Fuels Program.

D. DERA

This Plan allocates a small portion of the Trust funds toward supplementing state funding sources for the State voluntary match under the State Clean Diesel Grant should the program

³ Eligible Mitigation Action Two defines eligibility of buses for repower and replacement projects. See Appendix A for the full list of Eligible Mitigation Actions.

⁴ Eligible Mitigation Action Nine defines eligibility of light-duty zero emission vehicle supply equipment. See Appendix A for the full list of Eligible Mitigation Actions.

⁵ Eligible Mitigation Action One defines the eligibility of heavy-duty freight and port drayage trucks for repower and replacement projects. Eligible Mitigation Action Six defines the eligibility of medium-duty vehicles for repower and replacement projects. See Appendix A for the full list of Eligible Mitigation Actions.

continue into the future.⁶ DEQ has utilized funding under the State Clean Diesel Grant to administer the Reduce Emissions from Diesels (Go RED!) funding assistance program. Go RED! is a competitive funding assistance program that assists Arkansas-based public, private, and nonprofit entities in reducing diesel emissions in the state through exhaust control, engine upgrade, idling reduction, and engine/vehicle replacement projects.

E. State Agency Fleet Emission Reduction (SAFER) Program

A small percentage (eight percent) of funds would be used to enable State Agency classes 4–8 medium- and heavy-duty vehicles to be replaced or repowered with any fuel allowable under the VW settlement. Such a program is authorized under the terms of the Trust and shall meet the requirements for heavy-duty and medium-duty vehicle repower and replacement under Eligible Mitigation Actions One, Two, and Six.⁷

F. Funding Allocation

Table 1 includes an overview of Trust fund allocations under this Plan. Each budget category includes administrative expenditures associated with implementing the programs up to, but not exceeding, fifteen percent of the total cost of each program.

Table 1 Proposed Budget Overview

Budget Category	% of Total Funds	Estimated Funding Allocation
ABC Pilot Programs	54%	\$7,941,176
EV Infrastructure	15%	\$2,197,156
Arkansas Clean Fuels Grant	20%	\$2,941,176
DERA	3%	\$400,000
SAFER Grant	8%	\$1,168,200

V. Anticipated Environmental Benefits

DEQ anticipates that this Plan would yield environmental benefits with respect to NOx pollution and would have co-benefits in terms of reduction of other pollutants; improving ambient air quality with respect to NOx, ozone, and fine particulate matter; and spurring alternative fuel infrastructure development.

⁶ Eligible Mitigation Action 10 provides states with the option to use Trust funds for their non-federal voluntary match for Diesel Emission Reduction Act (DERA) grants, such as the State Clean Diesel Grant. See Appendix A for the full list of Eligible Mitigation Actions.

⁷ Eligible Mitigation Action One defines the eligibility of heavy-duty freight and port drayage trucks for repower and replacement projects. Eligible Mitigation Action Six defines the eligibility of medium-duty vehicles for repower and replacement projects. See Appendix A for the full list of Eligible Mitigation Actions.

Under the ABC Pilot Program, DEQ anticipates up to a 100% reduction in annual NOx emissions per bus replaced.⁸ Table 2 below shows the anticipated NOx reduction benefits of the ABC pilot program.

Table 2 NOx Emissions Reductions Anticipated Under the ABC Pilot Program

Target fleet	Replacement technology	Short tons per year of NOx emissions reduced per vehicle	Percent NOx emissions reduced
Transit bus	CNG	0.165–0.923	99.7%
	LNG	0.165–0.923	99.7%
	EV	0.167–0.925	100.0%
School bus	CNG	0.041–0.225	85.7–97.0%
	LNG	0.041–0.225	85.7–97.0%
	LPG	0.040–0.224	83.6–96.6%
	EV	0.048–0.232	100.0%

Under the Light-Duty Electric Vehicle Infrastructure Rebate Program, emission reductions will be dependent upon consumer choices regarding replacement of fossil-fuel-powered vehicles with zero-emitting electric vehicles. Each consumer that chooses to do so would reduce emissions of all pollutants from his or her vehicle tailpipe by one-hundred percent. Total emission reductions would vary depending on the composition of the electricity generating fleet where the EV is charging. Nationwide, emissions of NOx from the energy sector have decreased by more than eighty percent in the last twenty-five years despite increased electricity generation.⁹

Environmental benefits under the Arkansas Clean Fuels Grant, Go RED!, and SAFER Grant would vary based on the type of vehicle or engine being replaced, the initial age of the engine, and the engine power rating. Programs that would be eligible under these programs would result in tons of NOx and diesel particulate matter pollution avoided over the lifetime of the vehicles and result in improved ambient air quality and human health for Arkansans. Estimates of NOx emissions reductions from several vehicle types can be found in Table 3.

⁸ Emissions reduction estimates were calculated using the AFLEET 2017 tool modules of the GREET Fleet Footprint Calculator using default assumptions for annual vehicle mileage and fuel economy.

⁹ <https://www3.epa.gov/airmarkets/progress/datatrends/index.html>

Table 3 Emissions Reduction Estimates for Various Vehicle Types Under the Arkansas Clean Fuels Grant and the SAFER Grant^{10,11}

Target fleet	Replacement technology	Short tons per year of NOx emissions reduced per vehicle	Percent NOx emissions reduced
Combination short-haul truck	CNG	0.433–1.893	99.7%
	LNG	0.433–1.893	99.7%
	New Diesel	0.349–1.809	79.8–95.3%
	EV	0.437–1.897	100.0%
Single unit short-haul truck	CNG	0.060–0.237	98.6–98.7%
	LNG	0.060–0.237	98.6–98.7%
	New Diesel	0.049–0.226	81.1–95.1%
	LPG	0.052–0.230	85.7–96.3%
	EV	0.061–0.238	100.0%
Transit bus	CNG	0.165–0.923	99.7%
	LNG	0.165–0.923	99.7%
	EV	0.167–0.925	100.0%
School bus	CNG	0.041–0.225	85.7–97.0%
	LNG	0.041–0.225	85.7–97.0%
	LPG	0.040–0.224	83.6–96.6%
	EV	0.048–0.232	100.0%
Refuse truck	CNG	0.111–0.472	98.5–99.6%
	LNG	0.111–0.472	98.5–99.6%
	EV	0.113–0.474	100.0%
Light commercial truck	CNG	0.022–0.157	80.9–96.8%
	LPG	0.022–0.157	80.9–96.8%
	New Diesel	0.012–0.147	43.1–90.6%
	EV	0.027–0.162	100.0%

In addition to reductions of NOx, most projects completed under the mitigation plan would provide co-benefits of reductions in greenhouse gases (GHG) and fine particulate matter (PM_{2.5}). Just as with the anticipated NOx reductions, pollutant co-benefits would depend upon makes, year models, and numbers of vehicles replaced or repowered. Table 4 below shows potential GHG and PM_{2.5} co-benefits¹² provided by project types allowable under the plan.

¹⁰ Emissions reductions calculated using the AFLEET 2017 tool module of the GREET Fleet Footprint Calculator. AFLEET default values were used for annual vehicle mileage and fuel economy. The range of potential emissions reductions for each target fleet was calculated using assumed replacement of 1992 and 2009 model year vehicles, the oldest and youngest year models eligible under the plan.

¹¹ Only vehicles replaced or repowered under the SAFER Fleet Emissions Reduction Grant and Go RED! would be eligible for repower or replacement with new diesel engine or vehicle technology.

¹² Emission reduction estimates were calculated using the AFLEET Heavy-Duty Vehicle Emissions Calculator (HDVEC) using default mileage, lifetime estimates, fuel economy assumptions. The range of potential emissions reductions for each target fleet was calculated using assumed replacement of 1992 and 2009 model year vehicles.

Table 4 Anticipated PM_{2.5} and GHG reduction co-benefits achieved by NOx emission reduction projects covered by the Arkansas mitigation plan programs¹³

Target fleet	Replacement technology	Percent PM _{2.5} emissions reduced	Percent GHG emissions reduced
Combination short-haul truck	LPG	N/A	N/A
	CNG/LNG	28.6–97.80%	9.79%
	New Diesel	28.61–97.80%	0.00%
	EV	100.00%	37.10%
Single unit short-haul truck	LPG	26.08–97.98%	(+4.43%)
	CNG/LNG	24.21–97.93%	4.48%
	New Diesel	24.21–97.93%	0.00%
	EV	100.00%	37.10%
Transit bus	LPG	N/A	N/A
	CNG/LNG	26.98–94.02%	4.48%
	New Diesel	26.98–94.02%	0.00%
	EV	100.00%	37.10%
School bus	LPG	8.63–97.31%	(+4.43%)
	CNG/LNG	28.35–97.89%	4.48%
	New Diesel	28.35–97.89%	0.00%
	EV	100.00%	37.10%
Refuse truck	LPG	N/A	N/A
	CNG/LNG	24.74–97.48%	4.48%
	New Diesel	24.74–97.48%	0.00%
	EV	100.00%	37.10%

The specific emissions reductions realized through the grant programs would be dependent upon the classes and ages of the vehicles replaced or repowered and the number of vehicles replaced or repowered under the programs.

DEQ anticipates further environmental benefits would be realized from an increased market share of alternative-fueled vehicles that the proposed approach could help to facilitate.

VI. Anticipated Energy and Economic Benefits

DEQ anticipates that, in addition to environmental benefits, the proposed approach would yield positive energy and economic benefits. The proposed approach aims to increase the use

Light commercial truck emissions factors are not included in the Heavy-Duty Vehicle Emissions Calculator, so estimates of co-benefits are not available for that target fleet.

¹³ Numbers in parentheses indicate that replacement of an eligible diesel-powered vehicle with a new vehicle of the specified fuel type would result in an emissions increase rather than an emission reduction. AFLEET 2017 did not include emission rates for new LPG combination short haul trucks, transit buses, and refuse trucks.

alternative-fueled vehicles. Jumpstarting markets for alternative-fueled vehicles serves to support longer term goals of improving energy security and economic development.

Catalyzing the market for CNG has tremendous energy security and economic development benefits for Arkansas. CNG is produced in Arkansas and increasing CNG consumption will drive increased CNG production by Arkansas workers. CNG has historically had a much lower price than traditional fuels, such as gasoline and diesel. Although fuel prices for gasoline and diesel have recently fallen, CNG fuel prices are less volatile and are expected to remain low. CNG vehicles are also less expensive to maintain than gasoline or diesel vehicles. Despite relatively higher upfront costs for CNG vehicles, the true cost to own a CNG vehicle is typically lower due to cheaper fuel and lower maintenance costs. By investing in CNG vehicles and spurring private investment in CNG infrastructure and private CNG fleets, this Plan seeks to shift fuel consumption toward cleaner burning CNG and help create jobs producing CNG in the State. Propane and LNG are also produced in Arkansas, and investments in these alternative fuels are expected to spur additional economic benefits to the State.

Catalyzing the market for EVs has energy security and economic benefits for those that purchase EVs and for all electricity rate-payers regardless of the vehicle they drive. For EV drivers, the cost of electricity is lower and much less volatile than traditional fuel prices. Electricity rate payers are also likely to benefit because the bulk of charging behavior occurs at night. The increase in off-peak demand will increase revenues from selling electricity without requiring capital investment in additional generation assets by the utility. The result would be a downward pressure on electricity rates. Use of electricity as the fuel also reduces dependence on foreign oil.

Lack of infrastructure is currently a market barrier to consumer adoption of alternative-fueled technology. Thus, utilizing Trust funding to catalyze the markets for these alternative fuel markets is a prudent investment in Arkansas's economy.

VII. Public Participation and Federal Land Manager Notification

On September 5, 2017, DEQ issued a request for information (RFI) and draft Environmental Mitigation Plan for feedback from the public. The comment period on the request for information and draft plan closed November 1, 2017. DEQ received thirty-two comments from individuals, other government agencies, and private organizations. The RFI, draft plan, and comments are included with this Plan submission as Appendix D. Public comments helped to inform this Plan.

On February 28, 2018, DEQ sent notification to federal land managers of Arkansas's designation as a Beneficiary under the Volkswagen Environmental Mitigation Trust as required under Section 4.2.8 of the Environmental Mitigation Trust Agreement. Copies of these notifications are included with this Plan submission as Appendix E.

Appendix A Eligible Mitigation Projects and Administrative Expenditures and Definitions

The following mitigation actions are copied without modification from Appendix D-2 of the Volkswagen Partial Consent Decree: Case No: MDL No. 2672 CRB (JSC)

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, LPG, 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 20102012 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 CFR 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 non-federal 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 which 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 move 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 (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 on-board source of power (e.g., All-Electric or hydrogen fuel cell vehicles)

Appendix B Identification of Areas that Bear a Disproportionate Share of Air Pollution

I. Introduction

The Arkansas Department of Environmental Quality has examined several metrics in identifying areas of the State that bear a disproportionate share of air pollution that may benefit from projects to reduce nitrogen oxide emissions under the Volkswagen Environmental Mitigation Trust. These metrics include:

- The number of vehicles subject to the Volkswagen Consent Decree located in each county;¹
- The amount of nitrogen oxides (NOx) by mobile sources emitted in each county;
- National ambient air quality standard (NAAQS) design values for nitrogen dioxide (NO₂), ozone, and fine particulate matter (PM_{2.5})

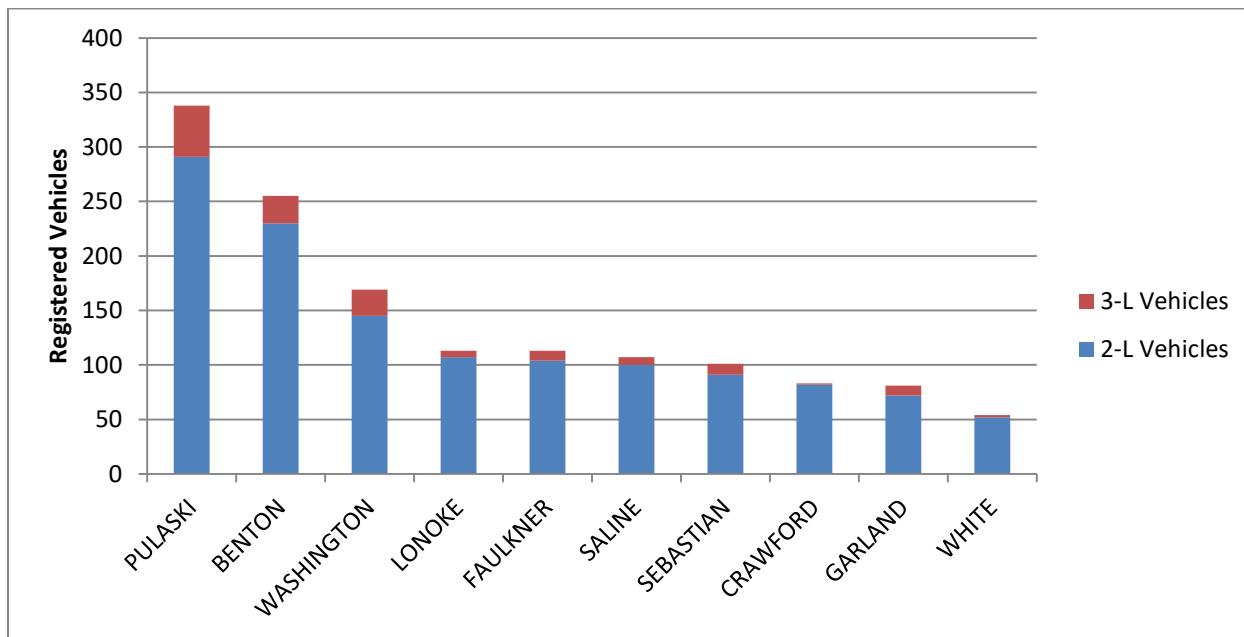
This report provides an overview of data obtained for each of the three metrics.

II. Subject Vehicle Registrations by County

A total of 2050 subject two-Liter and three-Liter Volkswagen turbocharged direct injection diesel vehicles are registered in Arkansas. Figure B-1 indicates the top ten counties for subject vehicle registration and indicates that the majority of subject vehicles are registered in central and northwest Arkansas. Sixteen percent of subject vehicles are registered in Pulaski County, twelve percent are registered in Benton County, and eight percent are registered in Washington County.

¹ Case 3:15-md-02672-CRB (JSC)

Figure B-1 Top Ten Arkansas Counties for Subject Vehicle Registration²



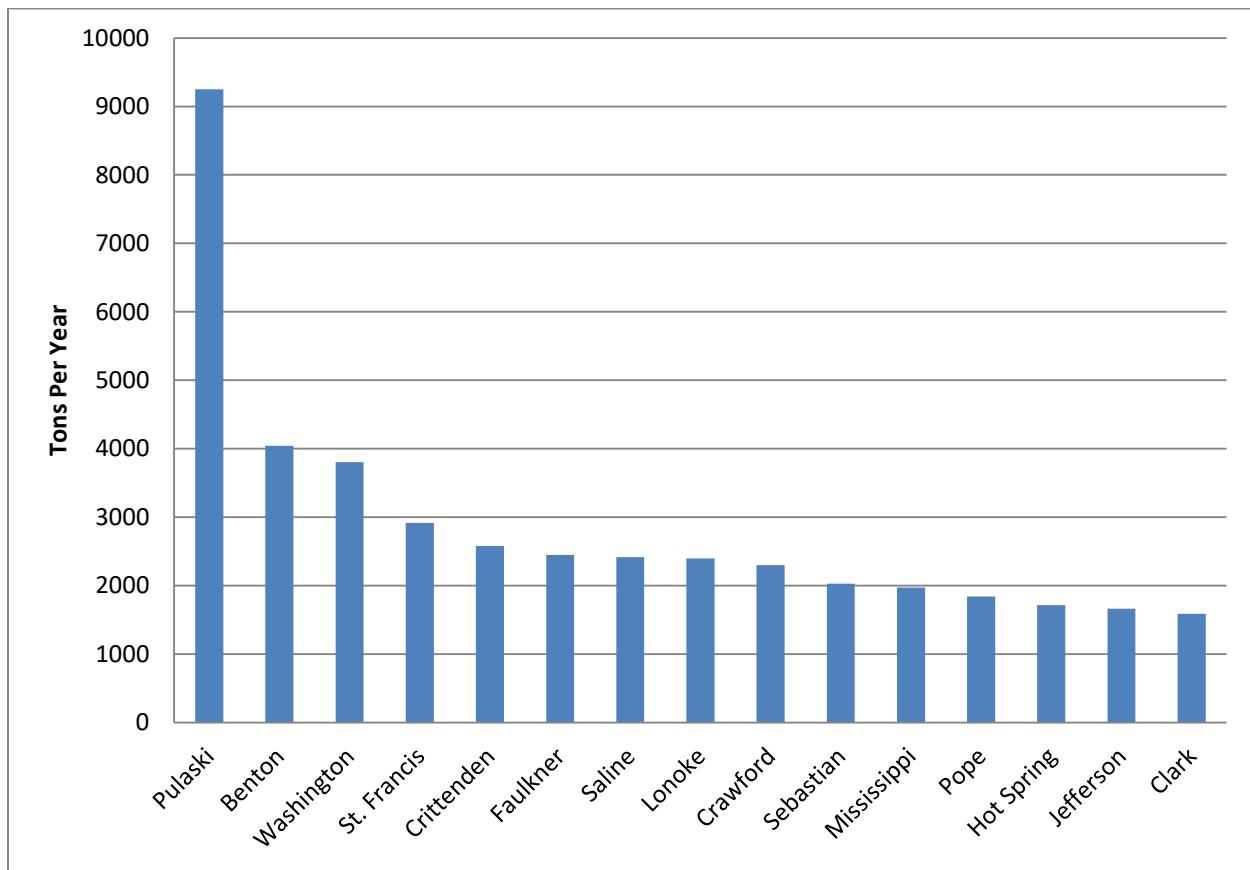
Based on registration data for subject diesel vehicles, it appears that Central and Northwest Arkansas have born a disproportionate share of NOx emissions from subject vehicles.

III. On-Road Nitrogen Oxide Emissions

On-road NOx emissions vary across Arkansas. Emissions in the top fifteen counties account for nearly sixty percent of all on-road NOx emissions in the State. Sixty percent of on-road NOx emissions are from on-road heavy duty diesel vehicles, which are the largest contributor to mobile NOx emissions in Arkansas, followed by on-road light-duty non-diesel vehicles, locomotives, and non-road diesel equipment. In the EPA National Emission Inventory, the heavy-duty mobile category includes vehicle weight classes three through eight. Emissions from the other mobile source categories only make up six percent of the mobile NOx inventory combined. When NOx emissions from only diesel-fueled vehicles are considered, on-road heavy duty diesel vehicles comprise the majority of emissions followed by locomotives and non-road diesel equipment. Emissions from other diesel mobile source categories make up approximately three percent of the diesel mobile NOx inventory combined. Figure B-2 shows fifteen counties in Arkansas with the highest on-road NOx emissions. Figure B-3 shows the distribution of NOx emissions in Arkansas by mobile category. Other sources contribute only minor amounts of NOx emissions. Figure B-4 shows the distribution of NOx emissions from mobile diesels in Arkansas by category.

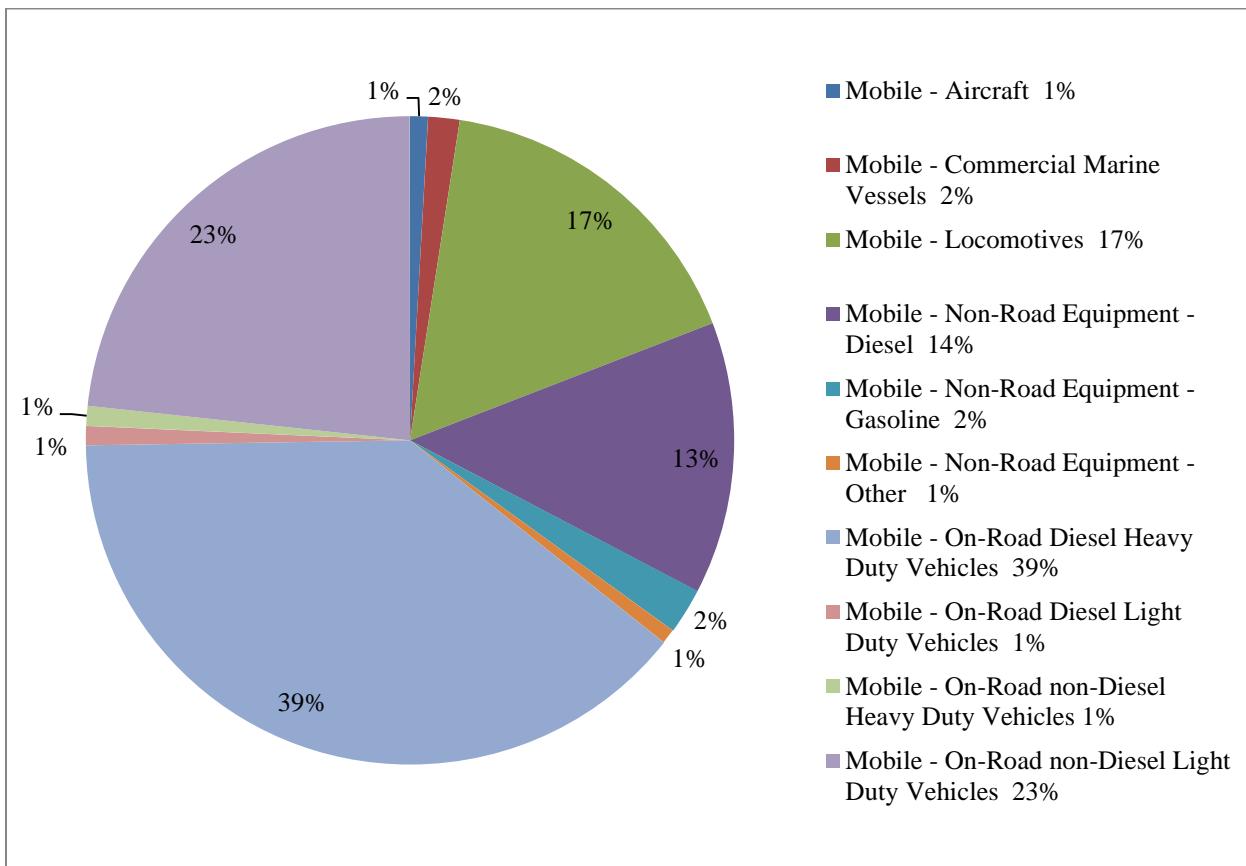
² Personal communication from Arkansas Highway and Transportation Department

Figure B-2 Top Fifteen Counties for On-Road NOx Emissions in Arkansas³



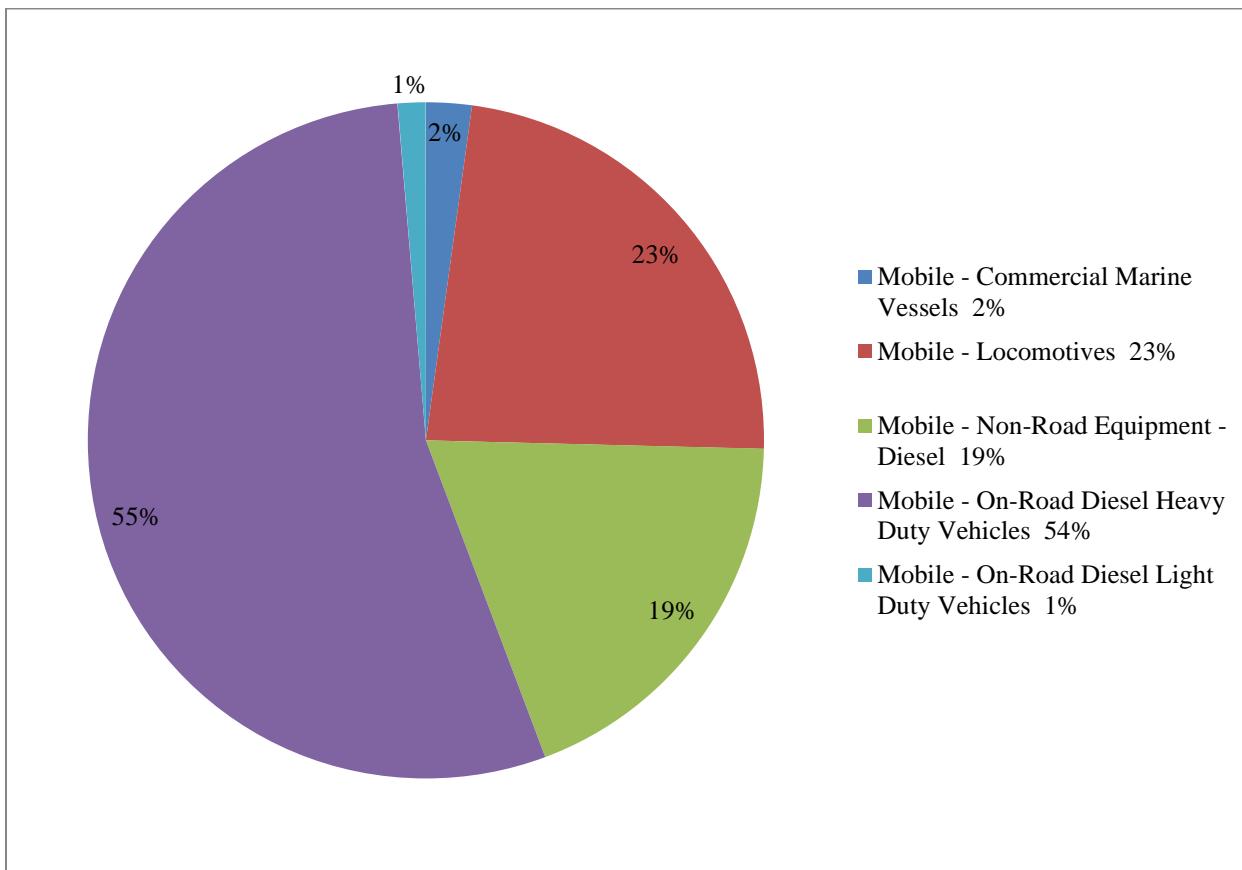
³ Environmental Protection Agency National Emissions Inventory 2014 (2014 National Emissions Inventory, version 1)

Figure B-3 NOx Mobile Emission Inventory for Arkansas⁴



⁴ Environmental Protection Agency National Emissions Inventory 2014 (2014 National Emissions Inventory, Version 1)

Figure B-4 NOx Mobile Diesel-Powered Emissions Inventory for Arkansas⁵



Based on the relative amounts of on-road NOx emissions in each county and the relative contribution to the NOx inventory of each mobile source category, it appears that targeting emission reductions from on-road heavy duty diesel vehicles (vehicle weight classes three through eight) and on-road light duty non-diesel vehicles in Central Arkansas, Northwest Arkansas, and counties in the Memphis area would address the largest contributors to mobile NOx in those areas that bear a disproportionate share of on-road NOx emissions.

VIII. NAAQS Design Values for NO₂, Ozone, and PM_{2.5}

All counties in Arkansas are in attainment with the NAAQS for all criteria pollutants. Attainment status is determined by comparing design values, which are computed for each monitor location based on the time-weighted averages of the criteria pollutant in ambient air and the form of the NAAQS, to the level of the NAAQS. Crittenden County, located in the Memphis metropolitan area, has experienced periods during which the area was in nonattainment with ozone national

⁵ Environmental Protection Agency National Emissions Inventory 2014 (2014 National Emissions Inventory, Version 1)

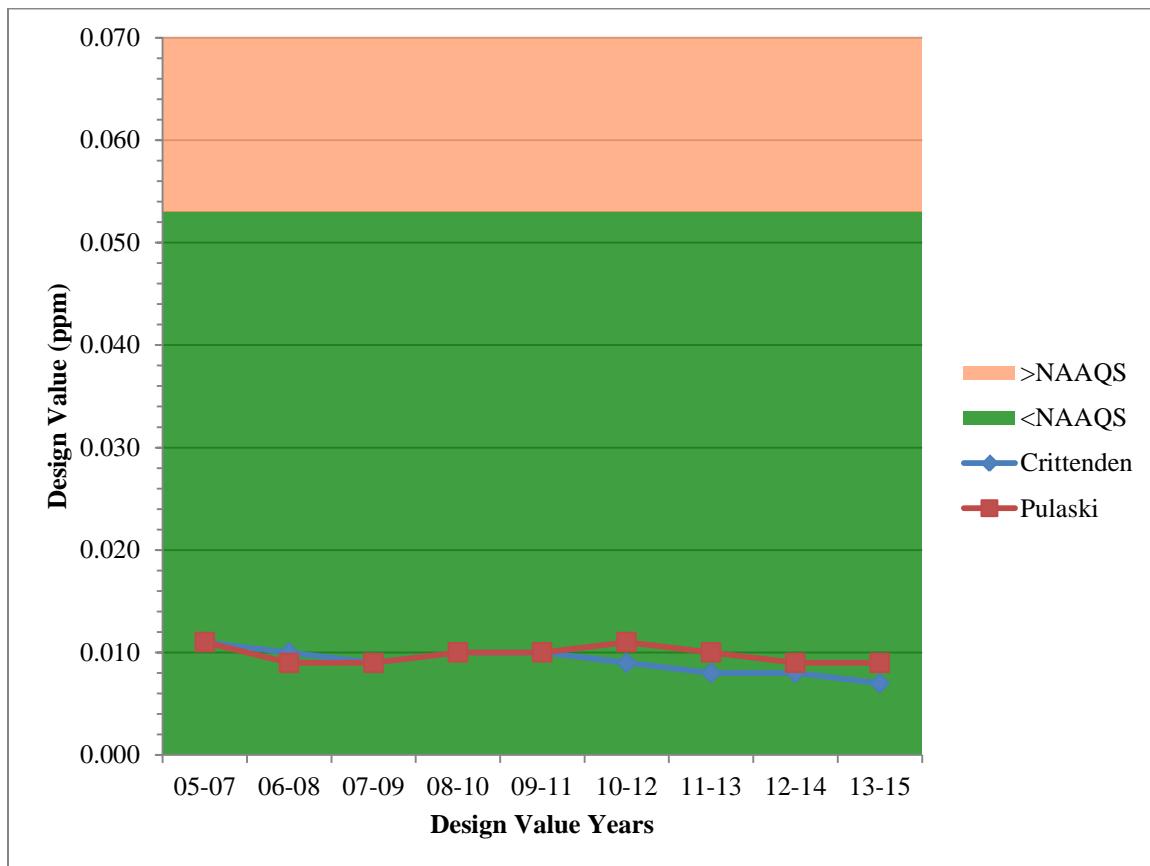
ambient air quality standards as standards became more stringent in 1997 and 2008; but, as a result of monitored improvements in air quality between 2012 and 2014, the county was redesignated to attainment in 2016 and is currently under a maintenance plan to ensure continued attainment of the 2008 ozone NAAQS.

All counties in Arkansas are anticipated to continue to attain all of the NAAQS, including the recently promulgated 2015 ozone NAAQS set at seventy parts per billion (ppb). On September 29, 2016, Governor Asa Hutchinson recommended to EPA Region Six that all counties in Arkansas be designated attainment or attainment/unclassifiable (for counties that do not have a monitor) for the 2015 ozone NAAQS based on 2013 – 2015 data.

A. Nitrogen Dioxide

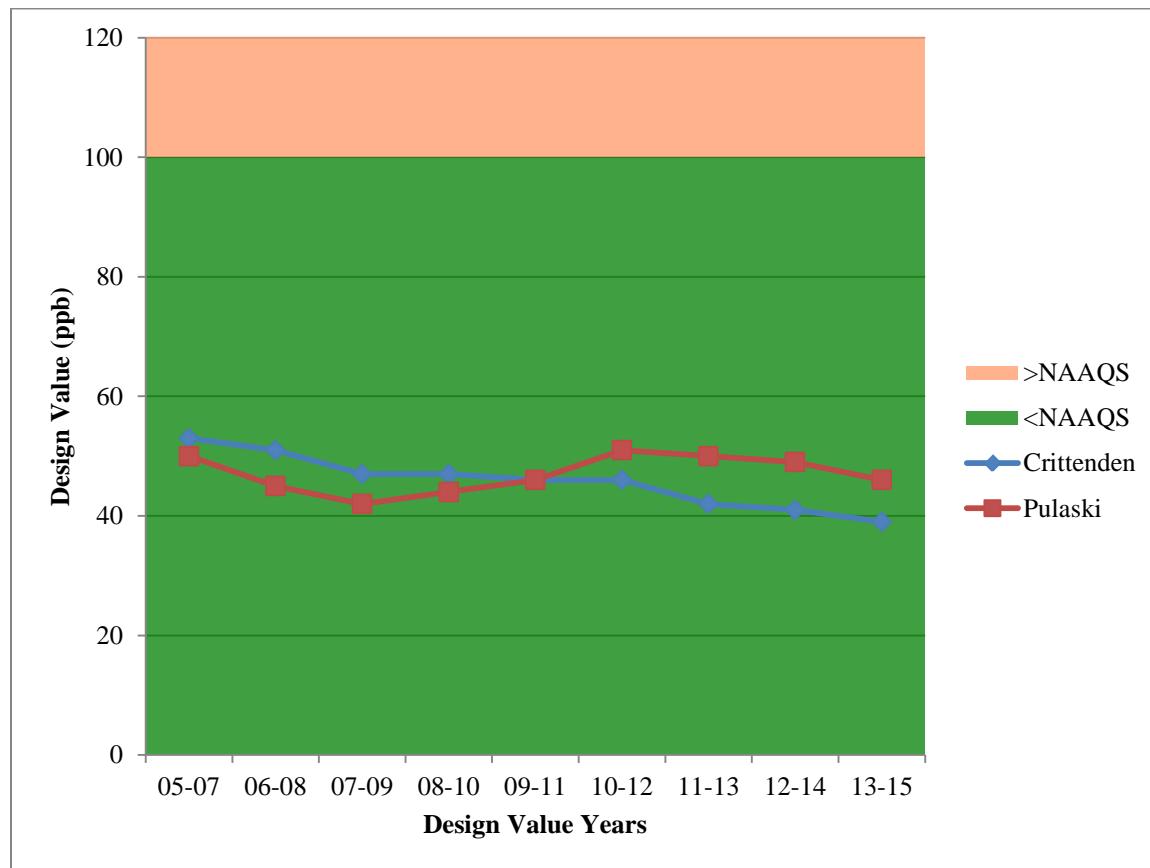
Arkansas is in attainment with both the annual and one-hour NO₂ NAAQS. There are two NO₂ monitors in the state. One is located in Pulaski County and the other is located in Crittenden County. Over the past ten years, NO₂ design values in Crittenden County have declined because of measures to reduce ozone concentrations in the area. NO₂ design values in Pulaski County have also declined. All NO₂ design values over the past decade have been well below the level of the NAAQS. Figure B-5 shows trends in the annual NO₂ design values at each monitor and Figure B-6 shows trends in one-hour design values at each monitor.

Figure B-5 Arkansas Annual NO₂ Design Values 2005–2015⁶



⁶ Environmental Protection Agency Air Quality System Database

Figure B-6 Arkansas NO₂ One-Hour Design Values⁷



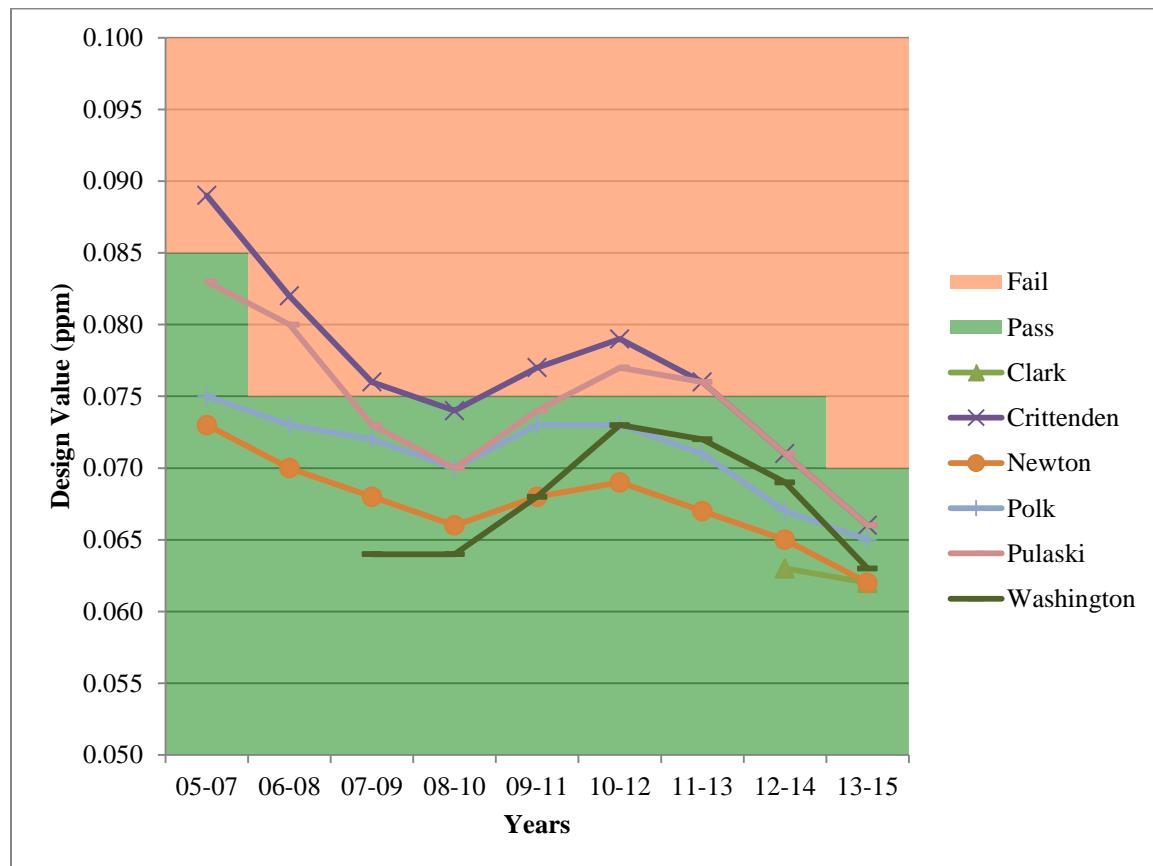
Based on trends in the 1-hour and annual NO₂ NAAQS, it appears that no monitored locations in the state bear a disproportionate share of air pollution with respect to either of the two NO₂ NAAQS.

B. Ozone

All areas of the state have ozone design values below the level of the current NAAQS for ozone (seventy ppb). Crittenden County was designated a marginal nonattainment area for the 1997 ozone standard and the 2008 ozone standard, but ultimately re-attained each standard through continued improvements in air quality. Over the past ten years, concentrations of ozone have dropped in Crittenden County and across the state because of federal and State air quality programs to reduce emissions of precursor pollutants, particularly NOx. Figure B-7 shows trends in ozone design values at each of the monitors in the State over the past ten years compared to the concurrent ozone NAAQS.

⁷ Environmental Protection Agency Air Quality System Database

Figure B-7 Ozone Design Values at Arkansas Monitors 2005-2015⁸



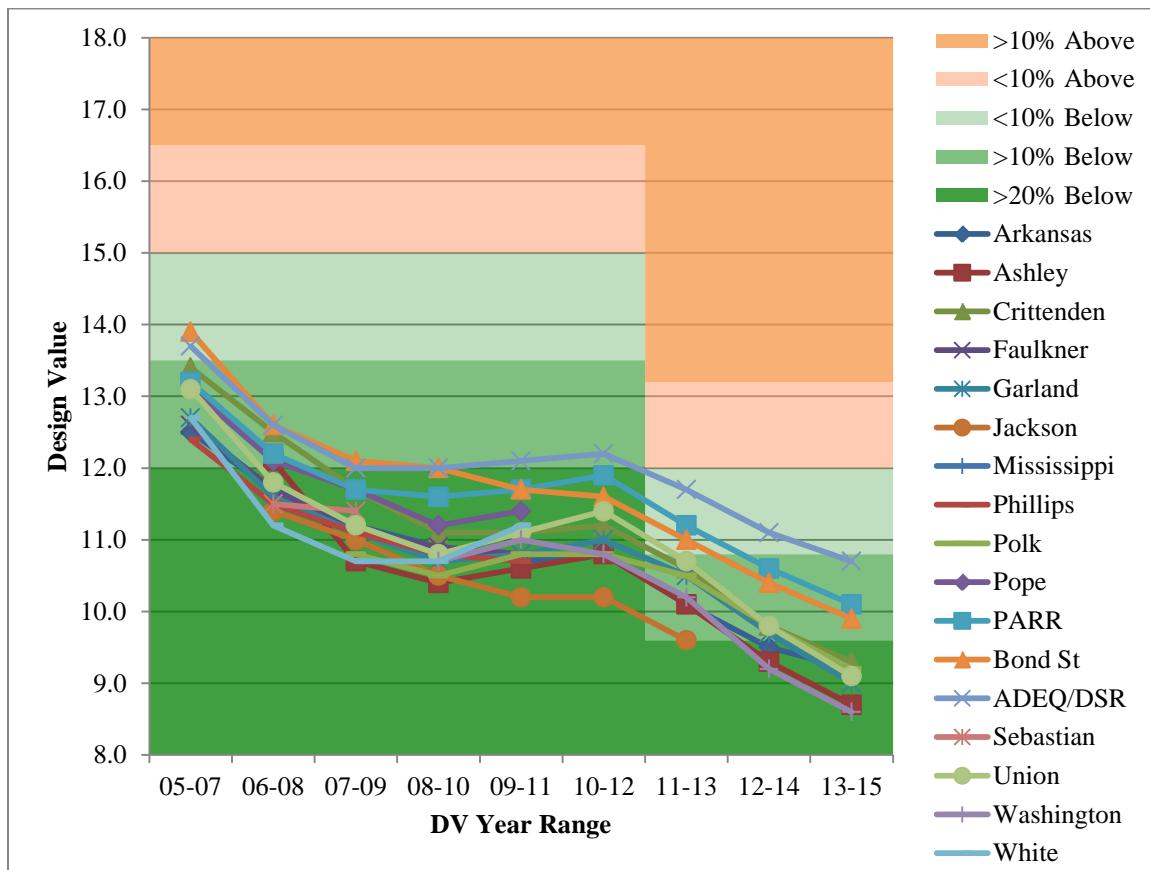
Based on historic ozone design value trends and attainment designations, Crittenden County and Pulaski County have borne a disproportionate share of air pollution with respect to ozone. As such, these locations would be good locations to target NOx, an ozone precursor, emission reductions.

C. Fine Particulate Matter (PM_{2.5})

All areas of the state are in attainment with the current annual and twenty-four-hour NAAQS for PM_{2.5}. The annual PM_{2.5} NAAQS was revised from fifteen micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to twelve $\mu\text{g}/\text{m}^3$ in 2013. Figure B-8 shows trends in annual PM_{2.5} design values at each of the monitors in the State over the past ten years compared to the concurrent annual PM_{2.5} NAAQS. Three monitors—PARR, Bond St., and DEQ/DSR—are located in Pulaski County. Figure B-9 shows trends in twenty-four-hour PM_{2.5} design values at each of the monitors in the State over the past ten years compared to twenty-four-hour PM_{2.5} NAAQS.

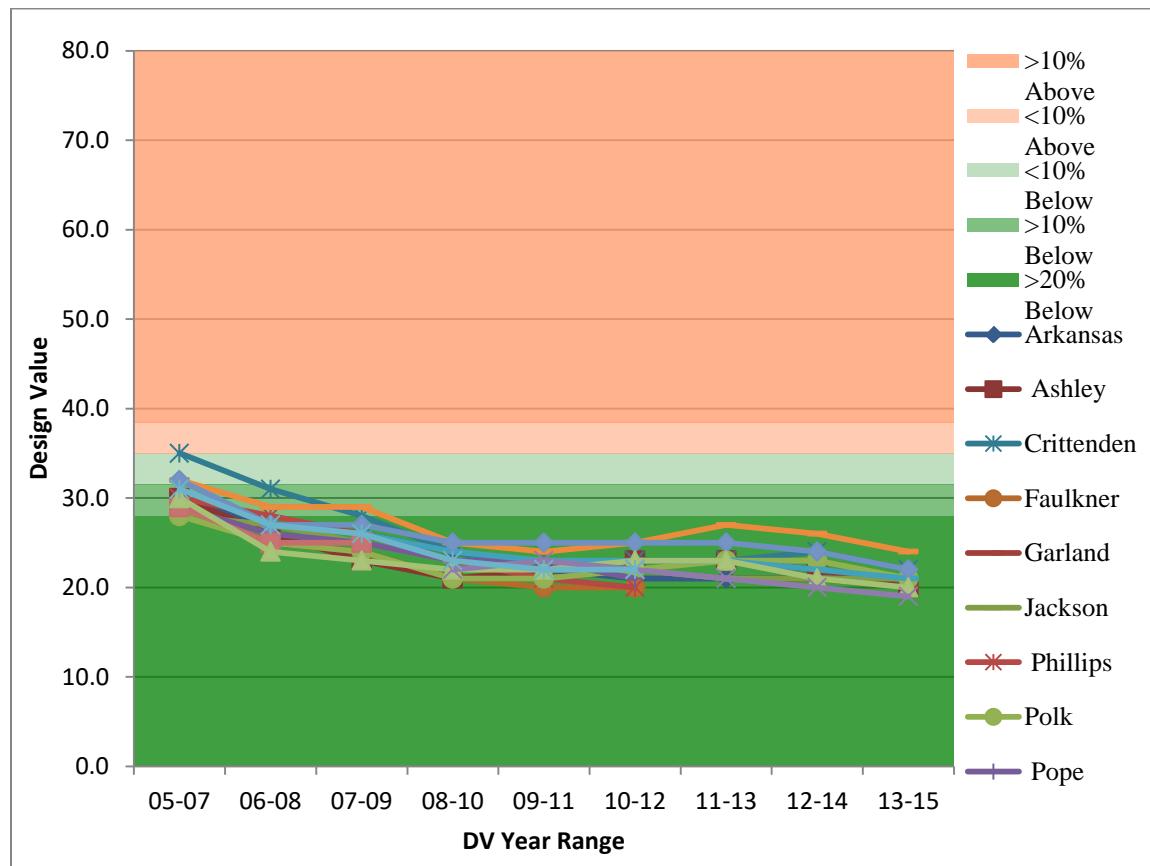
⁸ Environmental Protection Agency Air Quality System Database

Figure B-8 Annual PM_{2.5} Design Values for Arkansas 2005-2015⁹



⁹ Environmental Protection Agency Air Quality System Database

Figure B-9 Twenty-Four-Hour PM_{2.5} Design Values for Arkansas 2005-2015¹⁰



Based on historic PM_{2.5} design value trends, Crittenden County and Pulaski County have born a disproportionate share of air pollution with respect to PM_{2.5}. As such, these locations would be good locations to target NOx, a PM_{2.5} precursor, and diesel particulate emission reductions.

IX. Conclusion

This report has evaluated areas that have born a disproportionate share of air pollution with respect to NOx emissions from vehicles subject to the Volkswagen Consent Decree, on-road NOx emissions in general, and ambient air concentrations historically exceeding or near to the level of the NAAQS of pollutants for which NOx is a precursor. Taking together all evaluated metrics, it appears that Central Arkansas, Northwest Arkansas, and counties near the Memphis metropolitan area have born a disproportionate share of air pollution and that targeting programs to reduce on-road NOx emissions in these areas is likely to result in improvements in air quality. The two largest mobile emitters of NOx are on-road heavy-duty diesel vehicles (vehicle weight classes three through eight) and light-duty non-diesel vehicles. Thus, targeting funding under the Volkswagen Environmental Mitigation Trust on eligible mitigation actions one, two, six, and

¹⁰ Environmental Protection Agency Air Quality System Database

nine would be prudent measures to address the largest contributors to mobile NOx emissions in Arkansas.¹¹

¹¹ Eligible Mitigation Action One defines the eligibility of heavy-duty freight and port drayage trucks for repower and replacement projects. Eligible Mitigation Action Two defines eligibility of buses for repower and replacement projects. Eligible Mitigation Action Six defines the eligibility of medium-duty vehicles for repower and replacement projects. Eligible Mitigation Action Nine defines eligibility of light-duty zero emission vehicle supply equipment. See Appendix A for the full list of Eligible Mitigation Actions.

Appendix C Alternative Fuel Corridors

I. Background

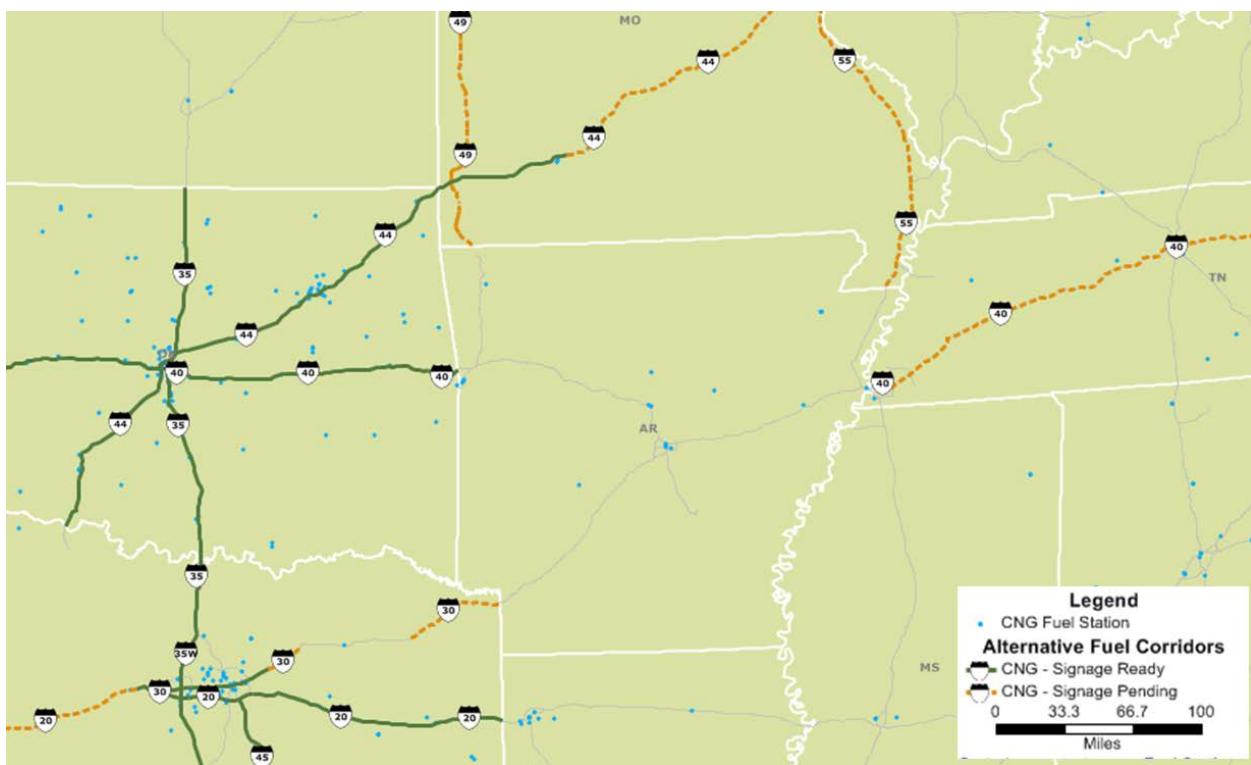
The 2015 Fixing America's Surface Transportation (FAST) Act established an Alternative Fuel Corridors Program to establish alternative fueling and/or charging facilities along national highway system corridors. Under this program, states nominate highways or segments of highways for inclusion in the program. The Federal Highway Administration provides signage to states with corridors designated under the Alternative Fuel Corridors Program to catalyze consumer interest in alternative fuel vehicles. Compressed natural gas (CNG), propane (LPG), and electric vehicle (EV) corridors also have priority for federal Congestion Mitigation and Air Quality Improvement (CMAQ) funds. No alternative fuel corridors are currently designated in Arkansas, but corridors could be established by installation of CNG fueling facilities, LPG fueling facilities, and EV charging facilities in a few key locations.

DEQ submitted an alternative fuel corridor nomination to the Federal Highway Administration (FHWA) on November 30, 2017. Signage-ready and signage-pending segments of I-30, I-40, I-55, and U.S. 67/167 in Arkansas for CNG, LPG, and EV-charging infrastructure were identified and submitted to FHWA for consideration for inclusion in the alternative fuels network. Segments of I-40 and U.S. 67/167 were subsequently approved by FHWA as signage-ready for CNG.

II. CNG Alternative Fuel Corridors

To be designated a CNG alternative fuel corridor, highways or segments of highways must have public, fast-fill, 3,600 pounds per square inch CNG stations no greater than 150 miles apart. Stations must be within five miles of the corridor. Figure C-1 shows for neighboring states the locations of designated CNG alternative fuel corridors and locations where states are working toward CNG alternative fuel corridors. Some of the CNG stations marked in Figure C-1 are not within five miles of the highway and therefore cannot be counted toward the requirements for designation of a CNG Fuel Corridor.

Figure C-1 CNG Alternative Fuel Corridors in States Adjacent to Arkansas¹



A CNG alternative fuel corridor could be established along Interstate Forty (I-40) by the addition of a CNG station somewhere between Conway, AR and Fort Smith, AR and would have to be located within five miles of Interstate Forty per certified alternative fuel corridor requirements. The two CNG stations located in Fort Smith, Arkansas are too far from Interstate Forty to qualify. There is a qualified CNG station in Webber, OK approximately 169 miles away from the CNG station in Conway, AR.

An alternative fuel corridor could also be established along Interstate Thirty through installation of a CNG station midway between stations located in Little Rock, AR and Sulphur Springs, TX, which are approximately 250 miles apart. The addition of one such CNG station would make the entire section of Interstate Thirty in Arkansas eligible for alternative fuel corridor certification.

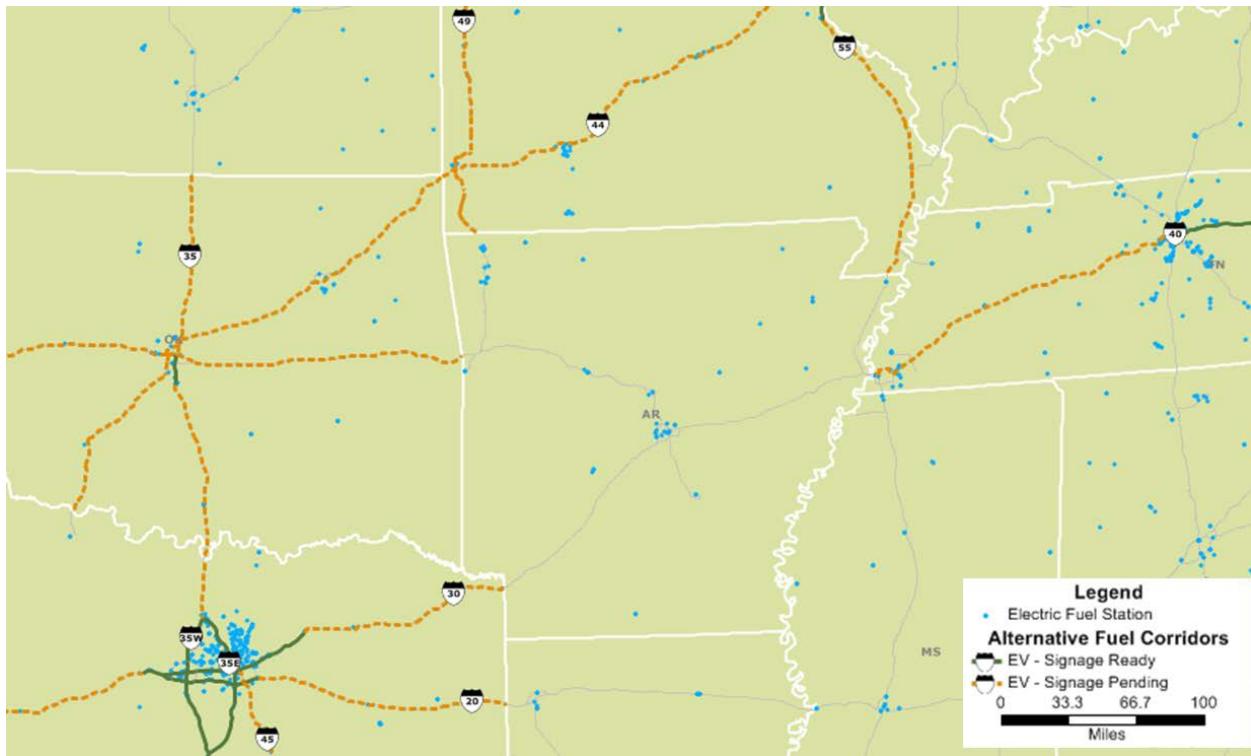
III. EV Alternative Fuel Corridor

To be designated an EV alternative fuel corridor, highways or segments of highways must have public, DC Fast Charging or Level Two chargers no greater than fifty miles apart. Charging stations must be within five miles of the corridor. Figure C-2 shows for neighboring states the locations of designated EV alternative fuel corridors and locations where states are working toward EV alternative fuel corridors. Some of the EV stations marked in Figure C-2 are not

¹ Compressed Natural Gas (CNG) Alternative Fuel Corridors obtained from hepgis.fhwa.dot.gov

within five miles of the highway and therefore cannot be counted toward the requirements for designation of an EV Fuel Corridor.

Figure C-2 EV Alternative Fuel Corridors in States Adjacent to Arkansas²



The segment of Interstate Forty between Russellville and North Little Rock meets the requirements to be designated an EV alternative fuel corridor. There are no public DC Fast Charge or Level 2 EV charging stations in Arkansas within five miles of Interstate Forty west of Russellville or east of North Little Rock. There are no EV stations within five miles of Interstate Thirty south of Little Rock.

IV. Propane Alternative Fuel Corridor

In order to be considered for inclusion in a national alternative fuel corridor, propane stations must include primary auto fueling infrastructure, be open to the public during regular business hours, be located within five miles of the designated alternative fuel corridor, and have a pricing structure specific to auto fuel. There is considerable interest from the propane industry in Arkansas in providing auto fuel service and inclusion in the alternative fuel corridor network. DEQ is currently working with the Arkansas LPG Board and the Arkansas Propane Association to provide information about requirements for LPG auto fueling facilities to become eligible for inclusion in alternative fuel corridors.

² Electric Vehicle (EV) Alternative Fuel Corridors obtained from hepgis.fhwa.dot.gov

V. Conclusion

Funds under the Volkswagen Environmental Mitigation Trust could be used by Arkansas to work toward the designation of major interstates as alternative fuel corridors. CNG fueling infrastructure development could be encouraged by CNG medium-duty, heavy-duty, or bus pilot programs deployed in strategic areas of the State. As part of these pilot programs, Arkansas could solicit private investment in CNG fueling stations to service vehicles repowered or replaced under the CNG pilot programs. The pilot programs could be funded under the Volkswagen NOx Environmental Mitigation Trust Eligible Mitigation Actions One, Two, and/or Six.³ An EV charging infrastructure rebate or grant program would be eligible under Volkswagen NOx Environmental Mitigation Trust Eligible Mitigation Action Nine.⁴

³ Eligible Mitigation Action One defines the eligibility of heavy-duty freight and port drayage trucks for repower and replacement projects. Eligible Mitigation Action Two defines eligibility of buses for repower and replacement projects. Eligible Mitigation Action Six defines the eligibility of medium-duty vehicles for repower and replacement projects. See Appendix A for the full list of Eligible Mitigation Actions.

⁴ Eligible Mitigation Action Nine defines eligibility of light-duty zero emission vehicle supply equipment. See Appendix A for the full list of Eligible Mitigation Actions.

Appendix D Public Participation

Appendix E Federal Land Manager Notification