



business resources
economic development
advocacy

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March 7, 2018

Dept. of Environmental Management
Commissioner's Office

The Honorable Bruno L. Pigott, Commissioner
Indiana Department of Environmental Management
Indiana Government Center North
100 North Senate Avenue
Indianapolis, IN 46204

MAR 16 2018

RE: Indiana's Plans for the Volkswagen Environmental Mitigation Trust Funds

Dear Commissioner Piggott:

One Southern Indiana (1si) is the local economic development organization and chamber of commerce for Clark and Floyd counties in Southern Indiana. With over 1,075 members and investors, 1si proactively works to grow our regional economy through business attraction, retention and expansion; through encouraging and supporting entrepreneurs and workforce development; and through providing government and workforce advocacy, business education, networking opportunities and other business services to our members and investors.

We appreciate IDEM's leadership with the Volkswagen Environmental Mitigation Trust, and 1si is pleased to offer our support for the development of Indiana's Beneficiary Mitigation Plan. Funding available from this Trust presents a rare opportunity for our state to make investments in transportation infrastructure and equipment that can unlock a range of benefits, including cost savings for vehicle and fleet owners, increased competition, reduced dependence on conventional fuels, economic and employment growth, grid and electricity market benefits, and significant reductions in air pollution.

In our Southern Indiana counties, historical and current issues with non-attainment designations create a significant interest in the reduction of air pollution in the Ohio River Valley. With these concerns in mind, 1si commits our support of IDEM's allocation of the maximum allowable amount (15%) of the Volkswagen settlement funds to be used for electric vehicle charging infrastructure and installations in our areas.

We are working with our partners in Kentucky and throughout the Louisville region to address the future of transportation in our region. If allocated to electric vehicle support, there are multiple public and private entities in Southern Indiana that can compete for and benefit from these funds. Major project opportunities in our region include transit bus replacement, fleet and municipal vehicle replacement, vehicle electrification, and others.

One Southern Indiana appreciates the work the Indiana Department of Environmental Management (IDEM) has done to date and looks forward to working together with our local partners to bring new investments and projects that improve the region's environmental outlook and transform our transportation system.

Sincerely,

Wendy Dant Chesser
President & CEO

From: Greg Haltom <glhaltom@tsc.k12.in.us>
Sent: Friday, March 16, 2018 10:24 AM
To: IDEM VWTrust
Subject: Public comment on VW Mitigation trust

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

To Whom It May Concern:

I am writing to you regarding the benefits of including school buses as a part of the VW trust mitigation program. School buses transport the vast majority of school-aged children in Indiana. Diesel power has been the choice for our platform for many years. Our district has decided to move away from diesel power toward propane power for many reasons. First, the use of propane helps to reduce noxious emissions around our children and in our community as a whole. Second, we've found propane to be more economically friendly which helps to positively benefit the taxpayers of our community. Third, our above ground propane fueling sites are far easier to maintain with less threat of unknown leakage into the environment than the buried diesel tanks that we have at this point. Lastly, as propane technology advances with more usage, we feel that the above mentioned benefits will only increase, making it an even more attractive alternative fuel.

In closing, I request that the trust committee strongly consider the replacement of diesel school buses with alternative fuel buses as a part of the trust disbursement due to the benefits to our community and our children.

Sincerely,

Greg Haltom
Director of Transportation
Tippecanoe School Corporation
765-474-2481

"I learned that courage was not the absence of fear, but the triumph over it. The brave man is not he who does not feel afraid, but he who conquers that fear."

Nelson Mandela

From: Holmes, Brandon <Brandon.Holmes@ccbcc.com>
Sent: Tuesday, March 13, 2018 10:13 AM
To: IDEM VWTrust
Subject: CCBCC - DERG Public Comments: On behalf of Robert Hanshaw
Attachments: CCBCC - DERG Public Comments_Indiana.pdf

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

Please see attached for our formal submission to public comments for the Indiana VW Trust Mitigation Program. This is being sent on behalf of Robert Hanshaw, Sr. Director Procurement.

Brandon T. Holmes | Procurement Analytics Manager
Coca-Cola Bottling Co. Consolidated
4100 Coca-Cola Plaza, Charlotte, NC 28211
☎ 704-557-4467 | ✉ Brandon.Holmes@ccbcc.com

Procurement Team Mission:
Value, Service, and Innovation delivered commensurate to the brand we represent

CCBCC Purpose:
To Honor God In All We Do. To Serve Others, To Pursue Excellence, To Grow Profitably

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March 13, 2018

RE: Environmental Mitigation Trust Grant Funds

To whom it may concern,

On behalf of CCBC Operations, LLC (CCBCC), I am writing you to express my recommendation for the use of grant funds allocated to Indiana through the Environmental Mitigation Trust that was created as a result of the emissions litigation settlement with the U.S. EPA. Our company, CCBCC, would recommend that Class 7 and 8 delivery vehicles are to be included in the state's mitigation plan. These vehicles run a high number of miles in and around highly populated areas within the state and therefore inclusion of these vehicles in the state's program would have a significant environmental impact.

As the largest independent Coca-Cola bottler in the county, CCBCC directly employs a substantial workforce in Indiana and deliveries made by CCBCC help support the local economies and drive economic growth for all businesses within the state.

Thank you for your consideration of this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Hanshaw". The signature is fluid and cursive, with a long horizontal line extending to the right.

Robert Hanshaw
CCBCC Operations, LLC
Sr. Director Procurement



From: Mitchell Corwin <mcorwin@nafcs.k12.in.us>
Sent: Wednesday, March 07, 2018 8:10 AM
To: IDEM VWTrust
Subject: Beneficiary Mitigation Plan Comments

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

Dear IDEM,

I am writing to appeal to you on behalf of school corporations to allocate the VW Mitigation funds to repower current diesel powered school buses with newer more efficient and proficient NOX emissions diesel engines.

I am convinced the newest versions of the diesel engines equipped Selective Catalytic Reduction (SCR) using Diesel Exhaust Fluid (DEF) is the most cost-effective and fuel-efficient technology available to help reduce diesel engine emissions. Older model buses equipped with the older version emission engines are without the SCR and DEF equipment and would greatly benefit from updated equipment and technology. All heavy-duty diesel truck engines produced after January 1, 2010 must meet the latest EPA emissions standards, reducing particulate matter (PM) and nitrogen oxides (NOx) to near zero levels. SCR can reduce NOx emissions up to 90 percent while simultaneously reducing HC and CO emissions by 50-90 percent, and PM emissions by 30-50 percent. Updating a fleet of pre-2010 emission buses could make a considerable impact.

Our corporation currently is operating 44 buses that are pre-2010 diesel emission technology. Our county is a suburb of Louisville KY and has a wide range of bus routes including very rural areas as well as inner city type routes. With a growing population, mass transit with 2 interstates, and considerable boat/barge traffic on the Ohio River, I feel our School Corporation and community could greatly benefit from any pollution improvements wherever they could be made.

I would not consider a re-power project involving CNG or Propane to be the best choice for our school system. With varying sizes of routes and distances totaling many miles and numerous field trips totaling many miles, the capacity of the fuel storage on these types of buses and the ability to refuel would not be ideal. The longevity of the CNG or propane would not be ideal for us either. The CNG and propane engines are designed and built on the gas engine platform. With the long term durability of the diesel engine, it is the best choice, as many of our buses see 200,000 plus miles of severe type driving during their use.

The only other viable option for us would be the electric powered bus. The electric motors have considerable torque and power potential which would be an asset in climbing the steep terrain in our rural areas. The only question about electric power is the duration of the battery during use. Our typical bus route would be a total of 4-5 hours with a sizable break in the midday, but we do have buses that are driven almost the entire school day. Another concern is the feasibility of charging the buses while on trips away from our schools.

I am asking this group to see the municipal groups, such as schools, as a priority in the distribution of the VW funding in endeavoring to lower NOX emissions. Our budgets are set and many times do not have the ability to appropriate funds to do things like repowering with either diesel or electric. Unlike the private sector, we have no means to increase cash flow to fund projects we desire to achieve. With a diesel repower being the best choice and electric repower being the second, we ask that you would consider schools a high priority.

Thank You,

Mitch Corwin

Transportation Shop Supervisor

New Albany Floyd County School Corporation

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March 29, 2018

Indiana Department of Environmental Management
Office of Air Quality
100 North Senate Avenue
IGCN 1003
Indianapolis, Indiana 46204-2251

RE: VOLKSWAGEN CONSENT DECREE
ENVIRONMENTAL MITIGATION TRUST
BENEFICIARY MITIGATION PLAN (BMP)
(DRAFT FRAMEWORK) RESPONSE TO REQUEST
FOR INFORMATION(RFI)

IDEM and Members of the Volkswagen Environmental Mitigation Trust Fund Committee:

In response to the draft framework, the City of Indianapolis submits the following comments for consideration.

Comment 1:

The RFI outlines that the State must address the following in developing the BMP: *"The overall goal for the use of the funds developing the BMP"*

The City of Indianapolis believes the overall goal for the use of funds is to protect public health and welfare with emphasis on vulnerable populations within areas that bear a disproportionate share of the air pollution burden.

This is in agreement with the basis of the Clean Air Act and the Consent Decree which states, *"the Clean Air Act's concern and thus the Consent Decree's as well is the protection of air quality as it relates to the public health and welfare."*

Comment 2:

Page 2 of the APPENDIX, under the heading "Impact Statement" outlines the following priorities for projects.

"Priority for projects will be given to areas that:

Are currently or may soon be designated nonattainment for the newest ozone NAAQS or are maintenance areas for Ozone and/or PM2.5 NAAQS.

Have populations adversely impacted by poor air quality due to diesel engine emissions from nearby stationary or mobile emission sources, such as urban residential areas in close proximity to roadways with high traffic volumes."

The City of Indianapolis believes that priority rankings for areas that are currently nonattainment or maintenance areas for ozone and PM2.5 leads to limitations at the project level in addressing the overall goal to protect public health.

Using nonattainment or maintenance classifications may not be the best representation of current population exposure. For example, counties such as Lake and Porter were designated as nonattainment for the 2008 ozone standard on June 11, 2012. However, the most recent air quality design values for Lake and Porter counties illustrate that current population exposure is lower compared to other counties (Figure 1).

Design values describe the air quality status of a given location relative to the level of the National Ambient Air Quality Standards (NAAQS). The most recent air quality design values should be used to provide a more accurate representation of current population exposure opposed to area designations.

It is important to note that the NAAQS protect public health with an adequate margin of safety. However, the NAAQS do not provide zero-risk. Pollutant concentrations that are lower than the levels of the standards are not without risk for vulnerable populations. No risk-free level of exposure has been determined for any of the criteria pollutants.

For example, counties such as Clark and Floyd are above the 70 ppb ozone standard but their vulnerable populations are much lower compared to other counties. It is conceivable that vulnerable population impacts in counties like Marion are comparatively greater given the small 1 ppb difference in ozone. (Figure 1).

Indiana counties should be prioritized for funding based (in part) on current design values for ozone and PM2.5 while factoring in the size of their respective vulnerable populations.

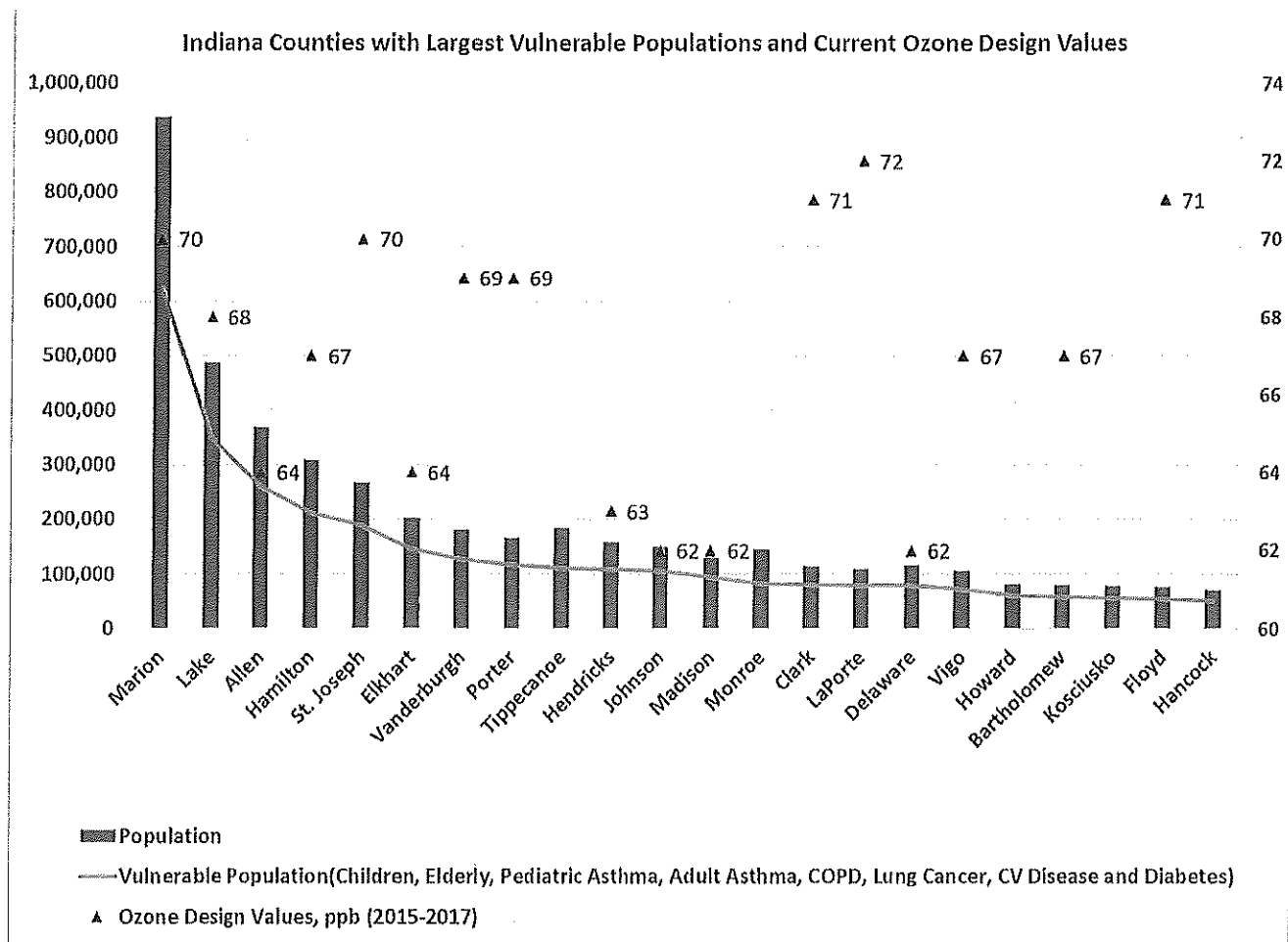


Figure 1

Source: IDEM "Current Monitoring Data Summaries" - Ozone Design Values
 American Lung Association - Population and Vulnerable Population data

Comment 3:

To further address areas that bear a disproportionate share of the pollution burden and environmental injustice, highway related NOx and PM2.5 emissions (Figures 2 & 3), poverty and race (Figures 3 & 4) data should also be used to prioritize Indiana counties for funding.

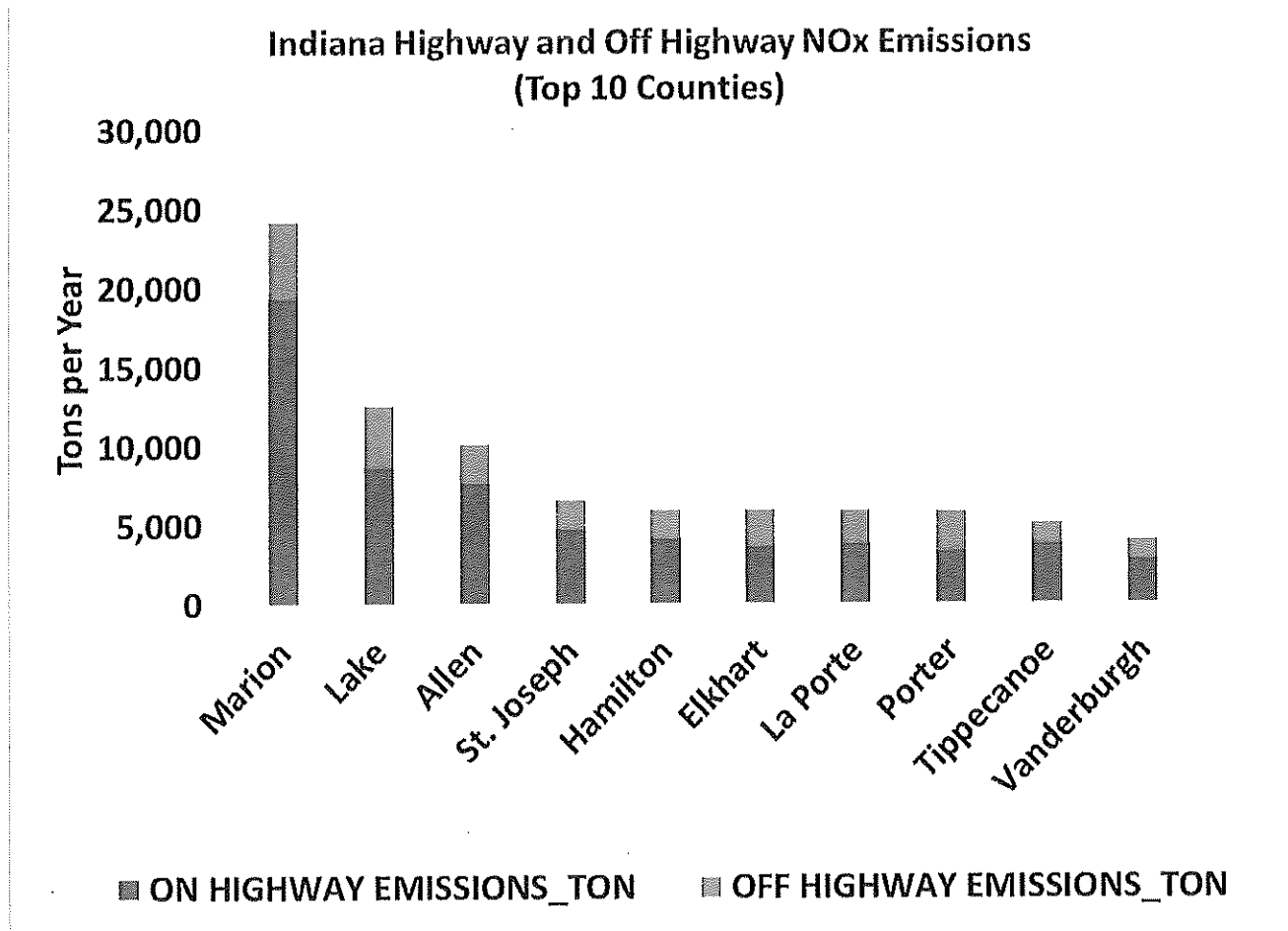


Figure 2

Source: EPA 2014 National Emission Inventory

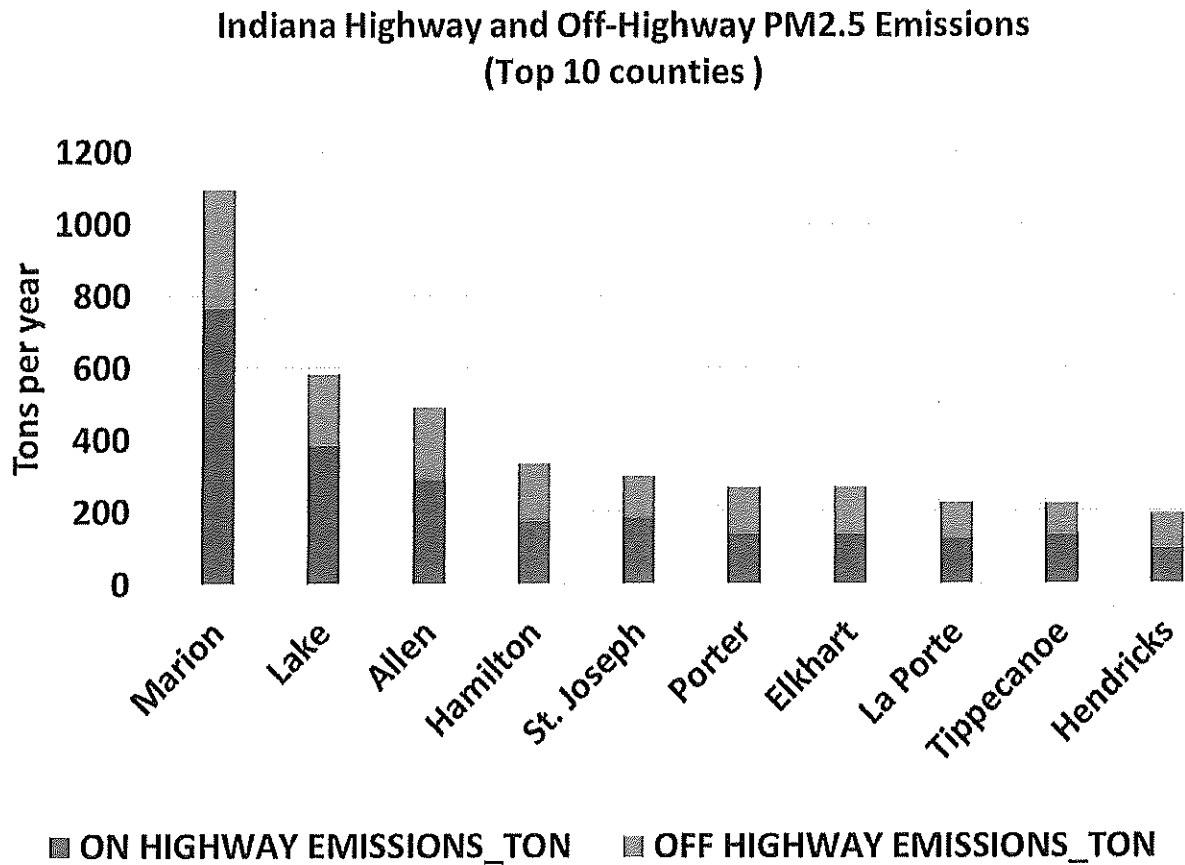


Figure 3

Source: EPA 2014 National Emission Inventory

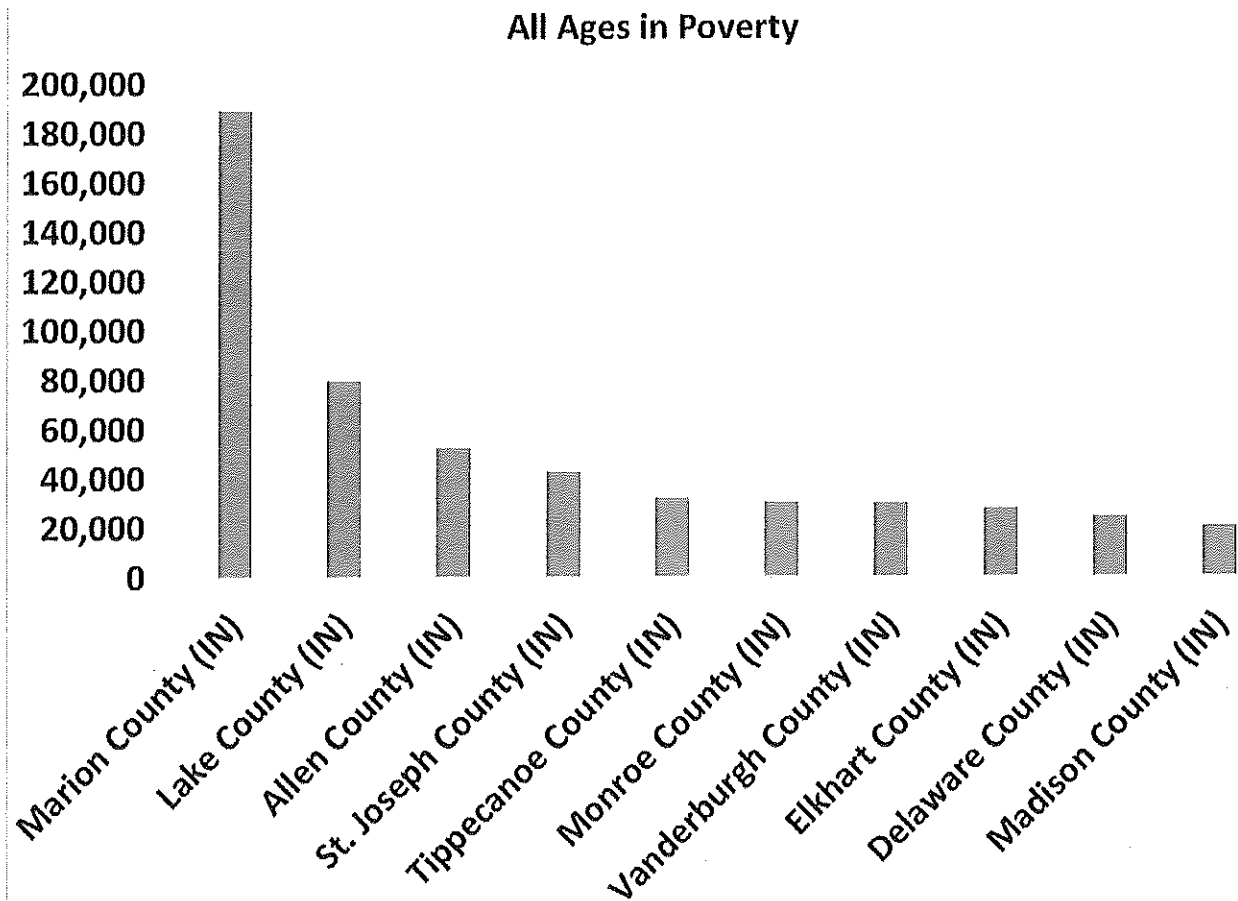


Figure 4
Source: Census.gov, 2015

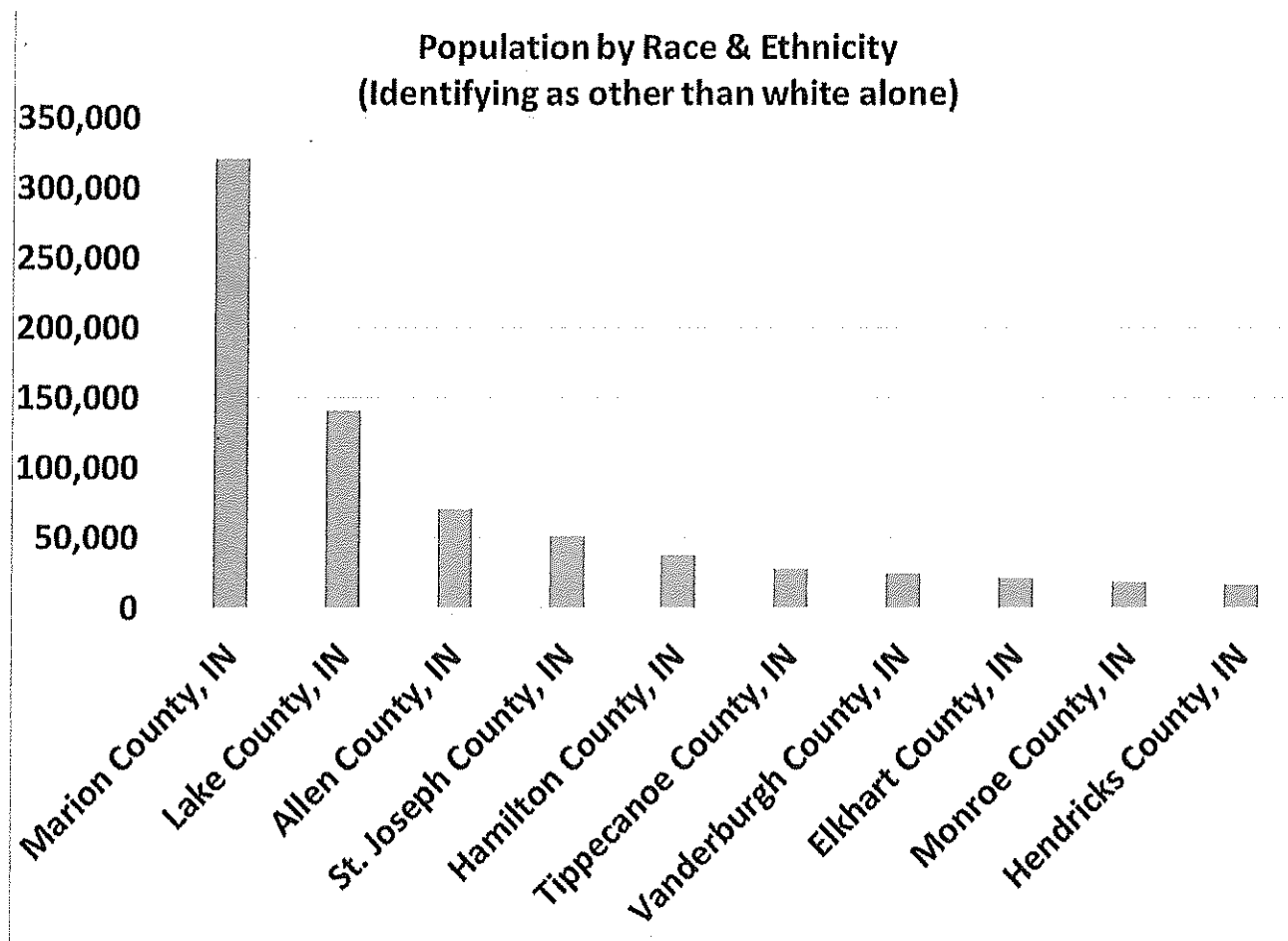


Figure 5

Source: STATS Indiana, Indiana University

Comment 5:

Project priority within the highest ranking counties should be identified as those that expose vulnerable populations at the individual and neighborhood level. Projects involving school buses, refuse services, etc. involve lengthy exposure times to individuals and neighborhoods.

Comment 6:

Priority should be given to local governments that have limited financial resources and provide services in low income jurisdictions.

This allows projects that would otherwise not be possible and prevents funding projects ("Anyway Projects") that would occur in the future even without Trust funds.

The City of Indianapolis believes "Anyway Projects" should be defined and given low priority funding.

"Anyway Projects" should consider the financial resources of the project's owner and if the business case for the project would be implemented "anyway" within the Trust funding period.

Local governments are in the best position to implement trust funded projects in vulnerable communities within their jurisdictions and can be comprehensive in their approach in addressing community needs.

Local governments have an existing framework, capacity, and demonstrated experience in implementing transportation related funding projects and grants.

Funding allows local governments to divert more tax dollars to lasting community projects in lieu of matching funds.

Comment 7:

The Consent Decree allows a 15% allocation for light duty zero emission supply equipment.

This allocation comes at a very important time as the City of Indianapolis develops its first ever Sustainability and Resilience Action Plan.

This implementation document, to be completed by December 2018, will act as a roadmap, highlighting potential impacts to city services, public health, jobs, and the environment in which we live.

Through collaboration, education, and community involvement, recommended actions will help our city adapt to a changing climate, with the aim to have a lasting impact on economic, environmental and neighborhood health.

The Action Plan will identify mitigation actions for Indianapolis in terms of emissions reductions from various sectors including transportation. It is expected that the Action Plan will identify both short and long-term electric vehicle infrastructure strategies for the Indianapolis community.

Cities across the country are preparing for an EV future by developing EV readiness plans and piloting innovative technologies such as portable EV charging stations that double as emergency generators for first responders during disasters or grid outages.

Should the City of Indianapolis be considered a potential recipient of funding, we would look forward to partnering with IDEM to identify innovative projects and potential locations for infrastructure placement.

My Best,



Katie L. Robinson
Director
Office of Sustainability





March 29, 2018

Shawn Seals
Senior Environmental Manager
Indiana Department of Environmental Management
VWTrust@idem.IN.gov

Re: Comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework

Dear Shawn,

The Michiana Area Council of Governments (MACOG) is a voluntary organization of local governments that studies and attempts to resolve inter-local issues. MACOG serves the four-county region encompassing St. Joseph, Elkhart, Kosciusko, and Marshall Counties and 35 cities and towns.

MACOG has an interest in improving our local air quality and specifically reducing NO_x emissions as a precursor to ozone formation, given that St. Joseph County and Elkhart County have previously been designated as non-attainment for ozone most recently in 2004 under the 1997 8-hour ozone standard. MACOG is committed to reducing emissions by promoting voluntary action through two partnership programs. The South Shore Clean Cities Green Fleet program provides technical assistance to significantly improve the environmental performance of business and governmental fleet vehicles through utilizing alternative fuel technologies partnership. The Partners for Clean Air Program educates the public about simple actions they can take to clean the air.

MACOG Survey on Volkswagen Funding Priorities

MACOG surveyed local government staff, elected officials, key transportation providers on how funding should be allocated in Indiana in order to provide this input to IDEM and the Volkswagen Committee. The survey resulted in the development of regional priorities detailed in Appendix A. The survey included 45 responses from seven cities (Elkhart, Nappanee, Goshen, South Bend, Mishawaka, Plymouth, and Warsaw), seven towns (Lakeville, Pierceton, Middlebury, North Liberty, Roseland, Wakarusa, and Argos), each of the four counties (St. Joseph, Elkhart, Marshall, and Kosciusko), the South Bend International Airport, and the South Bend Public Transportation Corporation (Transpo).

Our communities expressed strong support for the funding of public projects, with match requirements of 0 – 12%. Whereas, for private projects our communities indicated a higher match requirement for private projects, between 53-60%, would be appropriate. Additionally, communities interested in light duty zero emission vehicle supply equipment (EVSE) generally noted that the electricity provided at no cost to the user should fulfill any match requirement for EVSE projects for the period over which any warranty and network services are covered by grant funds.

About half of respondents indicated that projects were not feasible without this outside source of funding, with the other half indicating that they may be feasible depending on a cost-savings analysis. Budget constraints and improving air quality were strongest motivating factors for interest in eligible project categories, with elected officials indicating upfront cost as the most significant barrier.

Regional Priority Summary

Based on survey responses, the highest priority category is to replace Class 4-7 trucks. The next highest priority categories ranked about the same in importance: Light duty electric vehicle supply infrastructure (EVSE), Class 8 trucks, and the Diesel Emission Reduction Act (DERA) option. Transit and School bus replacements ranked below the others overall, but had stronger support from elected officials. Airport ground support equipment and forklifts were a lower priority for most respondents, and the final three categories were generally not applicable to local governments in the MACOG area (repowering ferries and tugs; shore power equipment; replacing diesel switcher locomotives).

Respondents expressed interest in utilizing these private settlement funds to make a long-term investment in electric vehicle infrastructure. Local governments in the South Bend-Elkhart urbanized area most interested in hosting publicly accessible charging stations at public parking facilities or having investment by private entities incentivized through outside funding.

Method of Project Prioritization

MACOG communities are interested in a broad range of project categories. Therefore, we support the proposal to divide funding between project categories first before ranking projects by emissions reduction potential and considering other factors.

MACOG has responses to the two proposed methods of prioritizing projects within categories per the Draft Beneficiary Mitigation Plan posted prior to March 15, 2018.

- 1) in non-attainment or maintenance areas ozone and particulate matter.
MACOG requests if this method of prioritization is adopted that it take into account recent non-attainment history rather than current status alone. An updated maintenance plan through 2020 was required for ozone in St. Joseph and Elkhart until the standard changed and re-designation took place. MACOG is cognizant that investments such as those provided by the Volkswagen funding are still needed in our region to continue to reduce the number of days that are unhealthy for sensitive populations.
- 2) for populations in urban areas in close proximity to stationary and mobile sources.
This method of prioritization better accounts for the public health impacts of localized higher concentrations of diesel emissions than the designation status alone. For example, although one large stationary equipment project may have a greater overall NOx reduction potential for an entire region, other projects such as replacing trash trucks that

idle frequently in residential neighborhoods may do more to alleviate the chronic health impacts faced by sensitive populations. Additionally, this method would also allow for rural populations in close proximity to mobile and stationary emissions sources to benefit, rather than simply dividing funding by urban versus rural areas.

MACOG suggests that the Framework also include other factors such as environment justice, and regional coordination to inform funding priorities for similar projects that score equally on their emissions reduction potential. For identifying potentially disadvantaged groups, the MACOG [Environmental Justice Analysis](#) has identified local Census Tracts where people may experience a disproportionate share of negative economic and environmental impacts through indicators such as poverty, age, English proficiency, minority populations, and people living with physical disabilities.

Specific comments on prioritizing EVSE projects are provided in Appendix B. Some EVSE sites may have greater regional benefits if they are accessible to both north and south highway corridors or link regions with Level 3 fast chargers.

Data Provided

Electric Vehicle Registration Data: MACOG is providing as part of this submission the electric vehicle registration data for our region from the Indiana Bureau of Motor Vehicles. A summary of the data is provided in Appendix B.

Additional Data Available

As the Metropolitan Planning Organization, MACOG has access to additional data including demographic profiles, travel patterns, traffic projections and existing traffic counts.

Regional Traffic Count Data: MACOG collects traffic data at nearly 4,500 locations, on local and state roads, every three-years in nine northern Indiana counties. Data is available by request and at <http://maps.macog.com/traffic-count-site.html>. This data relevant depending on the priorities in the final Framework.

MACOG is pleased to submit these comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework, pursuant to the Executive Order signed by Gov. Holcomb on Oct. 17, 2017. We look forward to coordinating with our communities to reduce diesel emissions and improve quality of life in our region.

Sincerely,

A handwritten signature in dark ink, appearing to read "James Turnwald", with a stylized flourish at the end.

James Turnwald
Executive Director

JT/lt

APPENDIX A

Summary of the MACOG Survey on Volkswagen Mitigation Trust Fund Priorities

Total Responses = 45

Survey Response Distribution

Communities Represented (# Responses)

7 *Cities* (Responses = 23): Elkhart, Nappanee, Goshen, South Bend, Mishawaka, Plymouth, Warsaw

4 *Counties* (12): St. Joseph, Elkhart, Kosciusko, Marshall

7 *Towns* (7): Lakeville, Pierceton, Middlebury, North Liberty, Roseland, Wakarusa, Argos

2 *Other* (3): Airport, Public Transit

Respondent Type

Local Elected Officials (11)

Local Government Personnel

- Public Works (22): *Central Garage, Streets, Highway Department, Engineering, Utilities, Solid Waste, Central Services/Equipment Services, Facilities, Maintenance, Sustainability*
- Planning and Zoning (3)
- Town Managers (3)
- Community and Economic Development (3)

Public Transit (2)

Airport (1)

Reasons to Apply for Volkswagen Mitigation Trust Funds

The strongest motivating factor for the 11 responding local elected officials was to improve air quality by reducing emissions whereas local government staff were most concerned with budget constraints limiting the ability to replace aging vehicles.

The distribution of responses from elected officials is shown in Figure 1 and responses from other staff, including local government staff, public transit, and the airport are shown in Figure 2.

Figure 1. Top Reasons to Utilize VW Funding - Elected Officials

(Multiple Responses Permitted)

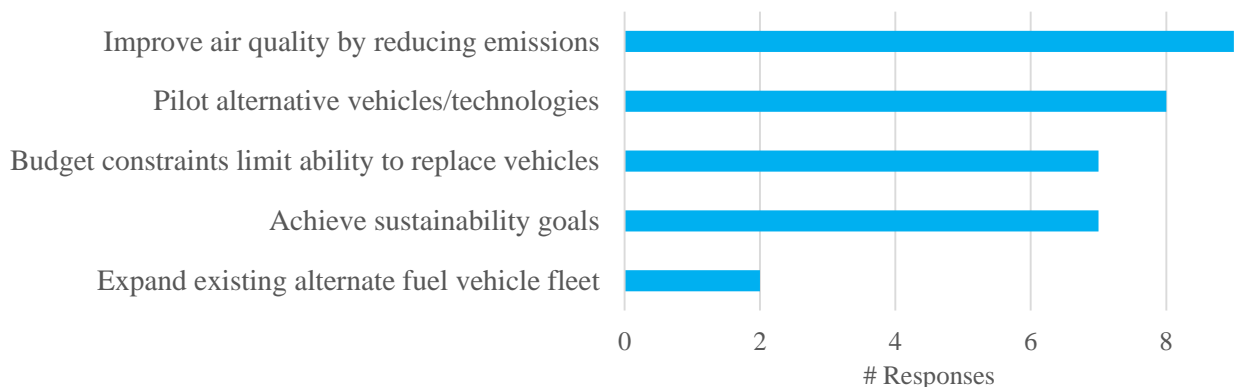
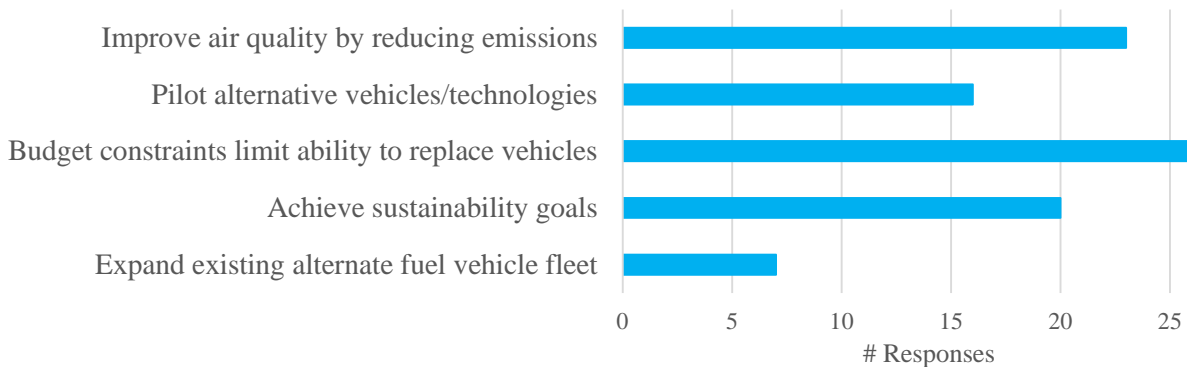


Figure 2. Local Government Staff: Top Reasons to Utilize VW Funding
(Multiple Responses Permitted)



Project Category Priorities for MACOG Region

The relative importance of project categories is ranked by elected officials and other staff in Figure 3. Respondents were asked to rank project categories as High, Medium, Low Priority or N/A which were assigned 3, 2, 1, and 0 points, respectively.

Figure 3. Relative Importance of Eligible Project Categories

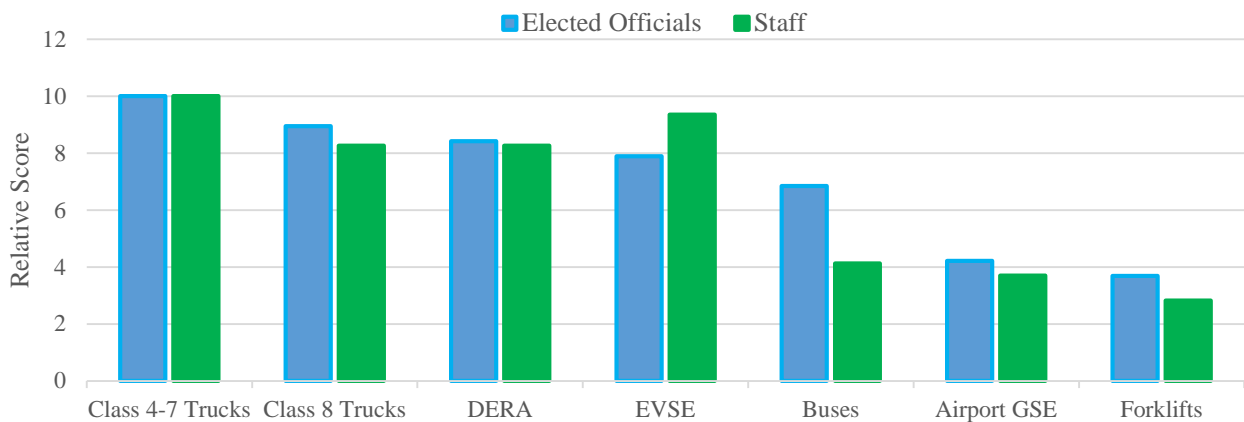


Table 1 lists regional priorities based on the weighted average of all survey responses. The percent match requirements for both private and public projects is based on the average and median of the survey responses. MACOG is not providing input on maximum award amounts per grant or percent total allocation. Comments on how similar project types may be prioritized are found in the cover letter.

Table 1. MACOG Regional Priorities for VW Project Categories			
Funding/Project Category	Project Category Ranking (1 = Top Priority)	Percent Match Required*: Private Projects	Percent Match Required*: Public Projects
Emissions Reduction Projects			
Class 8 trucks	3	53 – 60%	0 - 12%
Class 4-8 buses	5	53 – 60%	0 - 12%
Class 4-7 trucks	1	53 – 60%	0 - 12%
Pre-Tier 4 switcher locomotives	7	53 – 60%	0 - 12%
Repower of ferries and tugs	10	53 – 60%	0 - 12%
Shorepower equipment for marine locations	9	53 – 60%	0 - 12%
Repower of airport ground support equipment	6	53 – 60%	0 - 12%
Repower of forklifts and port cargo handling equipment	8	53 – 60%	0 - 12%
State DERA Match	4	Same as DieselWise IN	Same as DieselWise IN
Light Duty Zero Emissions Infrastructure	2	53 – 60%**	0% - 12%**

**Except where a larger minimum project match is required by the Settlement.*

***If electricity is required to be provided for free by the site host for several years as part of the funding requirements, this should be considered to be the financial match.*

Projects Not Applicable to MACOG Region

All respondents indicated the following project categories are not applicable or Low Priority to their community:

- “Repower/Upgrade Ferries and Tugs”
- “Provide Shorepower Equipment for Marine Locations”

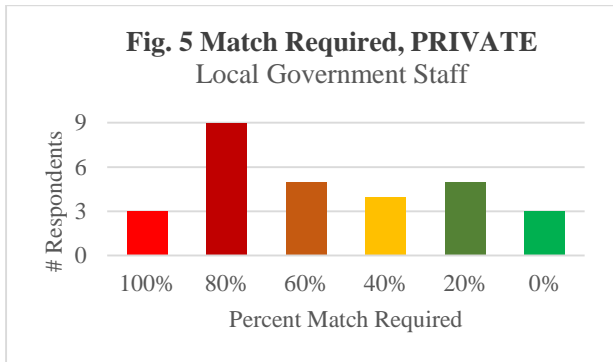
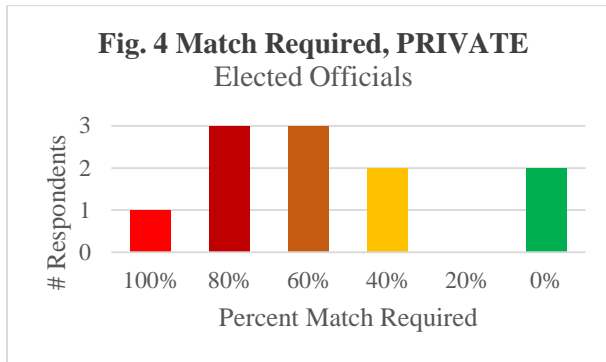
Nearly all respondents indicated that the category “Replace Diesel Switcher Locomotives” was not applicable, with the exception of St. Joseph County respondents listing it as a Medium or High Priority due economic development potential.

Required Funding Match for Private and Public Projects

Based on the survey results, MACOG is providing the following priorities and match requirements in Table 1 below.

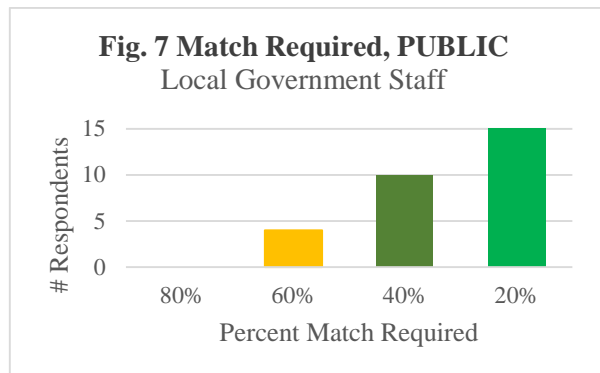
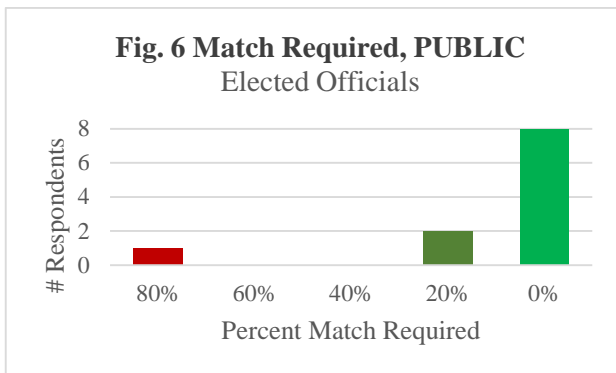
Private Funding

Overall, survey respondents indicated that private projects should require a match of between 53% (average) to 60% (median). The distribution of responses is shown in Figure 4 and 5.



Public Funding

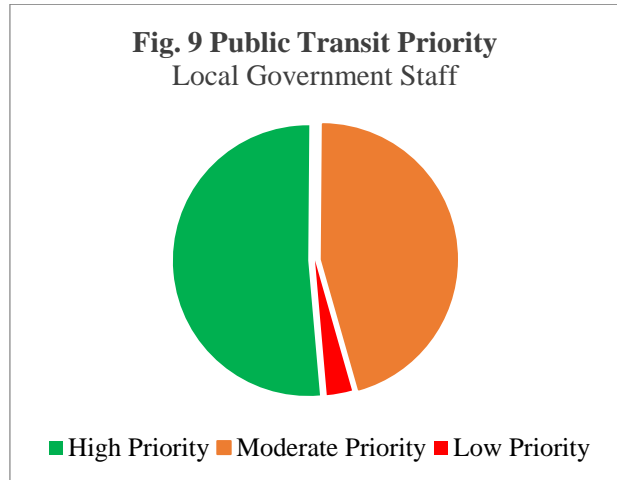
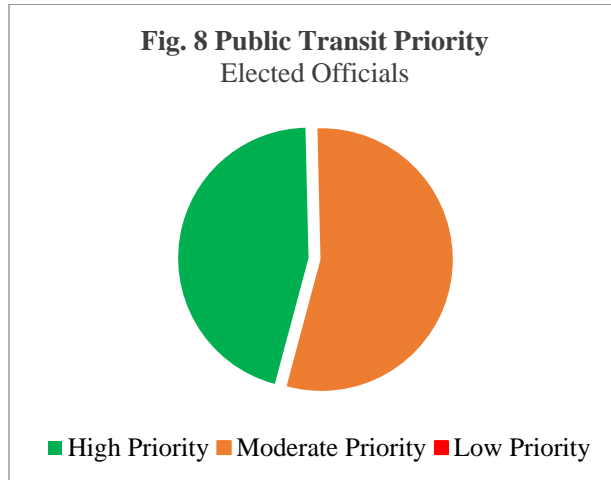
Overall, survey respondents indicated that public projects should require a match of between 0% (average) to 12% (median). The distribution of responses is shown in Figure 6 and 7.



Public Transit

“How should public transportation be prioritized (i.e. transit bus replacement)?”

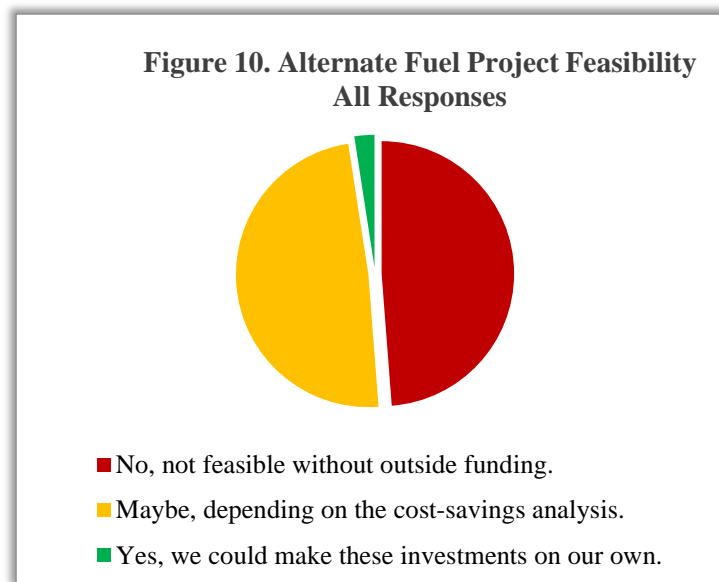
Nearly all respondents indicated that public transportation was a moderate to high priority as shown in Figure 8 and Figure 9.



Alternate Fuel Vehicle and Diesel Emissions Reduction Feasibility

“Would your local government or department be able to do these types of projects without outside funding?”

Over half of respondents indicated that diesel emission reduction technologies and alternate fuel vehicles were not feasible without outside funding, with just under half indicating they may be feasible depending on a cost-savings analysis as shown in Figure 10.



Barriers

“What are the greatest barriers to implementing diesel emission reduction technologies and/or alternate fueled vehicles in your operations?”

7 out of 11 responding elected officials described fiscal constraints or cost as the most significant barrier, with one highlighting the lack of economies of scale for small fleets, another concerned with reliability, and one concerned about political and community buy-in.

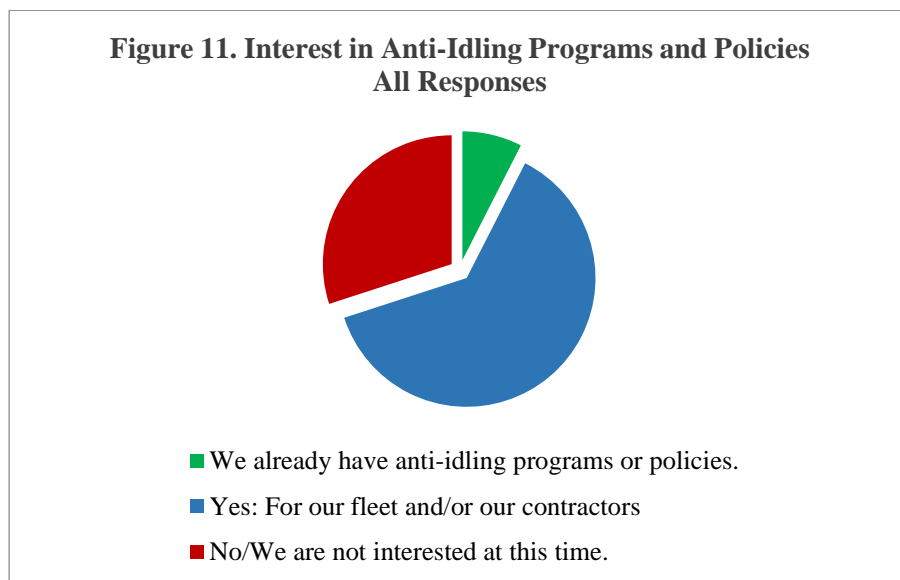
Local government staff described similar concerns:

- *Upfront cost and budget priorities (11)*
- *Staff time and skills: maintenance and training (5)*
- *Infrastructure cost or lack of fueling options (3)*
- *Lack of higher level support (2)*
- *Small fleet – No diesel vehicles to replace (2)*
- *User experience or resistance (1)*
- *Reliability: loss of power (1)*

Behavior Change - Reducing Diesel Emissions

“Would you be interested in implementing anti-idling programs to reduce diesel emissions?”

The majority of respondents were interested in anti-idling programs as shown in Figure 11.



In addition, 40 out of 45 respondents indicated interest in learning how to reduce diesel emissions through on-site presentations, workshops, webinars, and or educational videos.

Light Duty Electric Vehicle Infrastructure

“Is your community interested in more publicly-accessible EV charging stations? (Note: These could be located either on private or government property)”

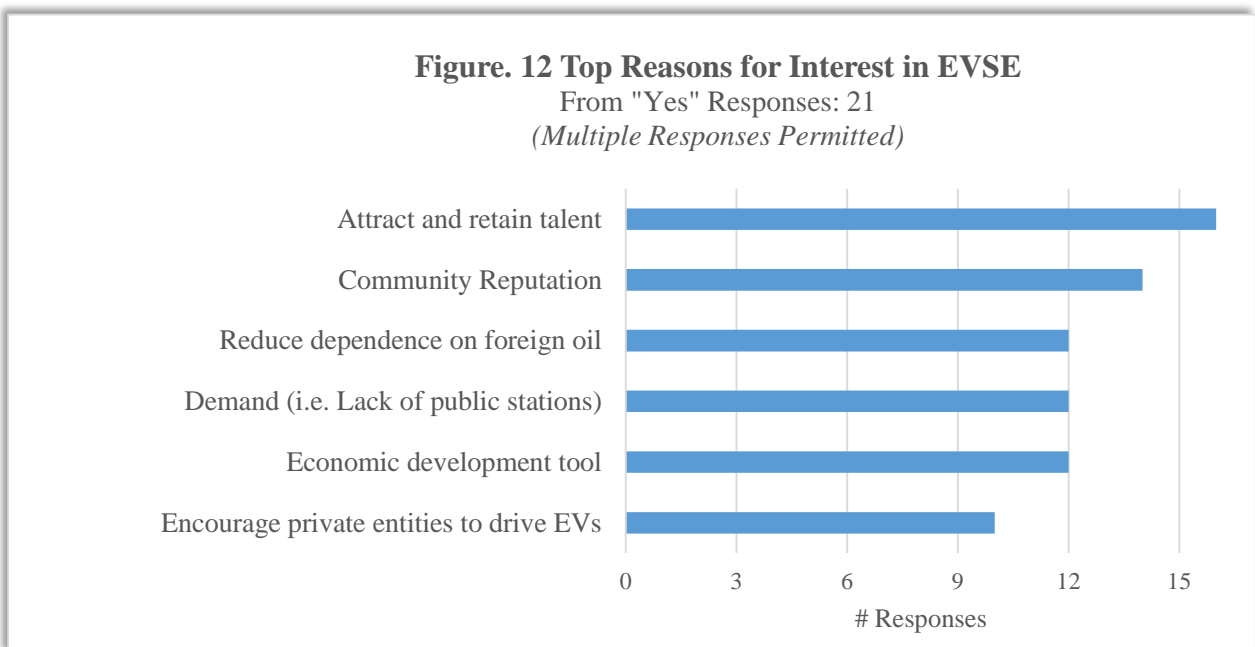
21 respondents (46%) responded “Yes” to indicate interest in EVSE. 13 indicated they were “Unsure.”

Of the 21 responding “Yes”, 18 were interested in locating the stations on government property, such as a public parking lot, and 3 were unsure. These respondents work for or represent the units of government listed in the table below:

Table 2. Communities Interested in EVSE	
Municipalities Interested in EVSE	Population
St. Joseph County	267,696
City of South Bend	101,037
City of Mishawaka	48,234
South Bend International Airport	N/A
Elkhart County	201,640
City of Elkhart	52,378
City of Goshen	33,385
Kosciusko County	77,358
Town of Pierceton	708

With the exception of Kosciusko County and the Town of Pierceton located near Warsaw, IN, these interested communities are located in a more urbanized area where stations may receive more frequent usage from a larger number of privately owned plug-in hybrid or electric vehicles. Population figures are 2016 estimates from the U.S. Census Bureau 2012-2016 American Community Survey (ACS).

Figure 12 shows the reasons that MACOG survey respondents are interested in EVSE.



APPENDIX B

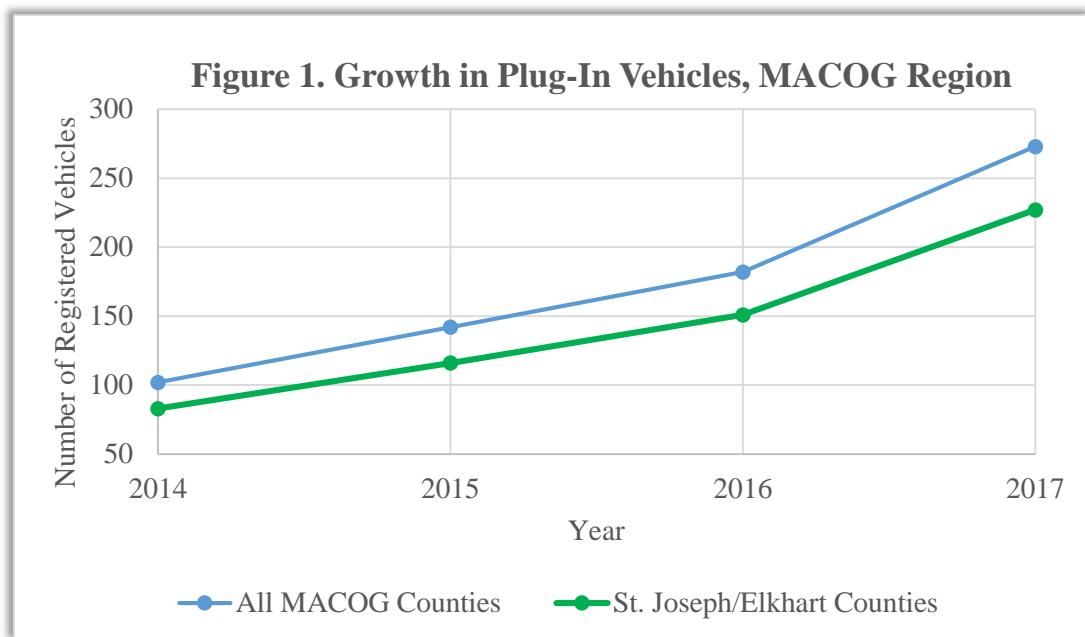
Electric Vehicle Data and EVSE Project Prioritization Comments

Through the MACOG Volkswagen survey and an inventory of existing EVSE, MACOG has identified a strong interest and need for:

- 1) Level 2 EVSE that are easily publicly accessible and in close proximity to a diversity of public services and other amenities within the urbanized area surrounding South Bend, Mishawaka, Elkhart, and Goshen.
- 2) Level 3 EVSE to enable all-electric vehicle travel between the South Bend-Elkhart urbanized area and other regions

Electric Vehicle Ownership Data

The Indiana Bureau of Motor Vehicles provided MACOG with data for all-electric vehicles and plug-in hybrid electric/gasoline vehicles for 2014 – 2017. More than 80% of these vehicles are registered in St. Joseph (pop. 267,696) and Elkhart (pop. 201,640)¹ counties with includes the urbanized area. Data is provided as an excel file attached submitted with this document.



¹ American Community Survey, 2016 Population Estimates.
<https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

Accessibility of Existing Stations

Table 1 shows that the share of Tesla vehicles climbed from 10% to 27%. This demonstrates that most plug-in vehicles in the MACOG area cannot use the Tesla supercharger or any Tesla Level 2 station.

Table 1. Prevalence of Plug-In Vehicle Makes in the MACOG Region				
	2014		2017	
Vehicle Manufacturer	% by Make	# Registrations	% by Make	# Registrations
Chevy	56.9%	58	41.8%	114
Tesla	9.8%	10	26.7%	73
Nissan	28.4%	29	16.1%	44
Ford	1.0%	1	1.1%	3
BMW	2.0%	2	6.6%	18
Mitsubishi	2.0%	2	1.5%	4
Toyota	0%	0	2.6%	7
Hyundai	0%	0	3.7%	10

Need for Level 3 Infrastructure

Table 2 shows the overall increase in the percentage of plug-in vehicles that are all-electric vehicles, at 50% in 2017 up from 43% in 2014. This demonstrates a developing need for Level 3 stations which enable long-distance travel.

Table 2. Percentage of All-Electric Plug-In Vehicles				
County	2014	2015	2016	2017
St. Joseph	48%	54%	54%	50%
Elkhart	42%	44%	47%	57%
Kosciusko	25%	33%	23%	44%
Marshall	43%	50%	33%	29%
Overall	43%	48%	47%	50%

The only Level 3 infrastructure in north central Indiana is the Tesla Supercharger located at the University Park Mall just off I-80/90 and 5 miles from downtown South Bend. Note that I-80 was nominated for designation as a [US DOT Alternative Fuel Corridor](#) for electric, despite the fact that it is only navigable by Tesla owners via the Tesla Superchargers in [Mishawaka](#) and [Angola](#).

DATA NOTE: The vehicle registrations provided are likely an underestimate. This is because the fuel type functionality has very recently been added to the BMV database and questions about missing vehicle models are currently being addressed. For example, the statewide data does not list any Ford C-Max Energi and Ford Fusion Energi, although they are the 5th and 6th most common plug-in hybrids nationwide according to data on the DOE [AFDC](#). Further, each comprise 4% of vehicles participating in the NIPSCO IN-Charge Electric Vehicle Program based on page 171 of the [2016 Integrated Resource Plan](#). Updated data may be available upon request.

EVSE Priority Comment

Level 2 and 3 EVSE should be prioritized where all vehicles are concentrated, regardless of fuel type, such as in urban areas and along major corridors throughout the state to connect regions.

EVSE should **not** be prioritized simply where most electric vehicles currently exist.

The number of plug-in vehicles in our region has nearly tripled in since 2014, despite the fact that there have been zero publicly available Level 2 stations in downtown South Bend, Mishawaka, Elkhart, or Goshen and no Level 3 fast charging stations in north central Indiana accessible to non-Tesla vehicles.

Research has indicated that the lack of stations is a barrier to widespread plug-in vehicle adoption.

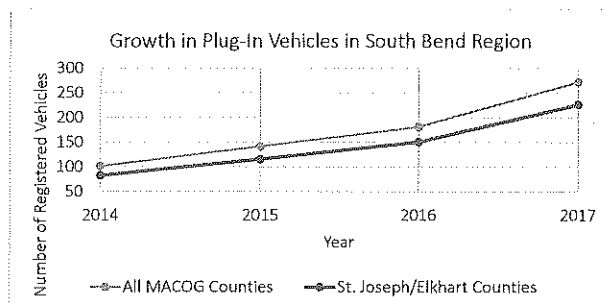
For example, a 2017 [National Renewable Energy Laboratory](#) study notes that despite the recent surge in EV ownership, widespread adoption will require a network of non-residential charging stations. Likewise, a 2017 [ICCT](#) white paper highlights that the lack of available charging structure as a significant barrier to the uptake of electric vehicles, despite the availability of lower cost and longer range electric vehicles now on the market. Public charging stations alleviate range anxiety and increase public awareness.

The results suggest that a moderate number of strategically located Level 3 stations along major corridors could enable long-distance BEV travel most regions in Indiana. If Electrify America continues to focus primarily on corridors such as I-94 near Chicago in their National Cycle 2 investments, Volkswagen funding for Level 3 stations will be especially needed in other metropolitan regions. Additionally, Level 3 stations along other high traffic corridors will allow all-electric vehicles to travel beyond the Chicago region to the rest of Indiana.

Plug-In Vehicles	COUNTY	FUEL TYPE	Number of Vehicles Registered			
			2017	2016	2015	2014
St. Joseph		Electric and Gas Hybrid	74	40	33	26
St. Joseph		Electric	74	47	38	24
St. Joseph		All Plug-In Vehicles	148	87	71	50
Elkhart		Electric and Gas Hybrid	34	34	25	19
Elkhart		Electric	45	30	20	14
Elkhart		All Plug-In Vehicles	79	64	45	33
Marshall		Electric and Gas Hybrid (PHEV)	10	6	4	4
Marshall		Electric (EV)	4	3	4	3
Marshall		All Plug-In Vehicles	14	9	8	7
Kosciusko		Electric and Gas Hybrid	18	17	12	9
Kosciusko		Electric	14	5	6	3
Kosciusko		All Plug-In Vehicles	32	22	18	12
Total (St. Joseph + Elkhart)			227	151	116	83
Total (All MACOG Counties)			273	182	142	102

Change in Percentage of All-Electric Vehicles (Versus Plug-In Hybrid)				
County	2014	2015	2016	2017
St. Joseph	48%	54%	54%	50%
Elkhart	42%	44%	47%	57%
Kosciusko	25%	33%	23%	44%
Marshall	43%	50%	33%	29%

	Total (All MACOG Counties)	Total (St. Joseph and Elkhart Counties)	% in St. Jo and Elkhart Counties
2014	102	83	81%
2015	142	116	82%
2016	182	151	83%
2017	273	227	83%



Registrations	Model	Make	Fuel_Type	COUNTY_NAME	Registration_Year
2	BOLT EV PREMIER	CHEVROLET	Electric	SAINT JOSEPH	2017
2	FOCUS BEV	FORD	Electric	SAINT JOSEPH	2017
2	I MIEV ES	MITSUBISHI	Electric	SAINT JOSEPH	2017
2	I MIEV ES/SE	MITSUBISHI	Electric	SAINT JOSEPH	2017
1	I3 BEV	BMW	Electric	SAINT JOSEPH	2017
7	LEAF S	NISSAN	Electric	SAINT JOSEPH	2017
3	LEAF S/SV/SL	NISSAN	Electric	SAINT JOSEPH	2017
6	LEAF SV	NISSAN	Electric	SAINT JOSEPH	2017
4	LEAF SV/SL	NISSAN	Electric	SAINT JOSEPH	2017
33	MODEL S	TESLA	Electric	SAINT JOSEPH	2017
2	MODEL S 85D	TESLA	Electric	SAINT JOSEPH	2017
7	MODEL X	TESLA	Electric	SAINT JOSEPH	2017
3	SPARK EV 2LT	CHEVROLET	Electric	SAINT JOSEPH	2017
7	I3 REX	BMW	Electric and Gas Hybrid	SAINT JOSEPH	2017
4	I8	BMW	Electric and Gas Hybrid	SAINT JOSEPH	2017
3	IONIQ BLUE	HYUNDAI	Electric and Gas Hybrid	SAINT JOSEPH	2017
1	IONIQ HEV	HYUNDAI	Electric and Gas Hybrid	SAINT JOSEPH	2017
1	IONIQ LIMITED	HYUNDAI	Electric and Gas Hybrid	SAINT JOSEPH	2017
6	PRIUS PRIME	TOYOTA	Electric and Gas Hybrid	SAINT JOSEPH	2017
35	VOLT	CHEVROLET	Electric and Gas Hybrid	SAINT JOSEPH	2017
12	VOLT LT	CHEVROLET	Electric and Gas Hybrid	SAINT JOSEPH	2017
5	VOLT PREMIER	CHEVROLET	Electric and Gas Hybrid	SAINT JOSEPH	2017
1	BOLT EV PREMIER	CHEVROLET	Electric	ELKHART	2017
10	LEAF S	NISSAN	Electric	ELKHART	2017
1	LEAF S/SV/SL	NISSAN	Electric	ELKHART	2017
7	LEAF SV	NISSAN	Electric	ELKHART	2017
2	LEAF SV/SL	NISSAN	Electric	ELKHART	2017
16	MODEL S	TESLA	Electric	ELKHART	2017
7	MODEL X	TESLA	Electric	ELKHART	2017
1	SPARK EV 2LT	CHEVROLET	Electric	ELKHART	2017
2	I3 REX	BMW	Electric and Gas Hybrid	ELKHART	2017
3	IONIQ SEL	HYUNDAI	Electric and Gas Hybrid	ELKHART	2017
25	VOLT	CHEVROLET	Electric and Gas Hybrid	ELKHART	2017
3	VOLT LT	CHEVROLET	Electric and Gas Hybrid	ELKHART	2017
1	VOLT PREMIER	CHEVROLET	Electric and Gas Hybrid	ELKHART	2017
1	BOLT EV PREMIER	CHEVROLET	Electric	KOSCIUSKO	2017
2	LEAF S	NISSAN	Electric	KOSCIUSKO	2017
1	LEAF S/SV/SL	NISSAN	Electric	KOSCIUSKO	2017
6	MODEL S	TESLA	Electric	KOSCIUSKO	2017
1	MODEL X	TESLA	Electric	KOSCIUSKO	2017
1	ROADSTER	TESLA	Electric	KOSCIUSKO	2017
2	SPARK EV 2LT	CHEVROLET	Electric	KOSCIUSKO	2017
1	I3 REX	BMW	Electric and Gas Hybrid	KOSCIUSKO	2017
1	I8	BMW	Electric and Gas Hybrid	KOSCIUSKO	2017
1	IONIQ BLUE	HYUNDAI	Electric and Gas Hybrid	KOSCIUSKO	2017
1	PRIUS PRIME	TOYOTA	Electric and Gas Hybrid	KOSCIUSKO	2017
14	VOLT	CHEVROLET	Electric and Gas Hybrid	KOSCIUSKO	2017
1	FOCUS BEV	FORD	Electric	MARSHALL	2017
2	I3 BEV	BMW	Electric	MARSHALL	2017
1	LEAF SV/SL	NISSAN	Electric	MARSHALL	2017
1	IONIQ LIMITED	HYUNDAI	Electric and Gas Hybrid	MARSHALL	2017
7	VOLT	CHEVROLET	Electric and Gas Hybrid	MARSHALL	2017
1	VOLT LTZ	CHEVROLET	Electric and Gas Hybrid	MARSHALL	2017
1	VOLT PREMIER	CHEVROLET	Electric and Gas Hybrid	MARSHALL	2017

From: Jim Chorpenning <JimC@propanepeopleinc.com>
Sent: Friday, March 30, 2018 7:41 AM
To: IDEM VWTrust
Subject: Propane as a cleaner fuel source

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

Indiana Department of Environmental Management,

I am writing because I see a lot of these funds being assigned on a higher percent toward electric vehicles and charging stations. I believe this is an unfair percentage leaves out the fact that there are more Propane powered vehicles on the road in the world than there are electric. Propane offers a safe and clean alternative fuel source it is readily available in this country so much so we are a next exporter of Propane. If we can make it easier for commercial and municipalities to run their vehicles on propane it would a less expensive way to clean our environment up and to get more bang for our buck. I personally own and drive propane powered vehicles on a daily basis and I firmly believe we can make this work, we have an entire network of propane dealers across the country ready to commit to this clean burning environmentally friendly alternative fuel source, building infrastructure and converting engines to run on propane.

Please consider Propane Autogas in a higher platform than electric and natural gas. We are already doing environmental changes by using propane Autogas instead of gasoline on our own, a little bit more consideration of what we are doing and where we want to grow in a clean world would be great.

Thank you for your time,

James Chorpenning
Propane People Inc./ Propane Autogas LLC.
2513 Cr-27 / P.O. Box 98
Waterloo, IN 46793
260-837-8300 office
260-570-6655 cell
Email:jimc@propanepeopleinc.com



Jenny Richter, Clerk-Treasurer

COUNCIL MEMBERS

Kevin Dauby, At-Large
Chris Call, Ward 1
Julie Kohnert, Ward 2
Sean Risse, Ward 3
Gary Morton, Ward 4

Jim Adams, Mayor

P.O. BOX 515 • TELL CITY, IN 47586 • PHONE: 812-547-5511 • FAX: 812-547-5111

March 29, 2018

Shawn Seals
Senior Environmental Manager
Indiana Department of Environmental Management
VWTrust@idem.IN.gov

RE: Comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework

Dear Mr. Seals,

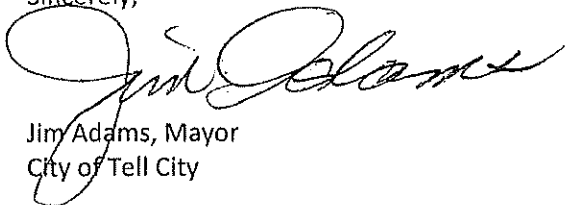
The City of Tell City is pleased to submit these comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework, pursuant to the Executive Order signed by Gov. Holcomb on Oct. 17, 2017.

We are a member of South Shore Clean Cities, a 501(c)(3) organization under the U.S. Department of Energy's Clean Cities program. The coalitions are designed to reduce petroleum consumption in the transportation sector by advancing the use of clean fuels and vehicles, idle reduction technologies, hybrid electric vehicles, fuel blends and fuel economy while reducing dependence on imported oil.

The City's request is that rural municipalities in southern Indiana receive consideration for funding through the Indiana Volkswagen Beneficiary Mitigation Plan. Small communities like Tell City have limited financial resources, therefore we are requesting that the required local commitment be reasonable and affordable for smaller fleets.

Additionally, our City crews have worked diligently over the years to maintain all our multi-purpose work vehicles. Several of our vehicles are older than 1992 models and they are going to be excluded from the VW grant funding opportunity. This is an issue that needs to be addressed, if not through VW funding, then through other funding programs within IDEM.

Sincerely,



Jim Adams, Mayor
City of Tell City



2484 US HWY 6, WATERLOO, IN 46793
1-260-837-8300

March 28th, 2018

Shawn M. Seals
Indiana Department of Environmental Management
Office of Air Quality
100 North Senate Avenue, Room N1003
Indianapolis, IN 46204

Re: Public Comment on the Indiana Beneficiary Mitigation Plan

Dear Mr. Seals,

I write to express my support of the public meetings carried out thus far regarding the Volkswagen Mitigation Trust Fund and to submit public comment on the proposed Beneficiary Mitigation Plan. I am president of Propane Autogas LLC, a small business in Waterloo, Indiana. I have appreciated the State of Indiana's support of innovative fueling technology through funding in IDEM's DieselWise program and the Office of Energy Development's Propane School Bus Grant Program. I have worked with 5 local school districts to pursue these dollars in support of converting their fleets to propane school buses. Through this process, we have gained an inside view of the challenges school districts and other public entities face when exploring options to switch to cleaner fuels. The lessons learned are included in my general comments as well as specific responses to the following questions:

General Comments:

- Propane Autogas LLC supports the Beneficiary Mitigation Plan (BMP) maintaining zero area restrictions. This allows for maximum access to the VW Mitigation fund programs and will ultimately lead to greater NOx reductions across the State of Indiana.
- Propane Autogas LLC supports the BMP including greater funding towards proven fuel and vehicle technologies as opposed to unproven, or exploratory technologies. Specifically, these funds should support tools relevant to the communities in Indiana.
- Propane Autogas LLC supports the model year eligibility (1992-2009) for local freight and school buses. Currently, Propane Autogas LLC has found that many Indiana school districts are ineligible for federal replacement or conversion programs due to more restrictive model year requirements.

What percent of the total should be allocated towards the listed project types?

<u>Eligible Projects</u>	<u>Proposed Percentage and \$ Amount</u>		
Class 8 local freight & port drayage trucks	15.0%	or	\$6,150,000
Class 4-8 school/shuttle/transit buses	20.0%	or	\$8,200,000
Freight switcher locomotive	10.0%	or	\$4,100,000
Ferris/tugboats.	5.0%	or	\$2,050,000
Ocean and lake going vessels shore power	2.5%	or	\$1,025,000
Class 4-7 local trucks	15.0%	or	\$6,150,000
Airport ground support equipment	2.5%	or	\$1,025,000
Forklifts and cargo handling equipment at ports	5.0%	or	\$2,050,000
Light duty zero emission EV supply equipment	10.0%	or	\$4,100,000
Diesel Emission Reduction Act (DERA) option	15.0%	or	\$6,150,000
Total:	100%	or	\$41,000,000

With the intent of leveraging the funds, what percent match should be required of public entities?

Propane Autogas LLC recommends that in all categories aside from the School Bus replacement, public entities should be required to contribute 20%. School Districts purchasing school buses should be required to contribute 10% or less. This recommendation is due to the limited budgets that so many school districts face, especially in rural Indiana. Many school districts are currently unable to replace any buses, let alone upgrade to an alternative fuel-powered bus and purchase alternative fueling infrastructure. Alternative fuels, energy efficiency, or “green” technology is often seen as a privilege or as an “extra”. Yet, school buses are the only eligible project determined by the VW Mitigation Trust that directly impacts Indiana’s children on a daily basis. With this in mind, it is vital that school districts located throughout Indiana with varying resources are able to access school bus technology that decreases particulate emissions output. Particulate emissions output is associated with both short-term and long-term negative health effects, including respiratory and cardiovascular issues. Children should not be exposed to this output on their ride to school every day.

The State of Indiana and the U.S. EPA have encouraged school districts to use propane and have supported it through the funding programs like the OED Propane School Bus Grant, IDEM DieselWise, and the EPA National Clean Diesel Rebate Program. These programs cover a portion of the cost associated with replacing or converting a school bus to alternative fuels. While tremendously beneficial, these programs encourage school districts that are already interested in alternative fuel-powered buses but are not substantial enough to entice school districts who are not presently considering propane. Many Indiana school districts, once deciding to pursue propane, are ineligible or unable to compete in the U.S. EPA programs due to the State of Indiana’s 12-year bus replacement policy. These challenges are stated to show the level of opportunity that is possible with the greater level of autonomy enabled by the VW Mitigation Funds. Lower match requirements, with increased ranges for eligible model years, zero area restrictions, and a larger amount of funds available present a monumental opportunity for the State of Indiana.

With the intent of leveraging the funds, what percent match should be required of private entities?

Private entities should be required to commit 50% match to the requested project. The VW Mitigation funds provide a unique opportunity to engage private entities more than has ever been possible through other state or federal programs. This a huge area for improvement, especially within the local trucks (Class 4-7) space that are prime for vehicle replacement or conversion. The increased amount of match should be required as the public benefit that these vehicles will have is less direct than that of the public entities.

What is a reasonable maximum award amount per grant?

Propane Autogas LLC recommends a separate maximum award should be determined for each eligible project within the portion of the \$41,000,000 that will be devoted to it. This is necessary due to the massive differences in equipment and technology costs associated with the different project areas. For example, a \$100,000 maximum award for school/shuttle/transit buses seems appropriate, but a \$100,000 maximum award for light-duty zero-emission electric vehicle supply equipment is too high, while \$100,000 is likely insufficient for ferryboats and tugboats.

Based on the interaction with Indiana school districts, vehicle providers, and local businesses, Propane Autogas LLC recommends a reasonable maximum amount per grant for Class 4-8 school/shuttle/transit buses and Class 4-7 local trucks is \$100,000 per vehicle, with a maximum of \$750,000 per applicant.

How should the project types be ranked in order of importance for the distribution of funds (1 being the highest priority)?

1. Class 4-8 school/shuttle/transit buses.
2. Class 4-7 local trucks.
3. Class 8 local freight and port drayage trucks.
4. Diesel Emission Reduction Act (DERA) option
5. Freight switcher locomotives
6. Forklifts and cargo handling equipment at ports
7. Light duty zero-emission electric vehicle supply equipment (up to 15% of allocation).
8. Ferryboats/tugboats.
9. Airport ground support equipment.
10. Ocean and lake-going vessels shore power

Sincerely,



Mark W. Gibson
President
260-410-0975

From: Gordon K. Moore <sales@mccormickmotors.com>
Sent: Friday, March 30, 2018 10:51 AM
To: IDEM VWTrust
Subject: BMP Comments

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

To Whom It May Concern,

Listed below are my comments on the BMP for your consideration.

This fund should be to provide a wide range opportunities for equipment upgrades/replacement for both the government sector and the non-government sector. It should not be used to provide funds for government funding shortfalls or for a lack of commitment on the part of non-government entities to upgrade equipment. In short, this should represent an investment in applicants based on their past performance.

- Select projects that have the opportunity to make the greatest difference.
- Give more consideration to those applicants that have demonstrated a commitment to a clean fleet that is supported by their past investments.
- Benefits should be distributed across the state.
- There should be a balance between government and non-government applicants.
- Award percentages should be in the same range for both government and non-government. This fund should not be a fix for a government funding shortfall.
- Awards for replacement equipment should be meaningful (greater than 15%) but not excessive (no more than 25%) for both government and non-government.
- Awards should not be stackable with other grants.
- Special consideration should be given to small business applicants given the resources at their disposal to prepare a request.
- Overall awards should be smaller to distribute the funds more broadly across the state and across applicants.

Thank you for the opportunity to comment on the BMP. I look forward to seeing your final product.

--
Gordon K. Moore
Vice President
McCormick Motors, Inc.
Phone: 1-574-773-3134
Email: sales@mccormickmotors.com



Submitted via email to _____ and VWTrust@idem.IN.gov

March 30, 2018

Mr. Shawn M. Seals
Indiana Department of Environmental Management
(317) 233-0425

Re: VW Comment

Dear Mr. Seals,

As the Vice President of Sales & Marketing of ROUSH CleanTech (ROUSH),¹ I write to thank the Indiana Department of Environmental Management (IDEM) for the opportunity to comment on the Beneficiary Mitigation Plan (Draft Framework). Alternative fuel vehicles provide Indiana with the opportunity to dramatically decrease NOx emissions over even the cleanest diesel vehicles in addition to providing fleet organizations with lifetime economic and other indirect benefits. Propane school buses in particular offer a cost-effective strategy to reduce NOx emissions and improve public health. ROUSH would like to support your efforts through the assistance of our partnership including a national network of Blue Bird, Ford and other local dealerships. Over 12,000 propane-fueled buses in more than 800 school districts nationwide have been deployed by Blue Bird dealers such as MacAllister Transportation in your state. Collectively, ROUSH partners have helped deploy over 19,000 alternative fuel vehicles that have accumulated over 450 million miles.

Propane School Buses Offer the Most Cost-Effective Solution to Reduce NOx Emissions

ROUSH's model year 2017 propane school buses recently received its CARB certification at 0.05 grams NOx per brake horsepower-hour (g/bhp-hr).² This new propane engine is 75 percent cleaner than today's cleanest diesel engines that are compliant with the model year 2010 standard of 0.2 g NOx / bhp-hr and 99 percent cleaner than the oldest, pre-2007 model year buses still operating in many school districts today.³ What's more, ROUSH is also actively working to obtain CARB certification at 0.02 g/bhp-hr NOx making it among the cleanest school bus available, especially when considering in-use emissions impacts as described in the next section.

These cleaner propane buses significantly reduce children's exposure to emissions that are associated with pre-2007 model year buses, including increased asthma emergencies, bronchitis, and school absenteeism, especially among asthmatic children.⁴ Propane school buses also

¹ ROUSH CleanTech is an industry leader of alternative fuel vehicle technology focused on developing innovative and reliable propane fuel systems for fleets across North America.

² "Executive Order A-344-0074". Indiana Environmental Protection Agency, Air Resources Board, May 15, 2017. https://www.arb.ca.gov/msprog/onroad/cert/mdehdehdv/2017/roush_hdoe_a3440074_6d8_0d05_lpg.pdf.

³ For model year 1998 to 2003 diesel engines, EPA established a NOx emission standard of 4.0 g NOx / bhp-hr. Please refer to EPA's [summary table](#) of diesel engine exhaust emission standards for further detail.

⁴ Adar, S. et al. "Adopting Clean Fuels and Technologies on School Buses. Pollution and Health Impacts in Children." *ATS Journals*, Volume 191, Issue 12. <http://www.atsjournals.org/doi/abs/10.1164/rccm.201410-1924OC#.WA-HINUrJhE>, June 15, 2015.



effectively eliminate diesel particulate matter emissions that are associated with cancer and thousands of premature deaths nationwide every year. These vehicles are a safe transportation solution because propane is non-toxic, non-carcinogenic and non-corrosive, and because their vehicle fuel tanks are 20 times more puncture-resistant than gasoline or diesel tanks.⁵

Propane school buses are a smart investment for Indiana fleets and businesses. Fuel cost reductions of 60 percent per gallon and operations and maintenance savings of \$0.37 per mile, as compared to diesel, are documented.⁶ Propane school buses can thus support your agency's efforts to achieve cost-effective NOx emissions reductions.

School Buses Present an Opportunity for Immediate Air Quality and Public Health Benefits
There are over 5,000 model year 2009 and older school buses in operation in Indiana that qualify for replacement under the Environmental Mitigation Trust criteria. Below, our joint analysis with MacAllister Transportation shows, the state could quickly and cost-effectively replace 800 school buses with an investment of \$20 million, using the following assumptions: Average cost of a school bus is \$100,000 and 25% of the cost of a bus qualifies for reimbursement.

The potential air quality benefits and the cost to achieve those are the most important data points to consider, in our opinion. The analysis below was completed using lifecycle emissions data calculations from the 2017 ANL AFLEET tool with in-use adjustment. The information below is for the life cycle of an average school bus which was assumed to be 15 years and 12,600 miles per year. Baseline of emissions for comparison was a 2007 model year diesel bus (i.e. replacing an average 2007 model year school bus with a new school bus). Average estimated cost of a school bus is shown but could vary depending on options selected (i.e. camera system, GPS, etc.).

Table 1: Propane buses offer the most cost-effective NOx reduction solution

Type of School Bus Purchased	Average Cost	NOx Reduced (Lifetime Pounds)	Cost-Effectiveness (Cost per Pound)
Propane Conventional	\$95,000	894	\$106
CNG Conventional	\$135,000	818	\$165
CNG Transit	\$170,000	818	\$208
Electric Conventional	\$300,000	1,119	\$268
Diesel Conventional	\$90,000	68	\$1,324
Diesel Transit	\$130,000	68	\$1,912
"Transit" refers to the flat-nose buses, as opposed to "Conventional" buses with a hood.			

⁵ "Propane Autogas – Safe and Reliable." Blue Bird. <https://www.blue-bird.com/blue-bird/Propane-is-safe.aspx>.

⁶ "Propane Testimonials." Blue Bird. <http://www.blue-bird.com/blue-bird/propane-testimonials.aspx>.



As shown in *Figure 1*, there is minimal variance in the NOx reductions achieved between the alternative fuel options over the service life of a school bus. The diesel options, however, show a significant decrease in emissions reduction opportunity over the life even despite their meeting current EPA standards. Propane is the lowest cost alternative and is also the most cost-effective alternative at reducing NOx in most cases and in school bus applications specifically. In fact, propane is 92% more cost effective than diesel at reducing NOx emissions in school buses as can be seen in the enclosed document.

The Environmental Mitigation Trust Funds Should Be Used to Generate Proven and Verifiable Air Quality Reductions via Alternative Fuels

Though we appreciate that Indiana may be receiving comments supporting the use of clean diesel technology, we urge the state to use caution when funding new diesel vehicles and equipment for several reasons.

First, very recent test data published by West Virginia University revealed that diesel school buses produced **26 times** the amount of NOx as propane school buses in a duty-cycle representative of most school buses. The Propane Education & Research Council (PERC) contracted the West Virginia University (WVU) Center for Alternative, Fuels, Engines, and Emissions to perform a research program testing in-use emissions and performance of propane versus diesel fueled engines in a school bus application.

A 2014 model year propane and diesel school bus were chosen for testing so that the school buses would have at least 25,000 miles logged. A total of 9 test routes were performed, including cold starts, hot starts and stop and go routes. Three stop-and-go route test results averaged 5.2 g/mile for the diesel school bus while the propane bus averaged 0.2 g/mile with minimal variability in measurement.⁷ In other words, propane was 96% cleaner than diesel school buses over the test cycles. It is worth noting, the 2014 propane and diesel school buses used for testing met the same 0.2 g/bhp-hr certification standard, as ROUSH had not launch the low NOx engine option yet.

Second, recent analysis by the International Council on Clean Transportation (ICCT) indicates that negative health impacts from diesel-sourced NOx emissions are increasing, despite regulatory limitations.⁸ Indeed, laboratory-certified vehicles met mandatory emission limits but exceeded NOx emission limits for heavy-duty diesel vehicles, by 1.45 times on average in real world operation. These excess diesel NOx emissions contributed to an estimated 1,100 premature deaths in the United States in 2015.⁹

⁷ Ryskamp, Ross. "In-Use Emissions and Performance Testing of Propane-Fueled Engines. PERC Docket 20893" West Virginia University Center for Alternative Fuels, Engines, and Emissions. March 29, 2018.

⁸ Anenberg, S. et al. "Impacts and mitigation of excess diesel NOx emissions in 11 major vehicle markets". *Nature*, 25 May 2017, doi:10.1038/nature22086.

⁹ "New study quantifies global health, environmental impacts of excess nitrogen oxide emissions from diesel vehicles [press release]". The International Council on Clean Transportation, May 15, 2017. <http://www.theicct.org/news/nature-impacts-diesel-nox-may2017>.



Last, new test data published by the University of California at Riverside indicates that the selective catalytic reduction (SCR) systems on today's new diesel vehicles fall short of controlling NOx emissions in many duty cycles.¹⁰

These studies raise a worthwhile question: What is the wisdom of using funds derived from high-emitting diesel vehicles (i.e., Volkswagen's offending cars) to now fund high-emitting diesel vehicles?

Proposed Funding Package

ROUSH recommends IDEM set-aside \$20 million for a Clean School Bus Program. Furthermore, based on our experience participating in and supporting other similar programs throughout North America, we feel that a prioritization within the Clean School Bus Program on alternative fuels is important. This could be accomplished through a variety of means, including, but not limited to:

- A specific carve out within the Clean School Bus Program to only include alternative fuels (i.e. \$15M of the \$20M for alternative fuel vehicle projects)
- Prioritize alternative fuel applicants over other applications
- Provide more incentive to an alternative fuel vehicle application over diesel (i.e. fund 50% of propane vehicle, and 10% of diesel vehicle)

As described in the sections above, diesel vehicles in many duty cycles funded under the EMT criteria are proving to emit beyond their certification level. We feel strongly the intent of the VW Settlement and consequent funding opportunity to reduce NOx should be of focus through selection of projects, including consideration of what projects would have been achieved without Indiana EMT funding assistance. Many diesel replacement programs are already scheduled within fleet organizations, so consideration should be given to whether or not the organization is going above and beyond to partner with IDEM and assist the state in reducing emissions.

Conclusion

ROUSH CleanTech recognizes the benefits of alternative fuel diversification and has committed to doing just that by providing its school bus and commercial vehicle customers with propane autogas, CNG and other alternative fuel power products. As we prepare for the future of school bus and other transportation, ROUSH again commits to supplying its customers with a diverse, reliable set of alternative fuel engine technologies so that customers have a comprehensive solutions provider.

ROUSH CleanTech would like to work with you and your team to ensure the most cost-effective and environmentally beneficial use of Indiana's Volkswagen Settlement Funds. We thus request a phone or in-person meeting with the most appropriate member of your staff to discuss propane and other alternative fuels opportunities.

¹⁰ Boriboonsomsin, K. "Real-World Activity Patterns of Heavy-Duty Vehicles and Their implication on In-Use Emissions". ARB Research Seminar, May 31, 2017.
<https://www.arb.ca.gov/research/seminars/boriboonsomsin/boriboonsomsin.pdf>.



Thank you for considering our request. We look forward to continued dialogue with you and your team, and to a future collaboration that will help Indiana meet its air quality goals.

Sincerely,

A handwritten signature in black ink that reads "Todd A. Mouw".

Todd Mouw
Vice President of Sales & Marketing
ROUSH CleanTech
todd.mouw@roush.com / 734.466.6522

Enclosure

Blue Bird Vision

The Most Cost-Effective Solution to Reduce NOx Emissions from School Buses in Indiana

School buses transport 25 million children across the U.S. to and from school each year. Because of the stop-and-go driving conditions, diesel buses emit increased exhaust emissions filled with tiny soot particles and toxic gases. Using the Volkswagen Environmental Mitigation Trust to fund propane buses enables states to meaningfully reduce this harmful exposure, which benefits our nation's children.

Propane	Purchase price: \$95,000 NOx reduced: 894 lbs	Cost per pound of NOx Reduced: \$106
Diesel	Purchase price: \$90,000 NOx reduced: 68 lbs	Cost per pound of NOx Reduced: \$1,330
CNG	Purchase price: \$135,000 NOx reduced: 818 lbs	Cost per pound of NOx Reduced: \$165
Electric	Purchase price: \$300,000 NOx reduced: 1,119 lbs	Cost per pound of NOx Reduced: \$268



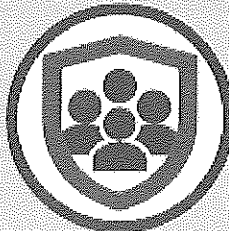
**Vehicle purchase price may vary. Calculations assume the full cost to deploy the cleanest commercially available Type C buses for each fuel type based on emission calculations from the 2017 ANL AFLEET Tool with diesel in-use adjustment.*

Blue Bird Propane Vision School Bus:

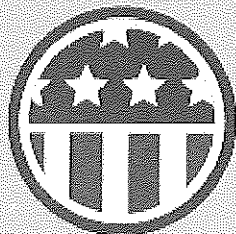
The Blue Bird Vision Propane offers an unmatched ROI for school transportation fleets. States can feel confident that the investments made with the Volkswagen EMT funds will lay the foundation for schools to continue deploying low-emission buses.



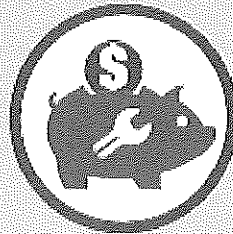
**Low-Emission
Engine**



Uncompromised Safety



**Clean American
Energy**



**Lowest Total Cost of
Ownership**

Propane is **92%** more cost-effective than diesel school buses at reducing NOx

OVER
12,000
SCHOOL
BUSES



OVER
800
SCHOOL
DISTRICTS

March 30, 2018

Indiana Department of Environmental Management
Indiana Government Center North
100 North Senate Avenue
Indianapolis, IN 46204
Email: VWTrust@idem.IN.gov

RE: Comments of the Environmental Law & Policy Center Regarding Use of Volkswagen Environmental Mitigation Trust Funding for the Purpose of NOx Emissions Reductions in the State of Indiana & Proposal for an Electric School Bus Carve-out in Indiana's Beneficiary Mitigation Plan

Dear Commissioner Pigott and members of Indiana's Volkswagen Environmental Mitigation Trust Fund Committee,

We thank the Indiana Department of Environmental Management for this opportunity to give input on the allocation of Volkswagen Mitigation Trust Funding. We recommend two specific expenditures of the funds: a 10% carve out for electric school buses and using the full allowable 15% light duty plug-in electric vehicle charging stations.

Allocate Specific Funds for Electric School Buses

As Governor Holcomb has so aptly indicated, the VW settlement provides Hoosiers with a unique opportunity to advance transformative goals. Jumpstarting the transition of Indiana school bus fleets to zero emissions is the perfect such option and would protect the health of the 650,000 Hoosier children in public K-12 schools who are transported daily via school bus.¹

Last summer Hoosiers in both Indianapolis and Fort Wayne welcomed an electric school bus on a Midwest tour sponsored in part by Indiana based Cummins and electric utilities Duke Energy and Indianapolis Power & Light (IPL).

School buses represent the largest category of mass transportation in our country.² Emissions from fossil fuel school bus engines contribute to significant negative health outcomes in children. Electrification of school buses thus provides a key opportunity to improve children's health, reduce school absenteeism, strengthen the resiliency of the grid and support the integration of renewables.

Air Quality & Health Benefits:

Transitioning to a zero emissions future for Indiana's pupil transportation will protect Hoosier children's health. Switching to electric school buses would reduce the lifetime NOx emissions from Indiana's school bus fleet³ by more than seven (7) million pounds compared to an Indiana clean diesel school bus fleet and by more than 6.5 million pounds compared to an Indiana propane school bus fleet.⁴ In actuality, the reductions will be even larger since the current fleet is predominantly neither clean diesel nor propane.

¹ www.SchoolBusFleet.com School Transportation: 2015-16 School Year

² <https://s3-us-west-2.amazonaws.com/nsta/6571/Yellow-School-Bus-Industry-White-Paper.pdf>

³ Supra 1 www.SchoolBusFleet.com

⁴ Argonne National Laboratory's 2017 GREET model (<https://greet.es.anl.gov/>)

The federal government has recognized the importance of jump-starting the transition towards electrification through the Low-To-No Emission Vehicle Program which offers funding to purchase zero-emissions transit buses.⁵ No such federal program exists for the purchase of zero-emissions school buses. The Volkswagen Mitigation Trust offers Indiana the opportunity to take state-level action to jump-start the transition towards electrification for school buses. This is important because transitioning to a zero tailpipe emissions future for pupil transportation will protect children's health as asthma is the most common chronic condition among children and exposure to fossil fuel exhaust can both cause and exacerbate asthma.⁶ This is especially important because special needs children who are the most vulnerable are also the most exposed to fossil fuel exhaust as the wheel chair lift on school buses is located in the rear of the bus next to the exhaust pipe.⁷

Objectives:

A \$ 4 million carve-out for electric school buses in Indiana's Volkswagen Mitigation Plan would jumpstart the transition of Indiana's school bus fleets to zero emissions. Indiana currently has 7301 school buses registered in 2009 or earlier, which is 45% of the active Indiana school buses.⁸ These older buses can be the targets for replacements with electric school buses. Through a successful demonstration project, Indiana school districts will gain exposure to and experience with electric school buses. This will give districts the confidence to adopt school board resolutions committing to target dates and goals for some new school bus purchases to be electric. A draft school board resolution outlining a plan to transition school bus fleets to zero emissions is attached as Appendix A.

The carve-out would enable the purchase of up to 40 electric school buses with school district in-kind contributions of 1/3rd. This would:

- 1) Enable a state-wide electric school bus demonstration project in multiple school districts that demonstrate a commitment to participate. The following six school districts have already stepped forward and span the state, representing different weather patterns, topographies, air quality conditions, and utility territories:
 - Delphi Community School Corporation
 - Monroe County Community School Corp.
 - Southern Wells Community Schools
 - Eastern Pulaski Community School Corporation
 - North Newton School Corporation
 - Bluffton-Harrison MSD
- 2) Get Indiana on track to achieve 15% fleet electrification by 2025 per the draft resolution, thus contributing to zero emissions school buses being both the standard and affordable.
- 3) Complement the carve outs for electric school buses already made in draft plans by neighboring states of Ohio and Illinois of \$3 million and \$10.9 million respectively. By collaborating regionally the Midwest states could collectively seek a group buy discount for its schools and speed the improvements of childrens' health throughout the region.

⁵ <https://www.transit.dot.gov/funding/grants/lowno>

⁶ U.S. Center for Disease Control and Prevention, *Healthy Schools: Asthma in Schools* (last updated May 9, 2017), <https://www.cdc.gov/healthyschools/asthma/>

⁷ <http://www.schoolbusfleet.com/article/611999/simplifying-wheelchair-lifts>

⁸ IN School bus ages from Indiana State Police Inspections

- 4) Help Indiana meet its environmental goals. Electric school buses can uniquely support renewable integration with the electric grid. This is because the 100-mile range of electric school buses exceeds the daily mileage requirements of the average school bus route.⁹ This enables non-peak, night-time charging of the buses when wind resources are abundant. For schools with longer routes, solar-powered charging stations could provide supplemental power when buses sit idle during the school day. Therefore, they can contribute to Indiana achieving or exceeding its Clean Energy Portfolio Standard.
- 5) Build local and regional familiarity with the technology as schools serve as learning centers for communities. The National Energy Education Development Project could create STEM curriculum for Indiana schools focused on electric school buses.¹⁰ Community residents' exposure to the buses traveling local routes and to regional sporting and musical events as well as student learnings from the STEM curriculum would disseminate throughout Indiana.
- 6) Contribute to market transformation. With all major domestic school bus manufacturers developing electric models and the recent availability of Volkswagen Mitigation Funding, now is the time for state leadership to help drive costs down. The experience curve shows that costs typically decline by 20-30% when production is doubled.¹¹ Blue Bird, the largest domestic school bus manufacturer, predicts that costs for its electric model could decline by 40% with quantity, driving the purchase price towards cost-parity.¹² This is in line with the decline in costs in electric transit buses since 2010 when that technology was in a similarly nascent phase.¹³ This would make the total cost of ownership of an electric school bus the lowest given the annual operational savings of approximately \$10,000 per bus.¹⁴ As the purchase price of electric school buses reach cost-parity, the operational savings attributable with the technology can result in more resources being allocated towards essential classroom activities.

Partners:

We have identified the following partners to collect and analyze critical data from the first deployment of buses to inform future program design:

- Dr. Sara Adar from the University of Michigan¹⁵ is willing to test, record and analyze emissions data. This data could also be used to update a public health study she published in 2015 which concluded that using cleaner fuels in school transportation could prevent 14 million school day absences each year.¹⁶

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Associate Professor
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1415 Washington Heights
Ann Arbor, MI 48109-2029

⁹ Supra 1

¹⁰ <http://www.need.org/>

¹¹ <http://www.economist.com/node/14298944>

¹² <http://www.schoolbusfleet.com/article/722681/golden-opportunities-to-go-for-green-taking-advantage-of-alt-fuel-school-bus-funding>

¹³ <http://www.govtech.com/fs/transportation/Electric-Buses-Are-Gradually-Replacing-Older-Fossil-Fuel-Models.html>

¹⁴ ADOMANI, Inc.'s Comments to Michigan regarding its Volkswagen Funds

¹⁵ <https://sph.umich.edu/faculty-profiles/adar-sara.html>

¹⁶ <http://ns.umich.edu/new/releases/22829-reducing-school-bus-pollution-improves-children-s-health>

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- Kenneth Kelly, Team Leader of Commercial Vehicle Technologies at the National Renewable Energy Laboratory (NREL), is conducting an electric school bus evaluation¹⁷ and is willing to place NREL's dataloggers on buses to track vehicle performance, including operational and maintenance savings. This would inform the evaluation and contribute to NREL's fleet DNA clearinghouse.¹⁸
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- Regina McCormack, a former University of Delaware researcher, published a *Cost-Benefit Analysis of a V2G-Capable Electric School Bus Compared to a Traditional Diesel School Bus* in 2014 and is working on an updated cost-benefit analysis specific to the aforementioned Michigan school districts.¹⁹

Resources on costs, technical specifications and other related information:

- Electric School Bus Models and Associated Charging Equipment Currently Available For Purchase - [link](#) and attached as Appendix B
- Draft RFP with Technical Specifications For Electric School Buses - [link](#) and attached as Appendix C
- Electric School Bus Charging Equipment Installation Guide - [link](#) and attached as Appendix D
- Electric School Bus Planning and Lessons Learned Webinar - [link](#)

The Beneficiary should allocate the maximum amount allowed (15 percent, approximately \$ 6 million) to deploy light duty plug-in electric vehicle charging stations. Charging station deployment should target intercity highway corridors, multifamily housing, workplaces, and overburdened communities. The state should also seek to leverage investments by electric utilities and public-private partnerships to create a more robust, reliable, and comprehensive network.

Respectfully submitted,

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Dr. John Ellis
Board Chair
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Earth Charter Indiana
1100 W 42nd St., Suite 220D
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¹⁷ <https://www.nrel.gov/transportation/fleettest-electric-school-bus.html>

¹⁸ <https://www.nrel.gov/transportation/fleettest-fleet-dna.html>

¹⁹ <https://www1.udel.edu/V2G/resources/V2G-Cost-Benefit-Analysis-Noel-McCormack-Applied-Energy-As-Accepted.pdf>

Model School Board Resolution in Support of Establishing an Electric School Bus Program

The Problem: Diesel School Buses and Children's Health

Diesel exhaust contains over forty toxic chemicals, including nitrogen oxides (NOx) and small particulate matter such as soot.¹ This pollution aggravates respiratory diseases such as asthma, with soot being particularly lethal as it penetrates the lungs and enters the bloodstream. The danger of diesel exhaust is so great that EPA considers it one of the greatest public health risks.² Children are especially vulnerable to the adverse health effects of diesel fumes, since they have breathe faster than adults and their lungs are still developing.³

School buses are the largest form of mass transit in the United States, carrying 26 million children to school each day.⁴ Over 90 percent of school buses are powered by diesel fuel.⁵ For students on diesel buses, their exposure to exhaust exacerbates and can cause childhood asthma, which is a leading chronic illness among American children and a leading cause of school absenteeism.⁶ Approximately 10 percent of Hoosier children suffer from this chronic illness.⁷

The Opportunity: Zero Emissions Electric School Buses

Volkswagen's intentional violation of health based air quality standards led to a legal settlement through which Indiana will receive \$41 million towards specific measures to reduce diesel vehicle and equipment pollution. The Volkswagen Settlement provides Indiana the opportunity of hosting electric school bus demonstration projects. These will confirm the commercial viability of zero emissions electric school buses in Indiana. Through demonstration projects, school officials, parents, students and community members will become familiar with zero emissions electric school buses. This will set the stage for Indiana school districts to begin the transition to a zero emissions future for pupil transportation. Establishing a zero emissions electric school bus program that sets target dates and goals will protect our children's health and help Indiana meet its environmental goals.

Resolution of Indiana School District to Establish an Electric School Bus Program

WHEREAS—Diesel exhaust contains over forty toxic chemicals, including NOx and small particulate matter such as soot, which can penetrate the lungs and enter the bloodstream.⁸

WHEREAS—Health risks from diesel fumes include cancer, lung damage, and respiratory diseases such as asthma.⁹

WHEREAS—Children breathe 50 percent more air per pound of body weight than adults and their lungs are still developing, making them particularly vulnerable to cancer and respiratory diseases caused by NOx and soot exposure.¹⁰

WHEREAS—Children riding, waiting, and boarding diesel school buses are exposed to diesel fumes. A child sitting in the back of the bus with windows closed is exposed to four times more diesel exhaust than a child riding in a car immediately in front of the same bus.¹¹

WHEREAS—Diesel pollution exacerbates and can cause childhood asthma, a leading chronic illness among Indiana children.¹²

WHEREAS—Asthma directly interferes with students' productivity and success in the classroom. Nearly 60% of children with asthma missed at least one day of school in the past 12 months, with asthmatic children ages 5–17 years missing 10.5 million school days in the past year.¹³

WHEREAS—Indiana School buses transport 650,000 children to school every day.¹⁴ Nationally, the American School Bus Council (ASBC) estimates that school buses carry 26 million children daily, making it the largest form of mass transit in both Indiana and the United States.¹⁵

WHEREAS—There are 16,247 school buses in Indiana that make 350,000 stops each day leading to significant idling that releases toxic fumes from tailpipes at young children's height.¹⁶

WHEREAS—Schools can safeguard children from the harmful effects of diesel school bus pollution by transitioning school bus fleets to electric.

WHEREAS—Switching to an electric bus eliminates over 20,000 pounds of NOx and over 350 pounds of diesel particulate matter over a 12 year bus lifecycle.¹⁷

WHEREAS—Switching to cleaner school bus technology can reduce inflammation in children's lungs and improve their health, resulting in as many as 14 million fewer missed school days per year.¹⁸

WHEREAS—Transitioning one diesel school bus to electric is the equivalent of taking 27 new cars off the road in terms of pollution reduction.¹⁹

WHEREAS—Electric school buses have lower fuel, operating and maintenance costs than diesel school buses.²⁰

WHEREAS—Electric school buses with vehicle to grid (V2G) technology hold potential to be revenue generating for school districts.²¹

WHEREAS—VW mitigation trust fund allocations towards electric school bus purchases will help catalyze the market for electric school buses and drive down costs, making them more affordable for school districts in the long-term. The experience curve shows that costs typically decline by 20-30% each time production is doubled.²²

WHEREAS—Indiana’s electric school bus demonstration project will help prepare school districts to purchase electric school buses once the total cost of ownership is competitive.

WHEREAS—Indiana School Districts have the opportunity to protect the health and welfare of school children while advancing Indiana’s clean energy goals.

Recognizing that establishing an electric school bus fleet will help prevent children from developing respiratory diseases such as childhood asthma, while protecting those who already suffer.

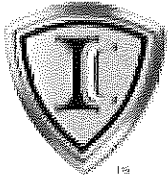
Further recognizing that electric school buses can uniquely support renewable integration with the electric grid, therefore an electric school bus program can help Indiana achieve its clean energy portfolio standard of 10% by 2025 and beyond.²³

Further recognizing that transitioning school bus fleets from diesel to electric will take time and require several stages.

THEREFORE, BE IT RESOLVED that to promote a healthier environment for its students and enable Indiana School District to become cleaner and healthier communities, the School Board hereby:

1. Adopts a program to transition the district’s school bus fleet from diesel to electric, relying on the research and expertise developed through Indiana’s electric school bus demonstration project.
2. Adopts the following transition plan to implement its zero-emissions school bus fleet.
 - 2.1. By 2025, 15% of new school bus purchases are EVs.
 - 2.2. By 2030, 25% of new school bus purchases are EVs.
 - 2.3. By 2035, 50% of new school bus purchases are EVs.
 - 2.4. By 2040, 100% of new school bus purchases are EVs.

-
- ¹ Environmental Law & Policy Center, ELPC Webinar—Electric School Buses: A VW Settlement Opportunity (Mar. 14, 2017), <http://elpc.org/issues/clean-air/elpc-webinar-electric-school-buses-a-vw-settlement-opportunity/>.
- ² U.S. Environmental Protection Agency, *What you should know about diesel exhaust and school bus idling* (June 2003), <https://nepis.epa.gov/Exe/tiff2png.cgi/P100304H.PNG?-r+75+g+7+D%3A%5CZYFILES%5CINDEX%20DATA%5C00THRU05%5CTIFF%5C00001280%5CP100304H.TIF>.
- ³ U.S. Environmental Protection Agency, *Clean Diesel: Clean School Bus* (last updated Oct. 24, 2016), <https://www.epa.gov/cleandiesel/clean-school-bus>.
- ⁴ American School Bus Council, *Environmental Benefits* (last visited Jan. 2, 2018), <http://www.americanschoolbuscouncil.org/issues/environmental-benefits>.
- ⁵ <http://www.schoolbusfleet.com/article/717302/diesel-buses-still-dominate-but-some-see-bright-future-for-alt-fuels>
- ⁶ U.S. Center for Disease Control and Prevention, *Healthy Schools: Asthma in Schools* (last updated May 9, 2017), <https://www.cdc.gov/healthyschools/asthma/>.
- ⁷ The CDC breaks down asthma rates by state. These statistics are particularly helpful for showing racial disparity for asthma sufferers: <https://www.cdc.gov/asthma/stateprofiles.htm>.
- ⁸ Environmental Law & Policy Center, *supra* n. 1.
- ⁹ Natural Resources Defense Council and Coalition for Clean Air, *No Breathing in the Aisles: Diesel Exhaust Inside School Buses* 12, 14 (Jan. 2001), <https://www.nrdc.org/sites/default/files/schoolbus.pdf>.
- ⁹ U.S. CDC, *supra* n. 5.
- ¹⁰ EPA, *supra* n. 2.
- ¹¹ NRDC, *supra* n. 12, at 8.
- ¹² "Diesel Exhaust and Asthma: Hypotheses and Molecular Mechanisms of Action," "Environmental Health Perspectives," Volume 110, Supplement 1, February 2002.
The Natural Resources Defense Council
- ¹³ Center for Disease Control, *Racial Disparities in Childhood Asthma* 19 (April 2016), [https://www.cdc.gov/asthma/pdfs/Racial Disparities in Childhood Asthma.pdf](https://www.cdc.gov/asthma/pdfs/Racial_Disparities_in_Childhood_Asthma.pdf).
- ¹⁴ <https://mi-psc.force.com/sfc/servlet.shepherd/version/download/068t0000001UY4w?casenum=18368>
- ¹⁵ ASBC, *supra* n. 4.
- ¹⁶ *Id.*
- ¹⁷ <https://www.transportation.gov/r2ze/benefits-zero-emission-buses>
- ¹⁸ <https://www.ncbi.nlm.nih.gov/pubmed/25867003>
- ¹⁹ ELPC internal analysis using US EPA Diesel Emissions Quantifier
- ²⁰ ELPC, *supra* n. 1.
- ²¹ <https://www.veic.org/docs/resourcelibrary/veic-electric-school-bus-feasibility-study.pdf>
- ²² <http://www.economist.com/node/14298944>
- ²³ https://www.naseo.org/Data/Sites/1/03-27-17_naseo-vw-beneficiary-mitigation-plan-toolkit-final.pdf
and <http://programs.dsireusa.org/system/program/detail/2401>



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Randall Ray
Sales Director

March 30, 2018

Shawn Seals
Senior Environmental Manager
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VWTrust@idem.IN.gov

Re: Comments to State of Indiana Mitigation Plan under Volkswagen 2.0L and 3.0L Vehicle Partial Consent Decrees, Appendix D-2

Dear Mr. Seals:

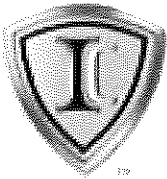
Thank you for this opportunity to provide our comments into Indiana's Beneficiary Mitigation Plan. The VW Mitigation Trust presents a tremendous opportunity to reduce diesel emissions and improve the environment. Indiana's allocation of \$40.9 M will permit the state to make a dramatic reduction in diesel emissions.

Commercial trucks and school buses are major contributors to NOx inventory in Indiana. According to IHS Polk Registration data there are currently over 1,750 pre-1998 buses in the state and over 11,800 pre-2010 buses. As you draft the BMP we commend efforts that will achieve the greatest amount of NOx reduction, while also specifically looking to positively impact at risk population groups, help non-attainment areas, and areas needing environmental justice. It is our belief the group that most clearly represents these constituencies are school buses and school age children.

We understand your pressures of allocating funds throughout many of the eligible projects identified within the D-2. It is our belief and recommendation that priority be provided to the on-highway segment, and within that, the Class 4-8 school buses be the highest priority with lowered amounts allocated towards the Class 8, and Class 4-7 local freight trucks.

As such, we ask that you consider both near and long term impacts and utilize the bulk of your available discretionary funding towards school buses. Usage of VW Mitigation Trust funds towards early retirement of school buses satisfies key requirements outlined in your Beneficiary Mitigation Plan (Draft Framework).

Accelerating the retirement of older, higher emitting school buses will reduce emissions immediately in the vicinity of an at risk population – school age children. School age children are still developing full respiratory capability, thus emissions benefits for school age children will provide positive human benefits throughout their life.



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Randall Ray
Sales Director

Liberal funding for school buses within nonattainment areas captures the goal of working within these nonattainment areas where need for the children and the general population is greatest.

Liberal funding for school buses will also provide direct and significant benefits for areas needing environmental justice, often coinciding with the same non-attainment area described prior.

Replacement of older vehicles rather than repowering has several advantages. New equipment, in this case school buses, you can be assured will be utilized to its fullest, thus providing the maximum benefit to the environment, the children, and the municipality. New vehicles provide the enhanced environmental benefits for the full lifecycle of the vehicle. Additionally, a new vehicle includes a complete warranty which a repowered vehicle does not, as well as safety and product improvements only available with a new vehicle.

IC Bus and it's IN dealer, Midwest Transit Equipment, Inc. of Whitestown is our representative in Indiana and was one of the first companies to enter into commercial development of the Whitestown/So. Indianapolis Rd industrial district. Midwest Transit Equipment can provide a full line of clean propane and clean diesel school buses ready to serve you.

Again, we thank you for this opportunity, we ask that funding be concentrated within school buses, as primary goals of the Draft Framework can be achieved. Focusing on the schools benefits both the at risk school age population as well as the larger community. Fiduciary responsibility to the fund and the state would indicate that usage of these funds within public institutions would be the most transformative choice available.

Should you have any questions, please feel free to contact me at 331-332-3074 or any IC Bus or Navistar representative.

Sincerely,

Randall W. Ray

Randall Ray
IC Bus



March 28, 2018

VIA ELECTRONIC MAIL

Indiana Department of Environmental Management
Indiana Government Center North
100 North Senate Avenue
Indianapolis, IN 46204
Email: VWTrust@idem.IN.gov

RE: Comments of the Sierra Club Regarding Use of Volkswagen Partial Consent Decree Environmental Mitigation Trust Funding for the Purpose of NOx Emissions Reductions in the State of Indiana

On behalf of the Sierra Club and its more than 10,000 members in Indiana, we respectfully submit the following comments regarding the use of funding allocated to the State of Indiana through the Volkswagen Partial Consent Decree Environmental Mitigation Trust (Mitigation Trust). Volkswagen's installation of defeat devices on diesel vehicles sold in Indiana resulted in emissions of nitrogen oxides ("NOx") from these vehicles that exceeded limits established under the Clean Air Act ("CAA"). As a primary component of ground-level ozone (smog), as well as a source of fine particulate matter and acid rain, the excess NOx emissions contributed to diminished air quality levels in Indiana and impeded the State's efforts to maintain and bring its air quality into attainment of health-based National Ambient Air Quality Standards for ozone. This diminished air quality has particularly impacted low-income and minority Hoosiers. The funding provided in the Mitigation Trust is intended to support programs that mitigate and reduce emissions of NOx. To maximize the emission reductions that can be achieved using the Mitigation Trust funding allocated to Indiana, we offer the following recommendations:

- (1) Indiana should allocate the maximum amount authorized by the settlement (15% of total state Mitigation Trust funding) to programs designed to expand access to electric vehicle supply equipment ("EVSE") in the State. Light-duty vehicles are the third greatest contributor of NOx emissions in Indiana.
- (2) Electrification of the vehicle fleet is the most effective way to mitigate emissions from this source category. And access to electric vehicle charging is a key barrier that must be overcome in order for electric vehicle ("EV") adoption in Indiana to rapidly expand. We recommend that the charging infrastructure investments target access to fast chargers on major highways (including those recently designated as EV corridors, such as Interstates 90 and 94), and charging infrastructure to multi-unit dwellings and workplaces with a focus on ensuring benefits to disadvantaged communities. This investment should be coordinated with other sources of funding for charging infrastructure.
- (3) For the remainder of the funds, Indiana should prioritize increasing its electric bus, truck, port, and railyard equipment fleets. Heavy-duty diesel road vehicles (including buses) are the second largest contributors of NOx pollution in the state. Non-road diesel equipment (which includes port equipment) is fourth and locomotives are sixth. Specifically, the Sierra Club recommends spending the remaining funds on electric transit buses and electric school buses, providing funding for electric drayage and forklifts at ports, and providing funding for freight switcher locomotives, including electric rail car movers. Furthermore, vehicle electrification benefits will only grow as the electricity powering them continues to become cleaner. Specifically, Sierra Club strongly recommends NOT using the funds to invest in new diesel or natural gas vehicles. These investments would lock us into many more years of using fossil fuels

dangerous for our air quality and climate stability. Additionally, while electric vehicles and equipment may have higher up-front costs than their diesel counterparts, they typically have lower maintenance costs and can be highly cost-effective on a life-cycle basis. These lower maintenance costs are particularly relevant to the extent this type of expense is not covered by settlement funds. When taking these lifetime costs into account, EVs have a better NOx emissions reduction per dollar ratio than other alternatives.

Consistent with the above recommendations, we believe the Mitigation Trust funds have the opportunity to advance Indiana's environmental justice goals and should be targeted in a manner that will do so. Indiana's Draft Mitigation Plan expresses a commitment to prioritizing projects that benefits those Hoosier communities most impacted by poor air quality. As discussed in these comments, people of color and people living below the poverty line in Indiana—particularly in Northwest Indiana—bear a disproportionate share of the air pollution (particularly NOx-driven ozone pollution) in the state. Funding from the Volkswagen Settlement can support the state's goals of cleaning up the air in these areas by focusing on programs that will electrify vehicles in these cities and municipalities, including electrification of buses, port equipment, and railyard equipment¹ near these cities. While the focus of the Mitigation Trust is on reducing NOx emissions in Indiana—which is critical given Indiana's present unhealthy ozone levels in several counties—strategies to mitigate NOx emissions can also have substantial climate co-benefits. In this respect as well, electrification is a superior strategy to trading one fossil fuel for another by replacing diesel with diesel or diesel with gas because electrification promises more long-term benefits.

I. Indiana should take advantage of the 15% allocation for electric vehicle supply equipment.

The mitigation settlement provides that states may use up to fifteen percent of their 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”—provided that the chargers be installed in workplaces, multi-unit dwellings or on highways.² Indiana's current draft plan leaves the percent of funds to be allocated to EVSE undetermined, but the state should take full advantage of this funding opportunity to expand access to chargers in these locations because doing so will achieve significant NOx emissions reductions. On-road emissions from gasoline-powered light-duty vehicles (“LDVs”) account for the third-highest source of NOx emissions in the state,³ and access to chargers will incentivize more Hoosiers to adopt personal electric vehicles (“PEVs”) over gasoline vehicles.

Paired with mechanisms (such as time of use rates) to manage loads and maximize efficient use of this infrastructure, EVSE infrastructure can be integrated into the grid in a way that incentivizes charging EVs at off-peak times, or at times they can absorb excess renewable energy generation. This, in turn, will increase the operational efficiency of the existing grid by filling off-peak valleys, balancing intermittent generation, and allowing grid costs to be spread over a larger sales base—resulting in potential benefits for all ratepayers.

¹ We urge that Indiana consider electric rail car movers as part of the freight switch locomotives category because including these rail car movers would provide a substantial avenue for emissions reductions. See NAT'L ASSOC. OF ST. ENERGY OFFICIALS, VOLKSWAGEN SETTLEMENT BENEFICIARY MITIGATION PLAN TOOLKIT, 24–26 (Mar. 2017), *available at*: <https://www.naseo.org/Data/Sites/1/naseo-vw-beneficiary-mitigation-plan-toolkit-final.pdf>.

² Environmental Mitigation Trust Agreement for State Beneficiaries, Appendix D-2, United States District Court for the Northern District of California, Case No: MDL No. 2672 CRB (JSC), at 9 (Oct. 2, 2017) [hereinafter “Mitigation Trust Agreement”].

³ U.S. ENVTL. PROT. AGENCY, *2014 National Emissions Inventory Data*, <https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data> (last visited Jan. 5, 2018).

Numerous studies have concluded that the absence of an adequate, existing charging infrastructure for LDV EVs is an impediment to rapidly increasing EV adoption.⁴ This is true for several reasons. First, there is a high upfront capital cost to an EV user to install a charger. Second, many potential EV owners neither own nor operate a parking space to install a charger in. Third, the lack of a robust charging infrastructure on highways contributes to range anxiety. Fourth, the lack of visible, installed charging infrastructure results in lower public awareness of EVs. Using VW funds to build out charging infrastructure in appropriate locations can overcome these hurdles, as discussed below.

A. Highways

VW funds should be used to build out high speed direct current (“DC”) charging infrastructure on highways. Doing so is critical to resolving range anxiety and increasing public awareness. More specifically, access to DC fast charging influences consumer choices and is an important part of a comprehensive charging network. One critical benefit of publicly accessible DC fast charging is that it enables inter-city and long-distance travel that is otherwise impossible or impractical for all-electric vehicle drivers.⁵ In addition to inhibiting distance travel and exacerbating range anxiety, consumer research indicates that a “lack of robust DC fast charging infrastructure is seriously inhibiting the value, utility, and sales potential” of typical pure-battery electric vehicles.⁶ Consequently, increased access to DC fast charging stations must be achieved in order to build an effective EV infrastructure that will drive EV adoption. **Figure 1** below shows the location of fast and super chargers currently existing in Indiana, and reflects the concentration of such chargers in metropolitan areas (namely, Indianapolis), with few chargers existing along highways, in smaller communities, or in communities with historically poor air quality.⁷

⁴ INT’L ENERGY AGENCY, TECHNOLOGY ROADMAP: ELECTRIC AND PLUG-IN HYBRID ELECTRIC VEHICLES (June 2011), *available at*: http://www.iea.org/publications/freepublications/publication/EV_PHEV_Roadmap.pdf; INT’L ENERGY AGENCY, GLOBAL EV OUTLOOK 2017, 29 (2017). *See also*, NAT’L ACAD. OF SCI., OVERCOMING BARRIERS TO DEPLOYMENT OF PLUG-IN ELECTRIC VEHICLES

(2015) (“federal financial incentives to purchase PEVs should continue . . .”); JEROME DUMORTIER ET AL., EFFECTS OF LIFE CYCLE COST INFORMATION DISCLOSURE ON THE PURCHASE DECISION OF HYBRID AND PLUG-IN VEHICLES 2 (2014)

⁵ NICK NIGRO ET AL., STRATEGIC PLANNING TO IMPLEMENT PUBLICLY AVAILABLE EV CHARGING STATIONS: A GUIDE FOR BUSINESSES AND POLICYMAKERS, 11 (2015).

⁶ PlugShare, *New Survey Data: BEV Drivers and the Desire for DC Fast Charging* (Mar. 2014).

⁷ IND. OFFICE ENERGY DEV., *Find a Pump Near You*, <https://www.in.gov/oed/2367.htm> (last visited Jan. 29, 2018).

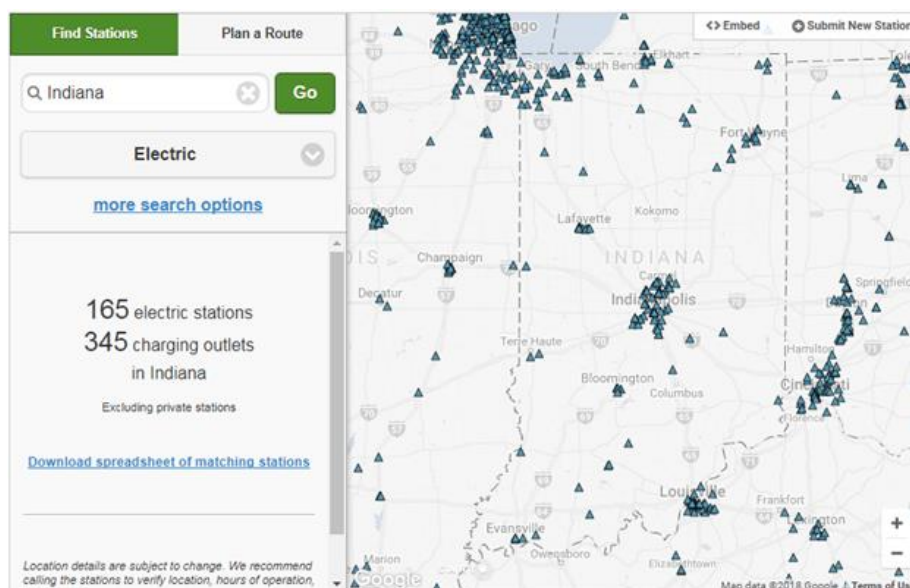


Figure 1: Adopted from Indiana’s Office of Energy Development, these markers indicate the location of electric charging stations.

As with many network industries, the development of DC fast charging networks suffers from a “chicken-or-the-egg” market coordination problem. Prospective EV owners are reluctant to purchase an electric car in the face of limited access to charging infrastructure because the EV’s range and use would be limited. Likewise, prospective hosts and private funders of EV charging infrastructure cannot see a business case for EV charging station investment where too few EVs are in use to provide a return on investment.

The market coordination problem is acute for DC fast charging stations, which have “high upfront costs” and “require significant revenues for the owner-operator to achieve profitability.”⁸ However, quantitative research on this “chicken-or-the-egg” problem in the EV context not only indicates that the increased supply of more EVs would drive the deployment of more public charging and vice-versa, but that a financial subsidy given to infrastructure investment will increase EV sales by more than twice the amount of the increase if the financial incentive is provided for EV purchase.⁹

B. Multi-Unit Dwellings (“MUDs”)

VW funds should be used to build out charging infrastructure at multi-unit dwellings. Studies have shown that most charging is done at locations with long-term “dwell times” during which batteries can recharge, such as homes. The National Research Council of the National Academy of Sciences characterizes home charging as a “virtual necessity” for all EV drivers, and that residences without access to electric vehicle charging “clearly [have] challenges to overcome to make PEV ownership practical.”¹⁰ Drivers are very unlikely to purchase an EV if they cannot charge at home.¹¹

Unfortunately, many people that live in urban environments do not own or otherwise operate their parking shared space.¹² In fact, research shows that less than half of all vehicles in the U.S. have access to

⁸ NIGRO ET AL., *supra* note 5.

⁹ Li S et al., *The Market for Electric Vehicles: Indirect Networks Effects and Policy Design*, 4 J. ASSOC. ENVTL. & RES. ECON. 89 (2017).

¹⁰ NAT’L ACAD. OF SCIS., *supra* note 4, at 9.

¹¹ See ADAM LANGTON & NOEL CRISOTOMO, CAL. PUB. UTIL.COMM’N, VEHICLE-GRID INTEGRATION 5 (2013).

¹² SCH. OF PUB. & ENVTL. AFFAIRS AT IND. UNIV., PLUG-IN ELECTRIC VEHICLES: A PRACTICAL PLAN FOR PROGRESS 32 (2011).

a dedicated off-street parking space at an owned residence where a charging station could be installed by the owner.¹³ These include people that live in large multi-unit dwellings and park in garages or parking lots, as well as people that rely on street parking. These potential EV owners often either lack the ability to install a charger or face serious challenges to doing so.¹⁴ The industry term for these people is “garage orphans” and a study conducted for Eversource Utility in Boston, Massachusetts, found that the garage orphan effect resulted in most EV owners being individuals who live in single family homes, often clustered in more leafy suburban neighborhoods.¹⁵

Meanwhile, the owner and operator of the garage or parking lot may lack sufficient incentive to spend the capital to install chargers. The investment in charging infrastructure may not be recoverable within the expected tenure of renters. Moreover, costs of charging infrastructure at a distance from the building, such as in a parking lot, will likely be higher than installation in a single-family house.

Our state should use the VW funds to overcome the unique barriers to access infrastructure faced by residents of multi-unit dwellings by using the VW funds to subsidize its development. Doing so will unlock the ability for people living in multi-unit dwelling in urban areas to charge their vehicle overnight while they sleep.

C. Workplaces

VW funds should be used to build out charging at workplaces. Workplaces offer another location with long dwell times to recharge batteries, and access to electricity fuel at workplaces reduces “range anxiety,” improves the EV value proposition, and greatly increases consumer awareness of EVs. Research from the U.S. Department of Energy shows that people that have access to workplace charging are 20 times more likely to be EV owners.¹⁶ Likewise, the National Research Council study also reports that charging at workplaces offers an important opportunity to increase EV adoption and to increase electric miles driven.¹⁷

D. Disadvantaged Communities

People of color and people with lower incomes bear disproportionate amounts of the impacts of air pollution in Indiana, particularly in the heavily industrialized area of Northwest Indiana.¹⁸ Recognizing this critical issue, Indiana’s Draft Mitigation Plan places an emphasis on serving disadvantaged communities and the state should certainly make this a priority. Moreover, as Section 5.2.10 of the Settlement Agreement provides, in approving plans, states must provide:

A description of how the Eligible Mitigation Action mitigates the impacts of NOx emissions on communities that have historically borne a disproportionate share of the adverse impacts of such emissions.

¹³ ELIZABETH TRAUT ET AL., TRANSP. RESEARCH, US RESIDENTIAL CHARGING POTENTIAL FOR ELECTRIC VEHICLES, pt. D 25, 139 (2013).

¹⁴ SCH. OF PUB. & ENVTL. AFFAIRS AT IND. UNIV., *supra* note 12, at 32.

¹⁵ WXY, *Accommodating Garage Orphans in Boston, Cambridge, and Somerville* (2015), available at: http://wxystudio.com/uploads/1700017/1441308185862/GarageOrphanReport_v2.1_08182015.pdf. Similarly, a survey conducted in California showed 91% of the electric vehicle owners who responded lived in single-family detached homes. CAL. CTR. FOR SUSTAINABLE ENERGY, CALIFORNIA PEV OWNER SURVEY (2012), https://cleanvehiclerebate.org/sites/default/files/docs/nav/transportation/cvrp/survey-results/California_PEV_Owner_Survey_Report.pdf.

¹⁶ U.S. DEP’T OF ENERGY, WORKPLACE CHARGING CHALLENGE PROGRESS UPDATE 2014: EMPLOYERS TAKE CHARGE 5 (2014), available at: http://www.energy.gov/sites/prod/files/2015/11/f27/WPCC_2014progressupdate_1114.pdf.

¹⁷ NAT’L ACAD. OF SCIS., *supra* note 4, at 9.

¹⁸ HOOSIER ENVTL. COUNCIL, ASSESSMENT OF ENVIRONMENTAL JUSTICE NEEDS IN NORTHERN LAKE COUNTY COMMUNITIES 3 (2010).

Siting charging infrastructure and focusing outreach in disadvantaged communities are two ways this can be achieved. As noted in a 2011 report by The Greenlining Institute, such communities are more heavily impacted by air pollution and are more concerned by it.¹⁹ They are also a natural, but largely untapped market for EVs,²⁰ given the barriers to charging infrastructure in multi-unit dwellings discussed above. Multi-unit dwellings often house populations with less disposable income²¹ and are much more common in urban environments—where air quality is also poorer. Investing in EVSE in these areas would achieve significant emissions reductions for these populations. Ensuring that multi-unit dwellings and workplaces in disadvantaged and environmental justice communities are provided charging infrastructure is a critical component of any plan to use VW funds.

II. The Remaining 85% of VW Fund Should Be Used to Electrify Vehicles in Indiana and There Are Several Opportunities to Multiply This Remaining Funding

In order to achieve the most NOx reductions possible from the VW funds, Indiana should prioritize electrification over replacing vehicles with new diesel or alternative fuel vehicles. Not only does electrification prevent Indiana from getting locked into future emissions by committing to more diesel or alternative fuel vehicles (which although lower than current emission levels, are higher than zero-emission electric vehicles), it opens up further potential funding sources. There are three ways the VW funds may be leveraged for additional funding for electrification of the transportation sector and NOx emissions reductions: 1) using funds from the Diesel Emission Reduction Act (“DERA”); 2) leveraging utility funds; and 3) engaging in public-private partnerships.

A. DERA Funding

Our state can multiply its program funding by combining the VW Settlement with the Federal Diesel Emissions Reductions Act (“DERA”) Program. To achieve this, VW Settlement funds may be used for the DERA Program’s voluntary non-federal matching option. To be more precise, if our state decides to apply and is granted funds through DERA from the EPA (as Indiana has done since 2008 through the DieselWise program),²² it may elect to match those EPA funds with its own contribution from the VW funds, and consequently, the EPA will increase their DERA Program funding by an additional 50%. For example, suppose Indiana submits a electric railcar program proposal and receives \$200,000 through DERA. If our state matches this amount with \$200,000 from VW funds, the EPA will add a bonus \$100,000 to the total program funding. Consequently, our state receives a total of \$500,000 for its railcar proposal, as compared to the initial \$200,000. Our state may also overmatch, but the EPA bonus funding will remain the same.

The goal of eligible DERA programs is to reduce vehicle or vessel NOx emissions, so many of the eligible programs are comparable to those outlined in the VW Settlement. There are some additional programs, however, included in DERA, but not included in the Settlement and the DERA additional funds could be used to address these additional programs. These include repowering²³ non-road engines (e.g. agricultural irrigation pump engines, bulldozer engines), building up Truck Stop Electrification (or “Electrified Parking Spaces”), and programming for increased Idle Reduction Technology.

If our state would like to participate in this DERA option, it may use its Final Approved DERA Workplan as its required Beneficiary Mitigation Plan for the VW Settlement. Additionally, the EPA

¹⁹ C.C. SONG, ELECTRIC VEHICLES; WHO’S LEFT STRANDED?, THE GREENLINING INST. 8 (2011).

²⁰ *Id.* at 4.

²¹ NAT’L MULTIFAMILY HOUSING COUNCIL, *Quick Facts: Resident Demographics* (2016), available at: http://www.nmhc.org/Content.aspx?id=4708#income_previous.

²² U.S. ENVTL. PROT. AGENCY, *Clean Diesel State Allocations*, <https://www.epa.gov/cleandiesel/clean-diesel-state-allocations> (last visited Jan. 5, 2018).

²³ Repowering refers to the removal of the existing motor and drivetrain and replacement with all-electric components.

Regional office may provide limited and appropriate guidance to help implement the approved program, and these fees are an eligible administrative cost under the DERA option.

B. Utility Funding

Indiana utility regulators have approved utility projects to develop electric vehicle charging infrastructure.²⁴ We could use VW funds to cover part of the cost of building out EV charging infrastructure, as outlined in the table below.²⁵ Utility investments, recovered from shareholders or from electricity customers, could potentially be contributed to cover the rest.

Asset	Government	Private
Light Duty Vehicle Charging Infrastructure	Up to 100% covered by VW Settlement funds if publicly available on government property	Up to: - 80% covered by VW Settlement funds if publicly available at private property - 60% covered if at workplace, not publicly available - 60% covered if at Multi-Unit Dwelling, not publicly available

C. Public-Private Partnerships

Similarly, Indiana can use VW funds to leverage additional investment in EV-related assets through public-private partnerships. The VW Settlement expressly contemplates using VW Settlement funds for both governmental and non-governmental asset investments.²⁶ For non-governmental asset investments, only part of the expenses can be covered by the VW Settlement, as reflected in the table below, meaning that the remainder of the expense must be covered through other funds. Thus, our state can use VW funds to incentivize matching investments in EV assets and charging infrastructure from private entities. For example, our state can use VW funds to pay for 40% of the cost of a private corporation's electric bus or truck, such as a hospital or university, and the private corporation could pay for the remaining 60%.²⁷

²⁴ Indianapolis Power & Light Co., *Electric Vehicle Charging*, https://www.iplpower.com/Business/Programs_and_Services/Electric_Vehicle_Charging_and_Rates/ (last visited Mar. 2018) INDIANAPOLIS POWER & LIGHT CO., ELECTRIC VEHICLE PROGRAM, YEAR 3 2013 REPORT, 2 (2014).

²⁵ Created pursuant to Mitigation Trust Agreement, *supra* note 2 at Appendix D-2 at 9.

²⁶ *Id.* at 2–10.

²⁷ Table created pursuant to *id.*

Asset	Government	Private
New Electric Truck and Charging Infrastructure	Up to 100% covered by VW funds	Up to 75% covered by VW funds
New Electric Bus and Charging Infrastructure	Up to 100% covered by VW funds	Up to 75% covered by VW funds
Light Duty Vehicle Charging Infrastructure	Up to 100% covered if publicly available on government property	Up to: - 80% covered if publicly available at private property - 60% covered if at workplace, not publicly available - 60% covered if at Multi Unit Dwelling, not publicly available
New Electric Freight Switcher and Charging Infrastructure	Up to 100% covered by VW funds	Up to 75% covered by VW funds
Ship to Shore Infrastructure	Up to 100% covered by VW funds	Up to 25% covered by VW funds
Qualifying Airport Equipment and Charging Infrastructure	Up to 100% covered by VW funds	Up to 75% covered by VW funds
New Forklift and Charging Infrastructure	Up to 100% covered by VW funds	Up to 75% covered by VW funds
New Electric Truck and Charging Infrastructure	Up to 100% covered by VW funds	Up to 75% covered by VW funds

D. Indiana Should Specifically Prioritize a Portion of the Remaining 85% of Funds for Electrifying School and Transit Buses

A few transit systems in Indiana have already deployed some electric transit buses as part of their fleet,²⁸ and several have hybrid electric-diesel buses. VW funds are available to support more widespread adoption of these highly efficient alternatives to fossil-fueled transportation both in fleets that have already begun transitioning to fully electric and in fleets that have not begun to transition. As described in greater detail below, the economics already favor widespread investment in zero emission buses and their supporting infrastructure, the costs of which can also be covered by the VW funds. Investment in these buses today will speed further integration as these technologies come to scale, bringing measurable economic and environmental benefits to the communities they service. Despite their greater purchase price, current analysis using Argonne National Laboratory's AFLEET Model demonstrates that zero emission electric buses have a **total cost of ownership 19% lower than new diesel buses**. The agencies can use these savings to procure additional zero emission buses, which will lock in yet further cost savings going forward for the agency.

²⁸ For example, IndyGo, Fast Forward Bloomington, Transit Authority of River City, and South Shore Line all include at least one electric bus. IND. DEP'T TRANSP., CALENDAR YEAR 2016 INDIANA PUBLIC TRANSIT ANNUAL REPORT (2016); <https://www.in.gov/indot/files/2016%20INDOT%20Transit%20Annual%20Report.pdf>. IndyGo received a \$10 million federal grant to purchase 21 new electric buses. Press Release, IndyGo, IndyGo Begins Building Largest Electric Bus Fleet in the Country! (Apr. 22, 2015), *available at*: https://www.google.com/url?q=https://www.indygo.net/inside-indygo/indygo-begins-building-largest-electric-bus-fleet-in-the-country/&sa=D&ust=1522161763442000&usg=AFQjCNGWvZpMfMz7w9mXAzg-ii0Mm_AWGA.

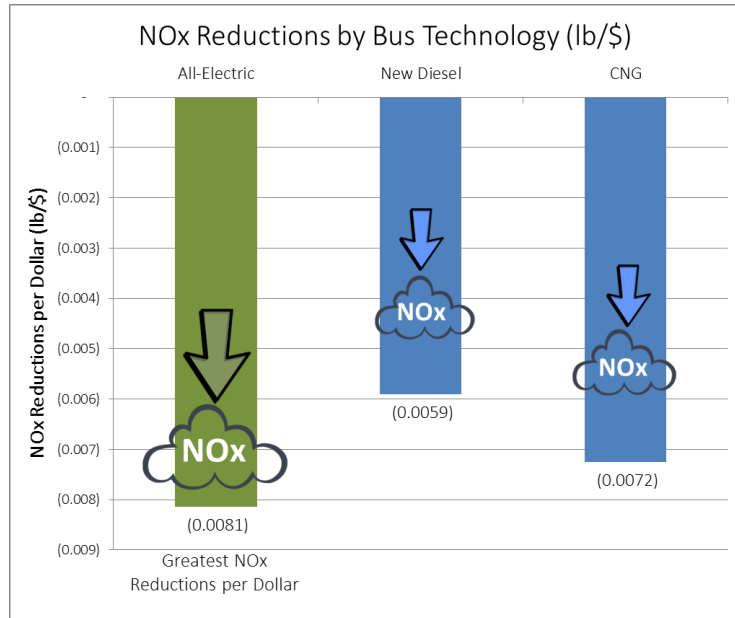


Figure 4: Metrics derived from Argonne’s AFLEET Model (2017)

E. EV Buses Already Have Lower Comparative Lifetime Costs Than Diesel Buses and CNG Buses—And Costs Continue To Drop Rapidly

As discussed below, even today the lifetime cost of an electric bus is significantly lower than that of a new diesel or alternative fuel bus, though the upfront cost is higher. And electric buses provide the greatest NOx lb/\$ ratio, making them the most impactful choice for the use of the EMT funds. The all-in cost of buses—that is, the upfront cost of the bus purchase, fuel costs and maintenance costs—for electric buses is around \$1,100,000, and around \$1,400,000 and \$1,300,000 for diesel and compressed natural gas (“CNG”) buses, respectively.²⁹ In addition, although reliable, current publicly available data on hybrid diesel-electric buses are lacking, a lifecycle analysis using data compiled by the California Air Resources Board in 2016 shows that hybrid diesel-electric buses have a total cost of ownership of \$1,909,847 (over \$700,000 greater than an electric bus). Based on currently reported data, each all-electric bus will save Indiana’s transit agencies hundreds of thousands of dollars over any other type of bus purchase.

²⁹ Steve Hanley, *The Business Case For the Proterra Electric Bus*, ECOMETO, Aug. 3, 2015, <http://ecometo.com/2015/08/03/business-case-proterra-electric-bus/>.

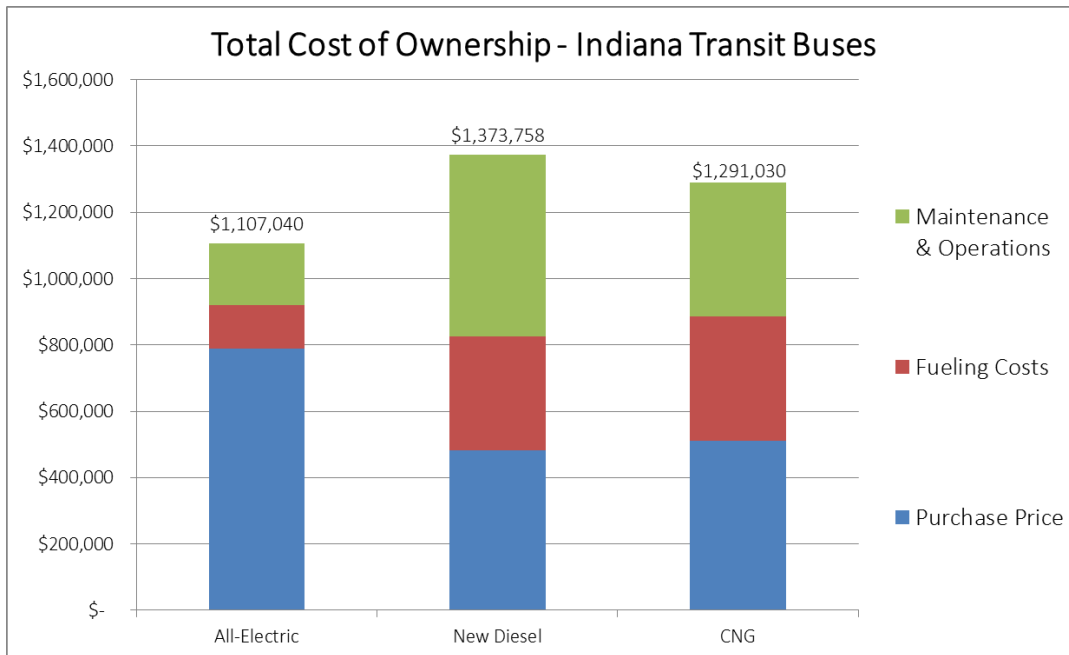


Figure 3: Argonne National Laboratory’s AFLEET Model (2017); fuel and electricity costs adjusted for Lake Co., IN

1. Up Front Costs

The current sticker price of a new electric bus is about \$800,000.³⁰ A comparable new diesel vehicle costs \$480,000 and a CNG bus \$490,000, while a Fuel Cell Bus (“FCB”) costs over \$1,000,000.³¹ Transitioning to electric technology can also be accomplished through repowering existing diesel vehicles with all-electric components.

Government estimates of zero-emission bus prices sharply decline as advances in battery manufacturing and increased demand drive down costs.³² By 2025—within the 10-year timeframe of the VW Mitigation Trust grant program—an electric bus is expected to cost \$480,000, which is equal to or less than the cost of a new diesel vehicle.³³ Much of this decrease is attributable to projected reductions in battery costs. A California Air Resources Board-conducted literature review concluded that studies consistently place the cost of batteries below \$500/kWh by 2020, and approaching \$200/kWh by 2030.³⁴ These estimates are already outdated and clearly understate the rate of reductions in battery costs, which again are the most expensive part of an EV. GM announced that already, even in 2016, it was procuring batteries for its Bolt EV for \$145/kWh.³⁵ As explained below, even without future reductions in costs, EV

³⁰ Proterra’s Catalyst bus cost \$749,000 in 2016 while BYD’s all-electric bus costs \$770,000. Draft, Cost Model Discussion with ACT Cost Subgroup, slides 9–10 (Aug. 23, 2016), *available at*: http://cafcg.org/sites/default/files/5_CARB-ACT-Cost-Model-Discussions_CaFCP-Bus-Team-Meeting-Aug2016.pdf [hereinafter “Air Resources Board Cost Model”].

³¹ *Id.* at slides 9 (CNG), 10 (diesel), 12 (Hydrogen Fuel Cell).

³² Relatedly, another benefit of investing in EV buses is that Hoosier companies involved in manufacturing parts (such as batteries) would be benefited, thereby bolstering the state’s industry and providing more jobs. *See, e.g.*, EnerDel, *About EnerDel*, <http://enerdel.com/about-enerdel/> (last visited Mar. 19, 2018); Cummins, *Electrified Power*, <https://www.cummins.com/electrification> (last visited Mar. 19, 2018).

³³ Air Resources Board Cost Model at slide 10 (all values in 2016 dollars).

³⁴ *Id.* at slide 11.

³⁵ Jay Cole, GM: Chevrolet Bolt Arrives in 2016, \$145/kWh Cell Cost, Volt Margin Improves \$3,500, INSIDE EVS, <http://insideevs.com/gm-chevrolet-bolt-for-2016-145kwh-cell-cost-volt-margin-improves-3500/> (last visited Mar. 20, 2018).

buses, with their far lower fuel, operating, and maintenance costs, currently exhibit lower lifetime costs than diesel and CNG buses.

2. Fuel Savings

Electric buses offer tremendous fuel savings. For example, Proterra's all-electric Catalyst bus registers a fuel efficiency averaging 19.44 miles per diesel gallon equivalent ("MPDGe") of electric charge.³⁶ By contrast, diesel buses average 4.16 MPDGe³⁷ and CNG buses average 3.87 MPDGe.³⁸ Electric costs vary by market but average \$0.102/kWh nationally and average \$0.095/kWh across sectors in Indiana,³⁹ or about \$1.17 per gallon diesel equivalent.⁴⁰ By contrast, average diesel fuel prices are between \$2–\$3 per gallon⁴¹ and CNG costs approximately \$2.13 per gallon diesel equivalent in the Midwest.⁴² Based on these prices, an electric bus will consume about \$5,000–\$10,000 in electricity annually, far lower than the \$50,000/yr spent on diesel⁴³ or \$30,000/yr spent on CNG⁴⁴ to fuel a similar vehicle. FCBs are currently even more expensive. FCBs are fueled by hydrogen, which costs approximately \$8/kg in 2016.⁴⁵ Notably, long-range electric buses are available on the market. Proterra offers electric buses with mileage ranges of 49–350 miles per charge,⁴⁶ and BYD sells a bus that goes approximately 155 miles.⁴⁷ New Flyer is testing a hydrogen fuel cell bus with 300 miles of range.⁴⁸ Companies such as Complete Coach Works offer rebuilt electric buses for lower cost than new buses.⁴⁹ Variability in fuel supply also increases the difficulty of predicting an operating budget for a diesel, or CNG dependent transportation fleet. While long-term fuel contracts can insulate against these fluctuations, shifts in real world prices can still impact operations when negotiating those contracts. Lastly, all-electric buses are fueled by regionally generated electricity, which has demonstrated far more reliable pricing as compared to diesel oil and natural gas,⁵⁰ and can benefit regional utilities.

³⁶ ARGONNE NAT'L LAB., AFLEET TOOL 2017, *available at*: https://greet.es.anl.gov/afleet_tool.

³⁷ *Id.*

³⁸ *Id.*

³⁹ ENERGY INFO. ADMIN., *Electric Power Monthly*, Table 5.6.A (Feb. 27, 2018), https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_5_6_a; U.S. DEP'T OF TRANSP., *Zero Emissions Bus Benefits*, <https://www.transportation.gov/r2ze/benefits-of-ZEBs> (last visited Oct. 10, 2016). It is important to consider that, for high power charging, additional costs beyond volumetric electricity use may be incurred depending on the applicable utility rate structure. In particular, demand charges—costs incurred for high rate of power flow—can make a significant difference in determining fuel costs.

⁴⁰ U.S. DEP'T OF ENERGY, *eGallon*, <https://www.energy.gov/maps/egallon#> (last visited Mar. 20, 2018).

⁴¹ Average national price as of October 3, 2016 was \$2.389/gallon, but varies greatly with underlying crude oil prices, see ENERGY INFO. ADMIN., *Gasoline and Diesel Fuel*, <http://www.eia.gov/petroleum/gasdiesel/> (last visited Mar. 20, 2018).

⁴² U.S. DEP'T OF ENERGY, CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT 4, table 6 (July 2016), *available at*: http://www.afdc.energy.gov/uploads/publication/alternative_fuel_price_report_july_2016.pdf.

⁴³ California Air Resources Board, Literature Review on Transit Bus Maintenance Cost (Discussion Draft), 7 (Aug. 2016) *available at*: https://www.arb.ca.gov/msprog/bus/maintenance_cost.pdf.

⁴⁴ California Air Resources Board, Technology Assessment: Medium and Heavy-Duty Battery Electric Trucks and Buses, Draft, IV-5 (Oct. 2015).

⁴⁵ Air Resources Board Cost Model, slide 20.

⁴⁶ See Proterra, Catalyst Specifications: 40 Foot Bus & 35 Foot Bus, <https://www.proterra.com/wp-content/uploads/2016/08/Proterra-Catalyst-Vehicle-Specs.pdf> (last visited Mar. 20, 2018) [hereinafter "Proterra Catalyst Specifications"].

⁴⁷ BYD, *Electric Bus*, <http://www.byd.com/na/old/auto/ElectricBus.html> (last visited Mar. 20, 2018).

⁴⁸ Alex Roman, *What's New in Electric Buses?*, METRO MAG., May 2, 2016, *available at*: <http://www.metro-magazine.com/sustainability/article/711947/what-s-new-in-electric-buses>.

⁴⁹ Complete Coach Works, *ZEPS Electric Remanufactured Transit Bus*, <http://completecoach.com/zeps-timelapse/> (last visited Mar. 20, 2018).

⁵⁰ U.S. DEP'T OF ENERGY, *Fuel Prices* (last updated Dec. 2017), <https://www.afdc.energy.gov/fuels/prices.html>.

3. Operating & Maintenance Costs

Electric buses also have maintenance and operating costs of about 70% and 79% lower than their diesel and CNG alternatives.⁵¹ With an electric or hydrogen fuel cell bus, there are no oil changes or emissions tests, fewer parts that can break, and less wear on braking systems. The average lifetime maintenance cost for an electric bus is just \$0.17/mile. This is a significant reduction from the \$0.80/mile and \$0.56/mile costs associated with diesel and CNG fueled vehicles, respectively.⁵² Hydrogen fuel cell buses have an average maintenance cost of \$1.00/mile.⁵³ Proterra estimates that over a 12 year lifetime, an all-electric bus will save its operator \$448,000 as compared to a traditional diesel vehicle, \$408,000 as compared to a CNG vehicle, and \$459,000 as compared to a diesel-hybrid vehicle.⁵⁴

4. Charging Infrastructure Costs

There are two options for electric bus charging infrastructure. First, a typical Class 3 slow charger can charge a bus in 3–5 hours. These chargers cost around \$65,000 to purchase and install.⁵⁵ Again, this cost can be covered by Mitigation Trust funds. With advances in battery technology increasing bus ranges, new models can achieve up to 350 miles on a single charge, enough to allow an operator to charge its buses overnight and then operate all day without needing to stop to refuel.⁵⁶ Alternatively, fast chargers can provide 30 miles worth of charge in 8–13 minutes.⁵⁷ This design allows a bus to charge during the course of its normal route, eliminating the need to come out of circulation to refuel.

F. Mitigation Trust Funds Can Be Used To Purchase and Install Electric Buses and Charging Equipment; Locked-in O&M Savings Can Then Be Used to Expand the EV Bus Fleet, Generating Further Savings

VW funds are available to meet the higher capital requirements of an electric bus fleet, allowing a transit agency to then lock in the lower lifetime costs of EV buses. The agency can then use the lifetime savings on fuel and maintenance to procure additional EV buses and build on lifetime savings going forward. For the reasons discussed above and depicted in the table below, once costs are viewed on a lifetime basis, investing in electric is far preferable to diesel or CNG vehicles.

⁵¹ ARGONNE NAT'L LAB., *supra* note 40.

⁵² Air Resources Board Cost Model, slide 13. Model inputs are populated using averages of fuel economy and maintenance costs reported directly by transit agencies from the years 2014 to 2017. *See* ARGONNE NAT'L LAB., *supra* note 41.

⁵³ Air Resources Board Cost Model, slide 16.

⁵⁴ Proterra Catalyst Specifications, *supra* note 51.

⁵⁵ Air Resources Board Cost Model, slide 24.

⁵⁶ *See* Proterra Catalyst Specifications, *supra* note 51. *See also* Aarian Marshall, *This New Electric Bus Can Drive 350 Miles on One Charge*, WIRED, Sept. 12, 2016, <https://www.wired.com/2016/09/new-electric-bus-can-drive-350-miles-one-charge/>.

⁵⁷ NAT'L RENEWABLE ENERGY LAB., FOOTHILL TRANSIT BATTERY ELECTRIC BUS DEMONSTRATION RESULTS, 13 (Jan. 2016), available at: <http://www.nrel.gov/docs/fy16osti/65274.pdf>; *see also* Proterra Catalyst Specifications, *supra* note 51.

Costs (Capital + O&M) for Diesel, CNG, Electric Buses⁵⁸

	Diesel	CNG	Electric
Purchase Price	\$480,000	\$490,000	\$750,000
Fuel Cost (DGe)	\$2–3	\$2.13	\$1.17
Fuel Cost (annual)	\$50,000	\$30,000	\$5,000–\$10,000
Fuel Efficiency(MPDGe)	4.16	3.87	19.44
O&M cost (\$/mile)	\$0.80	\$0.56	\$0.17
Additional Lifetime O&M (compared to electric) ⁵⁹	\$448,000	\$408,000	--
Approximate Lifetime Cost	\$1,373,758	\$1,291,030	\$1,107,040

These savings are not exclusive to transit buses. Electric school buses are in use by a number of municipalities throughout the country.⁶⁰ School buses are ideal fits for electrification and Indiana's buses are ripe for replacement: 45% of Indiana's public school buses are from 2009 or earlier, and there are several from as far back as 1991.⁶¹ Buses typically operate two shifts each day, once in the morning and again in the afternoon. Down time between shifts allows buses to fully recharge. In King County, California, two electric school buses were estimated to save roughly 16 gallons of fuel per bus per day. This amounted to an annual fuel saving of over \$11,000 per bus.⁶²

Electric school buses can achieve for emissions reductions that will directly benefit children, who are particularly vulnerable to asthma caused by inhaling diesel fumes.⁶³ These reductions can be even more impactful in communities with high populations of people of color or low income because they are disproportionately impacted by emissions. For example, in the public hearing held in Portage, comments were made advocating electric bus funding for school districts in communities such as Hammond, East Chicago, and Gary, where air quality has been historically poor. Furthermore, utilities have voiced their support for replacing diesel buses with electric buses in the Midwest.⁶⁴

⁵⁸ ARGONNE NAT'L LAB., AFLEET MODEL (2017) (fuel and electricity costs adjusted for Lake Co., IN).

⁵⁹ Includes savings from fuel and maintenance, *see* Proterra Catalyst Specifications, *supra* note 51.

⁶⁰ *See e.g.*, James Ayre, *Massachusetts Puts \$1.4 Million into Electric School Bus Pilot Program*, CLEAN TECHNICA, Aug. 16, 2016,

<https://cleantechnica.com/2016/08/16/massachusetts-puts-1-4-million-electric-school-bus-pilot-project/>; Nicole Schlosser, *Can Electric School Buses Go the Distance?* May 23, 2016,

<http://www.schoolbusfleet.com/article/713421/can-electric-school-buses-go-the-distance> (providing an overview of state and local pilot projects); Larry Hall, *Tech: The Yellow School Bus Is Going All Electric*, CLEAN FLEET REPORT, Mar. 26, 2016, <http://www.cleanfleetreport.com/tech-yellow-school-bus-going-electric/>.

⁶¹ This data was compiled by Indiana State Police officials. For more data, *see*, IND. ST. POLICE, *Indiana School Bus Inspection*, <https://secure.in.gov/ISP/BusInspections/Public/Index> (last updated 2018).

⁶² Hall, *supra* note 66.

⁶³ Electric School Bus Campaign, *Indiana Should Use the VW Settlement Money to Buy Electric School Buses* (Dec. 29 2017), <http://electricschoolbuscampaign.org/indiana-use-vw-settlement-money-buy-electric-school-buses/>.

⁶⁴ School Transp. News, *Electric School Buses in the Midwest?* (Nov. 6, 2017), <http://www.stnonline.com/news/latest-news/item/9047-electric-school-buses-in-the-midwest>.

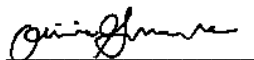
Electric school buses are the only mitigation alternative that will result in zero emissions. Even propane buses, which reduce some NOx emissions, do not eliminate these dangerous emissions and investing in propane buses would only lock Indiana into continued emissions. With this Mitigation Fund, Indiana has the opportunity to invest in technologies that will fully eliminate emissions and ensure Hoosier children's access to education does not come at the expense of their health.

III. Conclusion


Specific to the Volkswagen Settlement, agencies are instructed to demonstrate their anticipated NOx reductions as a result of their state's environmental mitigation transportation investments. Many agencies are in search of the investment that results in the greatest NOx lb/\$ ratio, but they are only considering the upfront purchase costs in these calculations. If the total lifetime costs are considered, the **bus technology with the greatest NOx lb/\$ ratio is a zero-emission bus**. Similarly, electric rail switchers and electric port equipment provide greater NOx lb/\$ emissions reductions than their diesel counterparts. Indiana should consider these comprehensive costs and benefits, focus its efforts on disadvantaged communities, and invest in mitigation alternatives that ensure current and future generations of Hoosiers will not be exposed to harmful diesel emissions.

Thank you for your consideration.

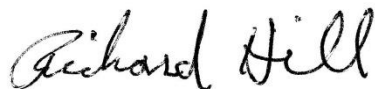
Respectfully submitted,



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Northwestern Indiana Regional Planning Commission

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March 28, 2018

Shawn Seals
Senior Environmental Manager
Indiana Department of Environmental Management
VWTrust@idem.IN.gov

RE: Comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework

Dear Mr. Seals,

Northwest Indiana Regional Planning Commission (NIRPC) is pleased to submit these comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework, Request for Information, pursuant to the Executive Order signed by Gov. Holcomb on Oct. 17, 2017.

NIRPC is the Council of Governments and Metropolitan Planning Organization for Lake, Porter, and LaPorte Counties. NIRPC has responsibility for working with our local governments and partner agencies, including IDEM, to ensure that air emissions from our regional transportation network remain under the emission budgets established for State Implementation Plans. Our Commission of 53 elected officials represent approximately three-quarters of a million people.

NIRPC is concerned that the proposed framework plan does not adequately address the requirement that beneficial impact of Eligible Mitigation Actions on air quality will occur in areas that carry a disproportionate share of the air pollution burden. While the draft Framework document states that IDEM will identify and prioritize areas of concern based on NOx and PM 2.5 Emissions, it has not provided maps or lists of the areas of concern, a description of the full criteria to be used in their selection, nor the weight such areas will be given in project selection. NIRPC would recommend including additional prioritizing factors such as environmental justice population and **federally** designated non-attainment status in the identification of areas of concern and that at least 50% of Indiana funds be targeted to these areas.

NIRPC doesn't have a specific recommendation as to what percentage of project dollars should be invested in each category type. We do recommend that project categories be ranked based on their long-term potential for emission reduction and cost-effectiveness. Within category, project selection criteria should include proximity or impact of the project on sensitive populations (for example children, elderly, etc) and cost effectiveness. Public sector projects that increase fuel efficiency or otherwise result in future tax-payer savings or increase competitiveness should also be rated higher with no net future cost benefits.

Cost-share is a good way to maximize the use of the funds. NIRPC would recommends that cost-share requirements of perhaps 50% be put in place for private sector projects. However, in our experience matching fund requirements and prepayment with reimbursement have been significant deterrents to

implementing public sector diesel retrofit projects in our region. This is particularly true for small and economically challenged communities. IDEM might consider offering lower match rates for communities or school districts serving less than 10,000 or with significant low-income populations.

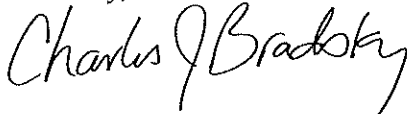
Utilizing the VW Trust funds to leverage federal Diesel Wise funds for public sector projects is also a great way to maximize the impact of all of these resources for Indiana communities and school districts and could help low income or small communities to afford emission improvements they otherwise could not. NIRPC highly encourages IDEM to consider ways to incentivize public sector applicants to use the VW Trust funds as match to leverage Diesel Wise or CMAQ funds.

In addition, NIRPC offers the following questions concerning the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework:

- Is there any plan for the funding to be applied to institutions/companies (private or public) for research & development? If so will that portion of research & development be free and available to all?
- Will these funds be available for reimbursement to parties for projects awarded in the past? If so, what is the limit?
- Can these funds be spent for education or promotion of cleaner emission vehicles (POV & otherwise)?
- Would IDEM consider setting aside a portion of the settlement to establish a revolving fund for public sector projects? This fund could eliminate the up-front payment challenge communities can face while waiting for reimbursement from federally funded projects

Thank you for the opportunity to participate in this public process.

Sincerely,



Charles J Bradsky, PMP

Transportation Projects Manager
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Kathy Luther

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March 30, 2018

Shawn Seals
Senior Environmental Manager
Indiana Department of Environmental Management
VWTrust@idem.IN.gov

RE: Comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework

Dear Mr. Seals,

Truck Centers, Inc. is pleased to submit these comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework, pursuant to the Executive Order signed by Gov. Holcomb on Oct. 17, 2017.

Truck Centers, Inc. is a member of South Shore Clean Cities, a 501(c)(3) organization under the U.S. Department of Energy's Clean Cities program. The coalitions are designed to reduce petroleum consumption in the transportation sector by advancing the use of clean fuels and vehicles, idle reduction technologies, hybrid electric vehicles, fuel blends and fuel economy while reducing dependence on imported oil.

Truck Centers, Inc. concurs with South Shore Clean Cities' assertion that Northern Indiana should receive preference in the Indiana Volkswagen Beneficiary Mitigation Plan, with a special emphasis placed on communities or regions that contribute a disproportionate amount of air pollution.

Because South Shore Clean Cities is fuel-neutral, meaning it does not advocate for one type of sustainable fuel choice or technology over another, Truck Centers, Inc. concurs with the organization's stance that projects applying for funding under the Plan should be judged on their potential to reduce the greatest amount of NOx emissions.

Truck Centers, Inc. also concurs with South Shore Clean Cities that, in order to maximize the funding, cost-share requirements be maximized for all projects.

In addition, Truck Centers, Inc. offers the following comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework:

1. The Plan should allocate at least 70% of the funding towards trucks and buses, as these projects are in direct contact with the highest percentage of citizens.
2. The vehicles that should receive preferential consideration are ones which spent the majority of their time around educational institutions, assisted living facilities and densely populated residential areas.
3. The maximum amount of each grant should favor a greater number of lower-budget projects, which would ultimately give maximum impact to a broader spectrum of users.
4. Maximum funding of 100% should be the norm for traditionally cash-challenged partners such as school systems and rural municipalities. Private fleets should be capped at a 75% funding maximum.

Thank you for this opportunity to participate in this public process.

Sincerely,

R. B. Stopczynski

Rich Stopczynski
Sales Executive



801 Leesburg Road * Fort Wayne, Indiana 46808 * Phone: 260-432-4977 * Fax: 260-436-7729 * www.fwcitilink.com

March 30, 2018

Indiana Volkswagen Mitigation Trust Program Committee/IDEM Staff:

I participated in the day-long Fort Wayne VW Settlement Mitigation Trust Fund Workshop hosted by NIRCC on February 9, 2018 and intended to participate in the Fort Wayne Mitigation Trust Fund Public Meeting on the evening of February 21, 2018 but had a conflict at the last minute. I have viewed the video from the NIRPC Meeting posted on the IDEM Mitigation Program website, have met with Kellie Walsh of the Greater Indiana Clean Cities Coalition and have reviewed the documents provided regarding this \$41 million funding opportunity to reduce NOx emissions in Indiana.

As a result of this involvement I have formulated the following comments:

Eligibility: We request that diesel public transit buses beyond their useful life (2009 model year and older) be specifically listed as eligible for replacement and a significant portion of the VW Trust funds be allocated to address this need. Fort Wayne Citilink has eighteen (18) transit buses that meet this criteria with a total replacement cost of over \$9 Million dollars. Vehicle engine retrofit, when appropriate, should also be an eligible expense to maximize the remaining value of the vehicle. Per the INDOT Public Transit Annual Report, Indiana urban public transit systems have approximately 386 transit buses that meet the replacement criteria with a replacement cost of over \$270 Million. While there are some FTA funds allocated each year it is not sufficient to keep up with replacement needs and local match of at least 20% is required to access these dollars.

Priority: We request that public infrastructure improvements be prioritized to maximize benefit to taxpayers and leverage/replace the need for tax generated funds to maintain essential public services. Investment of a portion of the VW Trust funding could help substantially reduce the vehicle replacement backlog for Indiana public transit systems.

Prioritizing investment impact on air quality is also recommended; for example, public transit buses are on the road all day, every day and have the added benefit of reducing emissions & congestion by replacing single occupancy vehicles. Further, alternative fuel technology (hybrid, CNG, fuel cell, propane, electric, etc.) available in new public transit buses reduce air (NOx) and noise pollution significantly over older diesel engines and require less/no fossil fuel. A summary of the environmental benefits from the Gillig Hybrid Electric buses that Fort Wayne Citilink has been purchasing since 2010 is attached. In addition, vehicle purchase is a relatively quick and simple process and would create a significant impact within 2-3 years of grant award. As an added

incentive, many small transit buses and major components of larger buses are manufactured in Indiana. Getting Hoosiers to work building, driving & riding buses.

We also suggest priority be given to coordinated regional or statewide applications to minimize the number of individual grantees IDEM must monitor and to encourage collaboration & coordination. Allowing for an administrative line item (15%) would help assure that collaborative efforts were self-monitored and required reporting provided to IDEM.

Match: We request that up to 100% match be considered; however, a match requirement of 10-20% would be acceptable. It is especially helpful that funding from federal & state programs that require a local match can be leveraged using 'private' VW settlement funds. This flexibility will help public agencies take advantage of an opportunity benefit that would free up tax dollars that would otherwise be used for vehicle replacement and allow limited resources to help cover ever increasing operating expenses &/or other essential infrastructure investments.

Disposition: Creative options to meet vehicle disposition requirements would help maximize the value of existing resources while still maintaining a commitment to pollution reduction. Suggestions might include; donating vehicles to fire departments for evacuation training, schools for mechanic training, etc. Further, allowing coordinated regional applications to calculate a net improvement could allow an agency to decommission two very old vehicles so that another agency could keep one that is still in relatively good shape. Incorporating vehicle retrofit as an option would also help maximize available funding and maintain required fleet size.

Thank you for the opportunity to comment on the proposed Volkswagen Mitigation Trust Program as you develop the implementation plan for fund distribution. Please feel free to contact me if you have questions or require additional information.

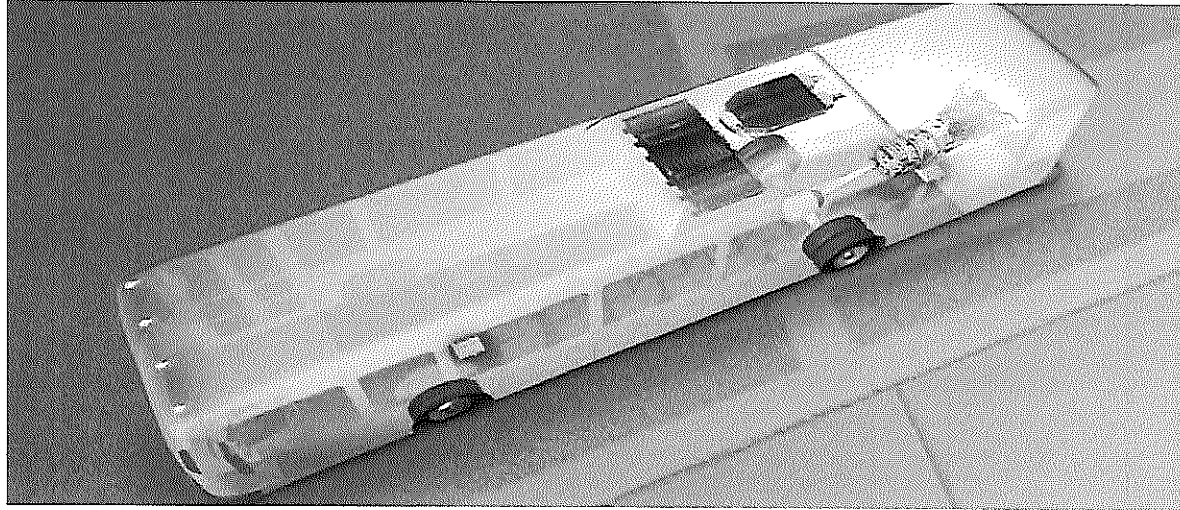
Sincerely,

A handwritten signature in black ink that reads "Betsy Kachmar". The signature is written in a cursive, flowing style.

Betsy Kachmar,
Assistant General Manager

Attachment - environmental benefits of hybrid buses

Gillig Low Floor with Allison EP40 Hybrid Drive – Environmental Benefits



- Nitrogen oxides reduction up to 50%
- Exhaust particulates reduction up to 90%
- Hydrocarbons reduction up to 90%
- Noise levels approaching that of passenger cars (79 db @ 10 meters)
- In-service fuel economy improvements range from 20-54% compared to conventional buses

Courtesy Allison Transmission

Mr. Shawn M. Seals
Indiana Department of Environmental Management
Indiana Government Center North
100 North Senate Avenue
Indianapolis, IN 46204

March 30, 2018

Re: Caterpillar Inc. comments regarding Indiana Department of Environmental Management's Request For Information on the Proposed VW Environmental Trust Beneficiary Mitigation Plan.

Caterpillar appreciates the opportunity to comment on Indiana's proposed allocation plan for the State's share of the \$2.9B Mitigation Trust Fund (MTF) established under the Volkswagen Consent Decree. Pursuant to section 2.0.3 of the 2016 Consent Decree¹, the *primary* purpose of the Mitigation Trust Fund is to fund Eligible Mitigation Actions which have the goal of reducing NOx emissions in the United States. Caterpillar believes that Indiana's plan could meet this objective by focusing funds towards Eligible Mitigation Actions which are more cost effective for the NOx reduction benefits.

Comment 1: Indiana should invest its Mitigation Trust Funds in cost-effective Eligible Mitigation Actions which would realize greater NOx reductions and better meet the stated purpose of the Mitigation Trust Fund.

Marine, locomotive, and nonroad equipment have significantly longer service lives, higher load factors and higher usage rates than on-highway vehicles. As a result, emission reduction solutions offered by Caterpillar for these sectors have cost effectiveness that are up to 200 times better. For nonroad repowers, there are additional commercial options available with a waiver sought under EPA's DERA (Diesel Emissions Reduction Act) program. DERA funding for State programs is available under the Mitigation Trust Fund (MTF) action 10.

Many States have allocated a large portion of their Mitigation Trust Funds to fund electric and CNG powered on-highway vehicles, including buses. A comparison of cost effectiveness of Mitigation Actions to marine, locomotive, and nonroad options shows that buses obtain less NOx emissions reductions for a much higher cost.

Indiana may be considering investing funding towards electric and clean diesel buses, when the cost effectiveness for NOx reduction is high relative to other mitigation options. Total cost effectiveness for school buses is approximately \$440,000/ton² (lifetime).

¹ Order Granting the United States' Motion to Enter Proposed Consent Decree, *In re: Volkswagen "Clean Diesel" Marketing, Sales Practices, and Products Liability Litigation*, Case No. 3:15-md-02672 (N.D. Cal., Oct. 25, 2016) ("2016 Consent Decree")

² http://www.CNGAmericangvamerica.org/wordpress/wp-content/uploads/2017/06/CNGA-One-Sheet_School-Bus.pdf

There are several factors contributing to this poor cost effectiveness.

School buses:

1. Experience relatively low usage, approximately 12,000 mi/year on average³.
2. Experience relatively low engine load factors during usage.
3. Are relatively new with an average age of about 9 years and thus have engines that are relatively lower emitting compared to other sectors.⁴

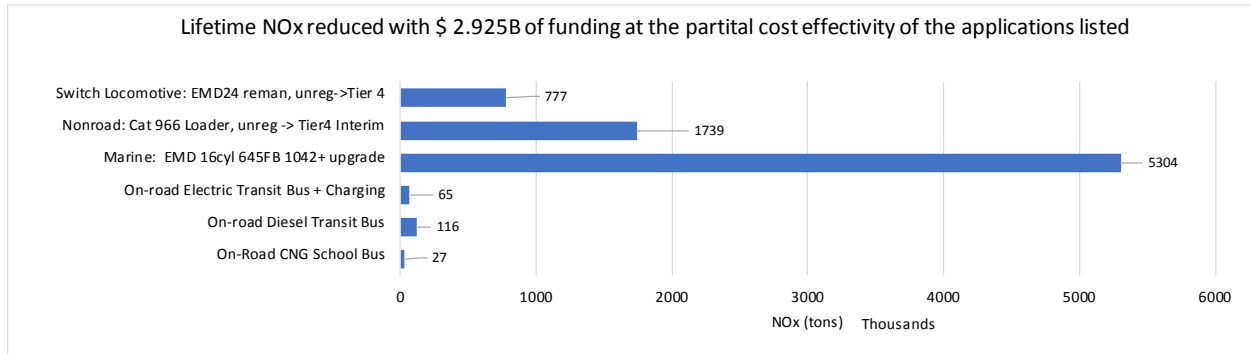


Figure 1: NOx emission reductions available with \$2.93B of MTF

Figure 1 above illustrates the difference in NOx reductions that could be achieved by applying the same amount of MTF towards reductions in different mobile sectors.

In addition to the higher cost per ton of NOx reduced, electric vehicle grants may be too optimistic about the actual environmental benefits. Currently 41.2%⁵ of the electric generation in the State comes from the combustion of fossil fuels. Only 5.8% of Indiana's electricity is renewable. While Indiana and the nation progress slowly towards the decarbonization of the electrical grid, the current sources of renewable electricity generation in the State are typically fully utilized; therefore, sudden increases in electrical demand (such as would occur by adding more EV's) will likely be met by increased fossil fuel combustion. In contrast, current diesel engines have a CO2 and NOx footprint per kWh that is comparable or slightly better than the average combustion electrical generation source in Indiana.

One of the intended goals of the 2016 Consent Decree is to mitigate the total, lifetime excess NOx emissions from the Subject Vehicles to the 2016 Consent Decree. Accordingly, we recommend that Indiana focus on targeting the maximum NOx reductions that can be achieved with the options available today to achieve that mitigation goal, rather than seeding technology to further a particular industry which will not result in immediate and/or significant emissions benefit.

³ <http://www.americanschoolbuscouncil.org/issues/environmental-benefits>

Note that NGV America uses an estimate of 15,000 mi/year for their cost effectivity calculations.

⁴ <http://files.schoolbusfleet.com/stats/SBF0317-MaintenanceSurvey.pdf>

⁵ U.S. Energy Information Administration, Indiana, July 2017 Electric Generation Profile:
<https://www.eia.gov/state/?sid=IN>

Comment 2: Indiana Department of Environmental Management should invest a proportional amount of its allocated Trust Fund towards Eligible Mitigation Actions in the nonroad space of marine, locomotive, and nonroad mobile sectors, which have been shown to have better cost effectiveness for the NOx emissions reduced in line with the stated purpose of the Mitigation Trust Fund.

The Indiana “emissions inventory” chart, Figure 2 below, is generated from data published by the EPA⁶. It shows that 41% of NOx emissions in Indiana arise from the off-road sectors of marine, locomotive, and nonroad mobile sources combined. We believe these sectors should be addressed by the Mitigation Trust Funds because these sectors represent a significant portion of the emissions in Indiana and far greater reductions in NOx emissions can be realized through Eligible Mitigation Actions in these sectors. Eligible Mitigation Actions in these sectors have the potential to help Indiana realize greater NOx reductions compared to other Eligible Mitigation Actions.

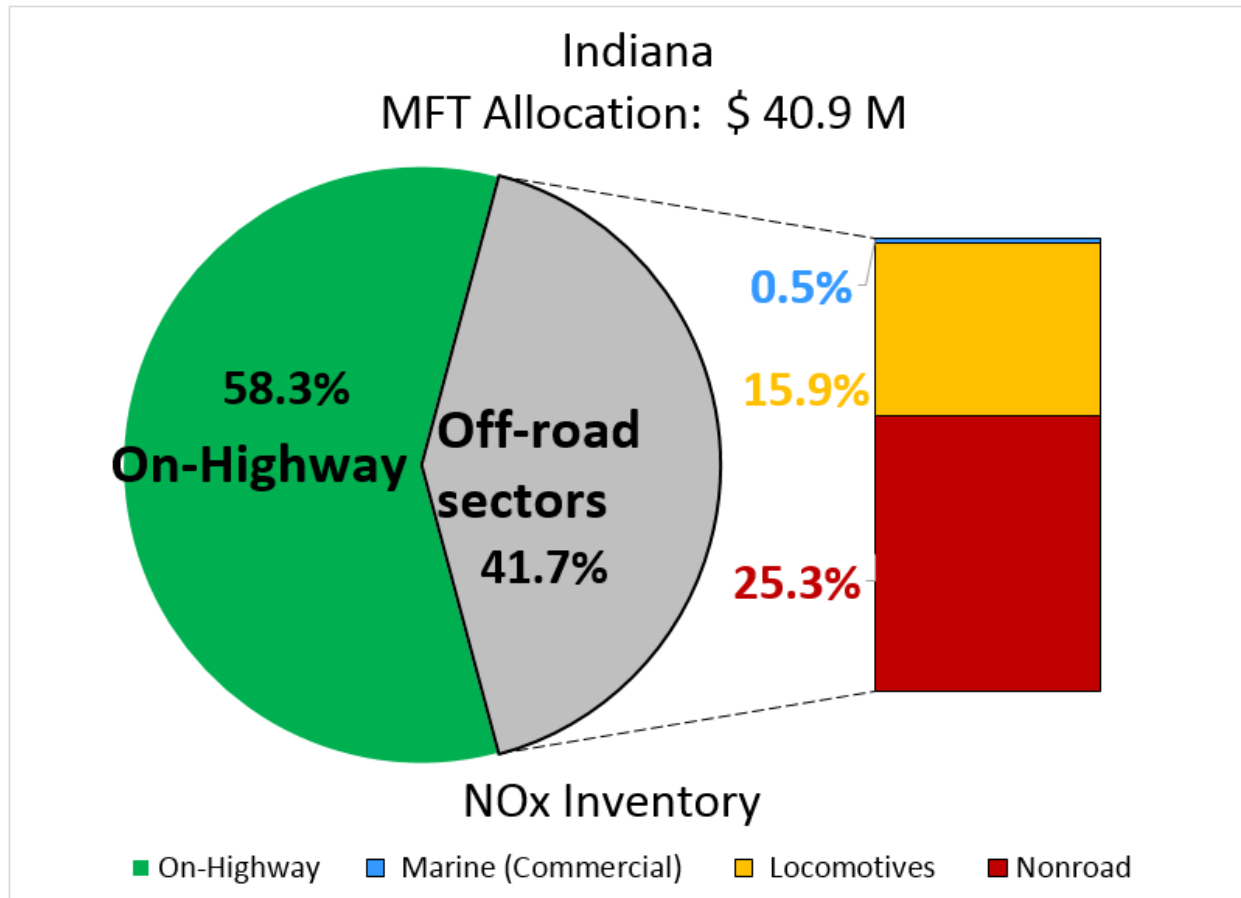


Figure 2: Indiana Mobile NOx sources

⁶ USEPA National Emissions Inventory 2014;
<https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data>

According to the EPA Green Book⁷, Indiana is listed as being Moderate Nonattainment for Ozone. Indiana Department of Environmental Management should focus on areas that historically have NAAQS attainment issues and those areas that *receive a disproportionate quantity of NOx emissions*. The most populated cities typically have the highest on-road NOx emissions and also the highest number of VW vehicles that are involved in the consent decree. Caterpillar's emission solutions are more cost effective and reduce far more annual tons of NOx than other MTF options. Figure 3 below provides a comparison of NOx reduction cost effectiveness between some key products that Caterpillar can offer in metropolitan areas.

Lifetime NOx reduced with \$ 2.925B of funding and the partial cost effectiveness of the applications listed														
	Cost	VW MTF Funding	Partial MTF Cost	Est out of pocket	NOx Reduced	Service Life*	Lifetime NOx	Total Cost Effectivity	Partial Cost Effectivity	Proposed Qty **	Total Cost	Partial MTF Cost	NOx Reduced	Lifetime NOx
On Road:	per unit	percent	per unit	%	tons/year	years	tons	\$/ton	\$/ton	units	all units	all units	tons/year	tons
CNG School Bus	\$ 148,000	25%	\$ 37,000	39%	0.067	5	0.34	\$ 441,133	\$ 110,283	79,054	\$ 11.7000 B	\$ 2.9250 B	5305	26523
Diesel Transit Bus	\$ 450,000	25%	\$ 112,500	-25%	0.446	10	4.46	\$ 100,800	\$ 25,200	26,000	\$ 11.7000 B	\$ 2.9250 B	11607	116071
Diesel Electric Bus + Charging	\$ 900,000	25%	\$ 225,000	50%	0.500	10	5.00	\$ 180,000	\$ 45,000	13,000	\$ 11.7000 B	\$ 2.9250 B	6500	65000
Caterpillar Nonroad Repowers														
Marine: EMD 16cyl 645FB 1042+ upg	\$ 475,000	40%	\$ 190,000	-29%	14.98	23	344.51	\$ 1,379	\$ 552	15,395	\$ 7.3125 B	\$ 2.9250 B	230593	5303642
Nonroad: Cat 777C C32 Repower, unreg ->Tier 2	\$ 265,000	40%	\$ 106,000	2%	8.29	10	82.91	\$ 3,196	\$ 1,279	27,594	\$ 7.3125 B	\$ 2.9250 B	228774	2287736
Switch Locomotive: EMD30 reman, unreg->Tier 4	\$ 2,400,000	40%	\$ 960,000	31%	14.05	20	281.08	\$ 8,538	\$ 3,415	3,047	\$ 7.3125 B	\$ 2.9250 B	42821	856416

Figure 3: Cost Effectiveness Comparison

Total Cost Effectiveness is the total cost of the retrofit, repower, or replacement, divided by the lifetime NOx reduction.
Partial Cost Effectiveness is the funded portion of retrofit, repower, or replacement, divided by the lifetime NOx reduction.

Figure 3 above, illustrates the Cost Effectiveness of Caterpillar offerings compared to replacing school/metro buses. If all \$2.93B of the MTF money was spent on each of the listed products, it shows that the listed nonroad options could yield up to 200 times more NOx reductions, in tons, for the same money spent. This difference is due to the significantly better partial cost effectiveness of the off-road options as shown in the yellow column above. Although not a mandate of the MTF, the off-road reductions listed above also result in significant PM reductions.

⁷ USEPA Green Book, 8-hour Ozone (2008)
<https://www3.epa.gov/airquality/greenbook/hbtc.html>

Comment 3: Indiana Department of Environmental Management should consider distributing its proposed allocation for funding of emission reductions for marine vessels, switcher locomotives, and nonroad equipment in the top NOx counties in Indiana as these Eligible Mitigation Actions provide the most cost-effective NOx reductions and would benefit the urban areas in Indiana most impacted by the VW, Audi and Porsche vehicles.

Of the Trust Fund's list of Eligible Mitigation Actions, repowers and upgrade kits for marine vessels, switcher locomotives and nonroad equipment provide the most cost-effective NOx reductions for Indiana. The following are just some examples of Eligible Mitigation Actions in these areas.

Switch Locomotives

Indiana has approximately 57 switcher locomotives in the State that have various reduction options available under the Eligible Mitigation Actions of Appendix D-2, section (3)(d)(1).



Remanufacture Switch Locomotive EMD24 to Tier 4

Total cost effectiveness:	\$ 9,411/Ton NOx
Partial cost effectiveness:	\$ 3,765/Ton NOx

Nonroad Mobile Machines

Caterpillar has been developing and providing retrofits to reduce emissions from older equipment since 2004. We have engineered 31 machine solutions that upgrade nonroad machines to Tiers 2, 3, and 4. Mitigation Trust Fund Appendix D-2, option 10, allows States to fund retrofit programs through EPA's Diesel Emissions Reduction Act (DERA). Options that replace only the engine rather than the entire machine achieve better cost effectiveness while significantly lowering the emissions of the engine/machine.

The following machines shown below with unregulated engines can be repowered to Tier 4, however, within the State, 31 machine solutions from Caterpillar could be applied to hundreds of machines under the DERA program, if a waiver is granted.

We recommend Indiana apply for an EPA waiver to allow machines to be repowered to Tier 3 in addition to Tier 4. While upgrades to Tier 4 seem optimal, due to the differences in technologies utilized between Tier 3 and Tier 4, there are many more options available for Tier 3 repowers and they provide better cost effectiveness as well.

Nonroad Repowers – Upgrading from unregulated to Tier 4



657 Scraper, unregulated to Tier 4 (dual engine)

Tractor cost effectiveness:
Total cost effectiveness: \$ 1,154/Ton NOx
Partial cost effectiveness: \$ 462/Ton NOx

Scraper cost effectiveness:
Total cost effectiveness: \$ 1,640/Ton NOx
Partial cost effectiveness: \$ 656/Ton NOx



966 Loader, Unregulated to Tier 4

Total cost effectiveness: \$ 4,204/Ton NOx
Partial cost effectiveness: \$ 1,682/Ton NOx

Marine Tugs

Caterpillar has a very large selection of emission reduction solutions for marine under Eligible Mitigation Actions of Appendix D-2, section (4)(d)(1). Marine repowers have the best cost effectiveness due to their continual rate of use.



EMD 645FB 1042+ upgrade kit w/ NOx reduction
Total cost effectiveness: \$ 1,379/Ton NOx
Partial cost effectiveness: \$ 551/Ton NOx

Closing Remarks

Large engines used in marine, locomotive, and nonroad mobile equipment, are often an “invisible fleet”. Buses and trucks receive higher visibility for funding for replacement and retrofits, since they are seen and used daily by the public. Trucks are the starting and end points of a transportation chain that frequently involve locomotive and marine in the middle. But despite a lower visibility for replacement and retrofits, locomotive, marine and nonroad equipment frequently have long service lives, up to 40 years for some applications. In contrast, school buses typically have a service life of 16 years and public metro buses typically have a service life of 12 years. There is equipment running in this invisible fleet that is over 50 years old. Without incentivizing the replacement or retrofit of engines in this invisible fleet, owners and operators will continue to overhaul the equipment to the same unregulated status for future decades. This is an important sector that makes up nearly half of Indiana’s Mobile Source NOx emissions.

Based on these facts, Caterpillar recommends Indiana consider the proposed allocation of funds from the VW Mitigation Trust Fund, to significantly improve the NOx reductions in the state. This can be achieved through an allocation to Options 10 (DERA), Option 3 (Freight Switchers), and Option 4 (Marine Tugs and Ferries). The significantly better cost effectiveness of the solutions available under these type of emission solutions justifies a significant allocation to these off-road sectors. This kind of investment will yield the greatest benefit to the State and help Indiana provide improved air quality.

Caterpillar appreciates the opportunity to offer our suggestions for Indiana’s Beneficiary Mitigation Plan for the Volkswagen, Audi, and Porsche Clean Air Act Settlement Funds, and looks forward to receiving Indiana’s response on our comments. Caterpillar and its dealers are ready to accomplish these replacements and emission retrofits. We look forward to the opportunity to discuss these and more options with Indiana Department of Environmental Management.

Sincerely,



Rey Agama
Global Regulatory Affairs Manager
Caterpillar Inc.

JRA:gl



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Lisle, IL 60532 USA

P : 202 286 3987
W : navistar.com

Meg Kulungowski
Director, Government Relations

March 31, 2018

Mr. Shawn Seals
Indiana Dept of Environmental Management
100 N. Senate Ave
Indianapolis, IL 46204

Dear Mr. Seals,

We applaud and support the steps taken by Governor Eric Holcomb and the Indiana Department of Environmental Management to seek public input on how to spend the approximately \$41 million Indiana is expected to receive from the VW Trust. Commercial trucks and school buses are a major contributor to the NOx inventory in Indiana, and this funding offers a unique opportunity to take a significant number of older trucks and school buses off the state's roads.

According to IHS Polk Registration data there are currently over 1,750 pre-1998 buses in the state and over 11,800 pre-2010 buses. As you draft the BMP we commend efforts that will achieve the greatest amount of NOx reduction, while also specifically looking to positively impact at risk population groups, help non-attainment areas, and areas needing environmental justice. It is our belief the group that most clearly represents these constituencies are school buses and school age children.

The pre-1998 vehicles emit at least **4 grams** of NOx per brake-horsepower hour of operation, compared with new diesel-powered trucks and buses, which emit less than **two-tenths of a gram** of NOx per brake-horsepower hour – or **95% less** NOx than the pre-1998 vehicles. Because of the significant NOx reduction that can be achieved by taking these older trucks and buses off the road, Indiana should use at least \$30 million for the replacement of the older vehicles with real-life, ready-today technologies: new diesel- and propane-powered trucks and school buses.

As Figure 1 shows, if the state were to use that \$30 million to subsidize 25% of the cost of new vehicles for potential customers, the purchase of diesel- and propane-powered vehicles would result in significantly greater NOx reduction than the purchase of electric vehicles.

Figure 1: NOx Reductions Obtained by Using \$30 Million to Provide a 25% Subsidy

	Diesel	Natural Gas/Propane	Electric
Typical cost per vehicle	\$90,000	\$95,000	\$300,000
NOx emissions/vehicle**	0.2	0.15	0 ***
25% subsidy per vehicle	\$22,500	\$23,750	\$75,000
Total vehicles purchased	1333	1263	400
Total NOx Reduction**	5065.4	4862.55	1600

** g/brake-horsepower hour of operation

*** assumes electricity comes from renewable source

To summarize, the use of \$30 million to subsidize replacement of pre-1998 vehicles would achieve total NOx reductions of 5065.4 g/bhp-hr if spent on diesel; 4862.55 g/bhp-hr if spent on natural gas/propane; and only 1600 g/bhp-hr if spent on electric.

Diesel is therefore the most cost-effective NOx reduction solution the state could pursue, with natural gas/propane running a close second. Additionally, this would allow Indiana to eliminate nearly all the states pre-1998 school buses from the inventory.

Thank you for your consideration of this recommendation.

Sincerely,

Meg Kulungowski
Director, Government Relations



**Response to State of Indiana's Request for Information (RFI)
VOLKSWAGEN CONSENT DECREE ENVIRONMENTAL MITIGATION TRUST
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
BENEFICIARY MITIGATION PLAN (DRAFT FRAMEWORK)**

VeRail Technologies appreciates the opportunity to comment on the State of Indiana's Draft Framework of its Beneficiary Mitigation Spending Plan for VW Settlement Funds. VeRail is a technology company, headquartered in Cincinnati, OH, that is developing a near-zero-emission compressed natural gas switcher locomotive (see addendum for additional information).

VeRail recognizes the importance of soliciting information and ideas on how the Settlement Funds should be spent. Science-based information must be the primary method for determining outcomes to assure the Funds are spent prudently and provide the health-based results desired.

VeRail wishes to provide information and ideas on initiatives in Indiana that can provide the most cost-effective way to maximize NOx emission reductions – the stated objective of the Beneficiary Mitigation Plan. The Draft Framework correctly identifies freight switcher locomotives as an eligible category for the spending plan; VeRail encourages IDEM to designate this high horsepower off-road engine category as a priority for the State's funds. We believe the inclusion of switcher locomotive engine replacements in the Plan represents one of the most effective strategies available.

VeRail urges IDEM both to educate itself about the newest and cleanest freight switcher locomotive engine technology and to closely examine railroads operating within the State of Indiana that can cost effectively utilize this technology in their existing switcher locomotive operations.

At the same time, VeRail cautions IDEM to examine closely the campaign offered by others to upgrade old switcher locomotives to "much cleaner diesel engines." While an upgrade of an old, dirty switcher locomotive to Tier 4 off-road diesel engines may appear to be an effective strategy, a much cleaner new "Tier 5" locomotive-engine technology is now currently being piloted in California. This cleaner innovative technology will produce a nearly ten-fold reduction in NOx emissions over what is available in "cleaner" diesel that meet current off-road Tier 4 emission standards.

IDEM needs to remember that the Tier 4 off-road standard still results in NOx emissions of 1.3 g/bhph – slightly higher than the 2007 Tier 4 interim on-road standard, and 6.5 times higher than

the 2010 Tier 4 Final on-road standard. While an upgrade of an old diesel locomotive to the Tier 4 standard may offer significant improvement over the status quo, NOx emissions under this plan will still be present at elevated levels. Sizeable near-term emissions benefits can be achieved this way but also at the cost of creating a barrier to longer-term emission improvements; investing in a Tier 4 locomotive strategy perpetuates this major source of high-NOx emissions for the lifetime of the engine upgrade - an additional 30 years or more!

With investigation, IDEM will learn that while the California natural gas engine project referenced above is not yet commercially available, the cleaner technology is likely to become available within the timeframe of the proposed launch of the Indiana Beneficiary Mitigation Plan. The California pilot project is scheduled for completion by 2019. The technology is also receiving considerable attention from other states because of its large potential impact, and the likelihood of inclusion in a number of soon-to-be-released Settlement Plans.

Consequently, VeRail strongly urges IDEM to examine thoroughly the opportunities for inclusion of a sizeable freight switcher locomotive engine replacement program in the State's Beneficiary Mitigation Plan. We recommend that IDEM closely monitor the technological improvements and commercialization inroads of these technologies and investigate where in the State these locomotives may be deployed.

With the State's heavy industrial base and sizeable population of short line railroads, there will be no shortage of freight switcher locomotives available to upgrade. Steel works such as U.S. Steel Gary Works, ArcelorMittal Burns Harbor operate freight switcher locomotives; so do multiple mini-mills such as Steel Dynamics, Inc. Additionally, the three Indiana inland ports have multiple freight switcher locomotives operating at their locations. Regardless of the final number, the inclusion of a freight switcher locomotive engine replacement plan will assure the greatest NOx reduction strategy of any single mobile source within the State. VeRail urges IDEM to keep its technology deployment options flexible so it can utilize the cleanest technology options in each phase of its awards. Switcher locomotives that are updated today are likely to remain in service until 2050 and beyond. With the size of investment required and the length of a locomotive's serviceable life, it is important to make the most cost-effective choices.

VeRail welcomes the opportunity to answer any questions from the IDEM staff about this new technology. We encourage the staff to tour a site where this technology is demonstrated and to call the environmental program managers in other states who are responsible for the project management and monitoring the results.

Tom Mack, President/CTO

513-454-8192 Office 513-458-9192 Cell
tmack@verail.com



Addendum

Refer to the attached PowerPoint slides for the comparative emissions analysis of a Tier 4 diesel switcher locomotive vs a Tier 5 VeRail CNG switcher locomotive as to be demonstrated in Southern California. A description of the program is described in this link: <http://www.lbbizjournal.com/single-post/2017/01/30/Rail-At-Near-Zero-Emissions>

VeRail Technology Status: Engines at dyno facility and ready for final calibration and emissions testing to meet proposed EPA Tier 5 locomotive emissions

Contacts for VeRail natural gas locomotive program at Ports of Los Angeles and Long Beach:

- a. **Port of Long Beach:** Jacqueline Moore, Environmental Planning Division, jacqueline.moore@polb.com, (562) 283-7119
- b. **Port of Los Angeles:** Jacob Goldberg, jgoldberg@portla.org, (310) 732-2675
- c. **South Coast Air Quality Management District (SCAQMD):** Joseph Lopat, Air Quality Specialist, jlopat@aqmd.gov, (909) 396-2138
- d. **VeRail Technologies:** Tom Mack, President, tmack@verail.com, (513) 454-8192 office, (513) 458-9192 cell

VW Consent Decree definition of "freight switcher locomotives", *the only type of locomotive eligible for funding:*

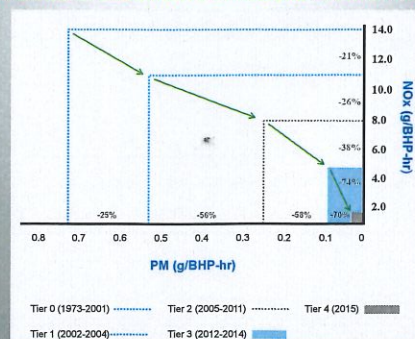
"Freight Switcher" shall mean a locomotive that moves rail cars around a rail yard as compared to a line-haul engine that moves freight long distances.



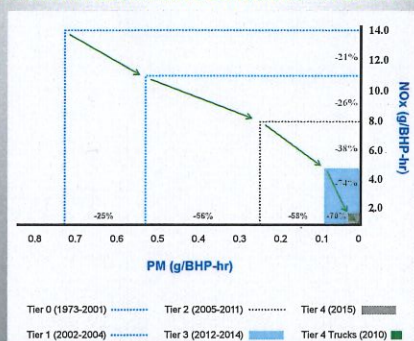
Tier 5 to Near-Zero to ZETM: Clean Technology Switcher Locomotives

March 30, 2018

EPA Switcher Locomotive Emissions – A Brief History



EPA Switcher Locomotive Emissions – A Brief History

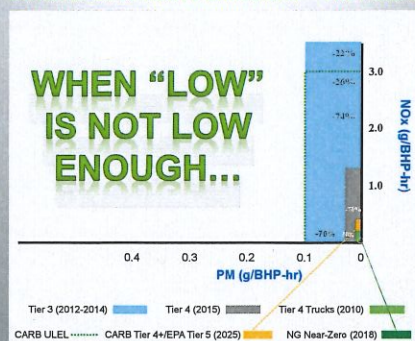


Note that Tier 4 On-Road Trucks are barely an emissions blip compared to Off-Road Tier 4 locomotives!



Switcher Locomotive Emissions – The Future

**WHEN “LOW”
IS NOT LOW
ENOUGH...**



Off-Road Tier 4 locomotives (in gray) emit much higher emissions compared to On-Road Tier 4 trucks (light green).
VeRail natural gas locomotives (dark green) are much cleaner.



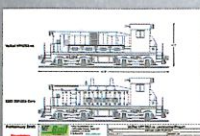
Switcher Locomotives – Dirty, cleaner and cleanest!



Amtrak Pre-Tier 0 Switcher



Amtrak 1,200 HP Tier 4 Switcher

VeRail 1,200 HP Tier 5
Natural Gas SwitcherVeRail 1,200 HP Tier 5
Natural Gas Switcher

GHG Emissions Reductions

- Greenhouse Gas (GHG) Reduction
 - California Low Carbon Fuel Standard (LCFS)
 - CNG*
 - LCFS Reduction of ~22.7%* for Pipeline Gas
 - LCFS Reduction of ~81.3%* for Renewable Natural Gas (RNG)
 - CO₂ Reduction based on Pipeline Gas or Renewable NG
 - 30,000 diesel gallons per year locomotive
 - Pipeline Gas reduction of 76 tons per year per locomotive
 - Renewable NG reduction of 273 tons per year per locomotive
 - 50,000 diesel gallons per year locomotive
 - Pipeline Gas reduction of 127 tons per year per locomotive
 - Renewable NG reduction of 455 tons per year per locomotive
 - 60,000 diesel gallons per year locomotive
 - Pipeline Gas reduction of 152 tons per year per locomotive
 - Renewable NG reduction of 546 tons per year per locomotive

* LCFS Source: Carbon Intensity Lookup Table for Gasoline and Fuels that Substitute for Gas





CITY OF SOUTH BEND

DEPARTMENT OF PUBLIC WORKS

March 30, 2018

Shawn Seals
Senior Environmental Manager
Indiana Department of Environmental Management
VWTrust@idem.IN.gov

Re: Comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework

Introduction

The City of South Bend offers the following comments on the Volkswagen Consent Decree Environmental Mitigation Trust Beneficiary Mitigation Plan Draft Framework (Version 1), per the IDEM Request for Information. The City provides this information due to our desire high-level vision for use of the mitigation fund that maximizes public benefit in the State of Indiana.

The City of South Bend is not in a designated nonattainment zone, however St. Joseph County shares an airshed with counties in Indiana or Michigan that are nonattainment or near-nonattainment for ozone or PM2.5. South Bend does have populations adversely impacted by poor air quality due to living in urban areas along busy roadways or near industrial activities.

Many of these impacted areas are under-resourced neighborhoods home to at-risk populations like low-income families and those suffering from chronic heart and respiratory disease, magnifying the impacts of poor air quality.

- South Bend's population includes several vulnerable groups, including 12.2% elderly (65 and over), 27.8% children (under 17), 33.7% non-white.¹
- Approximately half of South Bend residents are low-income (within 200% of the federal poverty line).²

Investing in diesel emissions reductions in South Bend, one of Indiana's largest urban areas, will benefit a significant number of Hoosiers.

Funding/project Category Comments

The City followed the general considerations outlined in the Request for Information, as an outline for these submitted comments.

[Instructions for Comments, from the RFI BMP pg. 7]

"Development Prompts and Project Considerations"



CITY OF SOUTH BEND

DEPARTMENT OF PUBLIC WORKS

The empty cells of Table 1 below will be developed using input provided through this RFI. The prompts below can be used to guide input on the Budget Framework:

- *What percent of the total should be allocated towards the listed project types?*
- *The final consent decree generally allows for a maximum funding amount of 100% for public fleets and 75% for private fleets.*
 - *With the intent of leveraging the funds, what percent match should be required of public entities?*
 - *With the intent of leveraging the funds, what percent match should be required of private entities?*
- *What is a reasonable maximum award amount per grant?*
- *How should the project types be ranked in order of importance for the distribution of funds (1 being highest priority)?”*

The City provides an annotated **Table 1**, below, as feedback to the Budget Framework.

In addition to ranking project types on order of importance, we describe below the importance to the City of South Bend of our Top 5 priorities:

1. The City of South Bend continues to highly value investments in Class 4-7 trucks, which are responsible for the majority of diesel consumption in municipal fleets across the state. Municipal and public agency vehicles operate on local roads in populated areas, often idling and stopping-and-starting, and therefore have a greater impact on local air quality than a) over-the-road vehicles that travel at consistent speeds, b) vehicles that only operate at an industrial or distribution site, and even c) local (in-town) delivery vehicles that make point-to-point trips. Although the City recommends this funding be restricted to the public sector, an exception may be appropriate for privately-owned refuse trucks, which have similar impacts on residential neighborhoods as municipal and public agency vehicles.

Additionally, any fuel cost-savings from diesel reductions are returned to tax-payers through decreased government spending and improved services.

The City has invested heavily in CNG fueling infrastructure and has a goal to convert 85% of its diesel fleet to CNG. Funds provided by the Mitigation Trust for truck replacement frees up the City's resources to improve fueling infrastructure.

¹ U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates accessed at factfinder.census.gov. Table DP05: ACS DEMOGRAPHIC AND HOUSING ESTIMATES.

² U.S. Census Bureau 2016 American Community Survey 1-Year Estimates accessed at factfinder.census.gov. Table B17002: RATIO OF INCOME TO POVERTY LEVEL IN THE PAST 12 MONTHS.



CITY OF SOUTH BEND

DEPARTMENT OF PUBLIC WORKS

The City's CNG refuse trucks and dump trucks have provided a 44% decrease in PM2.5 and a 17-23% decrease in NOx compared to traditional diesel-fueled equipment. The City's CNG program, overall, has avoided emission of approx. 1,400 lbs of nitrogen oxides between 2013-2017.

The City of South Bend recommends 40% of VW Mitigation funds be allocated to public-sector Class 4-7 trucks (or private refuse trucks), with a 20% match required from public entities and maximum award of \$1M per year.

Electric Vehicle Supply Equipment (EVSE) is a high priority to South Bend because the VW mitigation provides an unprecedented funding opportunity for electric vehicle (EV) charging infrastructure. Many diesel-related projects will continue to be eligible (at a lower funding level) via existing programs, into the future. Additionally, state BMV records show that EV ownership is rapidly increasing in South Bend and St. Joseph County. However, public charging infrastructure is not keeping pace with this growth and communities like South Bend find themselves unprepared for the fast-approaching vehicle electrification revolution.

Indiana must capitalize on this influx of unexpected VW funding by investing in areas with the most urban vehicle miles traveled – as it's these in-town miles which are most likely to be replaced by electric vehicles. This injection of funds will jumpstart the development of a respectable charging network and accelerate even further the purchase of plug-in vehicles by individuals and businesses. A statewide program would simplify procurement and installation for host sites, bring in lower prices, and ensure consistency and compatibility across the state.

VW Settlement investment in costly Level 3/DC Fast Charging infrastructure on key Indiana and U.S. highways would likely catalyze investment in more affordable Level 2 chargers at the local level by employers, businesses, and municipalities. With only a small number of strategically located DC fast charging stations, EV travel could become feasible between all major Indiana cities.

Investment in EV infrastructure also provides economic development benefits by increasing energy independence, reducing fuel costs, attracting talent and business, supporting locally-developed technology and advanced manufacturing, and providing an amenity for visitors.

EVSE should require very little match because, unlike replacement vehicles, entities will not have budgeted for this new type of equipment. Also, entities will incur ongoing equipment operating costs such as electricity or network services.

The City of South Bend recommends 15% of VW Mitigation funds be allocated to light duty zero emissions infrastructure, with a 0% match required from public entities and 10% from private entities and a maximum award of \$50,000 for each Level 3 charging site.



CITY OF SOUTH BEND

DEPARTMENT OF PUBLIC WORKS

2. DERA Match is of interest to the City, particularly for idle reduction and auxiliary power units. City service vehicles have significant energy loads for cabin heating; computer and communications systems; operation of equipment such as booms, vacuums, and winches; and engine block warming. The vast majority of diesel-powered City vehicles could benefit from this technology, improving air quality in the South Bend urban neighborhoods described above.

Additionally, DERA flexibility will enable many of the other priority sectors mentioned here (airports, schools, transit systems, City vehicles) to implement projects.

The City of South Bend recommends 15% of VW Mitigation funds be allocated to State DERA match, with a 20% match required from public entities and 75% from private entities and a maximum award of \$1M per year.

3. School and transit buses also operate on South Bend's local streets, impacting air quality and surrounding residents – and particularly children, seniors, and low-income residents, who are already especially at risk from poor air quality. School and transit systems are typically strapped for cash and many have limited access to capital for new bus equipment. Investing in buses that reduce fuel and maintenance costs, while improving air quality in dense urban neighborhoods, will provide long-lasting benefits to both the organization and the community.

The City of South Bend recommends 20% of VW Mitigation funds be allocated to public-sector Class 4-8 buses, with a 10% match required from public entities and a maximum award amount of \$1M.

4. Repower of airport ground support equipment is of interest to the City in support of the South Bend International Airport. Electrifying ground support equipment will protect the health of the airport's visitors and employees, as well as the visitors and employees of co-located and neighboring businesses, such as the South Shore train, small warehouse and manufacturing, hotels and restaurants, and natural areas like the Lydick Bog and Elbel Park. This area is adjacent to multiple well-traveled major highways, compounding local air quality challenges.

The airport district is targeted for additional light industrial development, so having an anchor like the South Bend International Airport lead by example in air quality improvements could influence behavior of neighboring companies and attract new business.

The City of South Bend recommends 5% of VW Mitigation funds be allocated to repower of airport ground support equipment, with a 20% match required from public entities and 75% from private entities and a maximum award of \$500,000 per year.



CITY OF SOUTH BEND

DEPARTMENT OF PUBLIC WORKS

Table 1

Funding/Project Category	Percent of Total Allocation	Percent Match Required	Maximum Award Amount per Grant	Project Category Priority
Emission Reduction Projects				
Class 8 trucks	5 %	20% Public 75% Private	\$500k	6
Class 4-8 buses	20 % (public only)	10%	\$1M	4
Class 4-7 trucks	40 % (public or private refuse only)	20%	\$1M	1
Pre-Tier 4 switcher locomotives	0	20% Public 75% Private		10
Repowers of ferries and tugs	0	20% Public 75% Private		9
Shorepower equipment for marine locations	0	20% Public 75% Private		8
Repower of airport ground support equipment	5 %	20% Public 75% Private	\$500k	5
Repower of forklifts and port cargo handling equipment	0	20% Public 75% Private		7
State DERA Match	15 %	20% Public 75% Private	\$1M	3
Light duty zero emissions infrastructure	15 %	0% Public 10% Private	\$50k per Level 3 site	2

Contact: Therese Dorau, Sustainability Director: (574) 235-9323, tdorau@southbendin.gov



Karen Freeman-Wilson,
Mayor

CITY OF GARY
DEPARTMENT OF COMMERCE
Division of Green Urbanism
839 Broadway, N206 | Gary, Indiana 46402
(219) 882 3000 | Fax (219) 882 3012
Bhenry@ci.gary.in.us

Brenda Scott Henry,
Director

March 30, 2018

Mr. Shawn Seals
Senior Environmental Manager
Indiana Department of Environmental Management
VWTrust@idem.IN.gov

RE: Comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework

Dear Mr. Seals,

Gary, Indiana is pleased to submit these comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework, pursuant to the Executive Order signed by Gov. Holcomb on Oct. 17, 2017.

The City of Gary has the onerous distinction of three environmental designations: Non-Attainment Area, Making a Visible Difference and Environmental Justice; all of which, we believe, uniquely positions us to increase efforts to improve air quality through oxides of nitrogen (NOx) emission reductions, citywide GHG emission reduction plan, and air quality education.

Gary is a member of South Shore Clean Cities and support NWI Partners for Clean Air which help to advance our uniformed goals to improve air quality. As participants of these initiatives, Gary can help reduce petroleum consumption in the transportation sector by advancing the use of renewable energy wherever possible, idle reduction technologies, hybrid electric vehicles, air quality education, gas can exchange program, etc.

We recommend that preference points are allocated in the application process for designated communities within air quality impaired area. As such, the Indiana Volkswagen Beneficiary Mitigation Plan will help address the disproportionate amount of pollution spanning decades in nonattainment communities.

We further concur with South Shore Clean Cities' stance that projects applying for funding under the Plan should be judged on their potential to reduce the greatest amount of NOx emissions, with the lion's share reserved for "comprehensive" clean solutions.

In addition, The City of Gary offers the following comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework:

- Allocated funding for alternative energy like electric and solar options. The City has partnered with Department of Energy to develop an action plan that offer energy efficiency and renewal energy products particularly in low-income communities. <https://betterbuildingsinitiative.energy.gov/accelerators/clean-energy-low-income-communities>

Thank you for this opportunity to offer comments. If you need additional information, please feel free to contact us.

Sincerely,
-Brenda Scott-Henry, Director
Environmental Affairs/Green Urbanism

[REDACTED]

From: Andrea Webster [REDACTED] >
Sent: Saturday, March 31, 2018 10:26 AM
To: IDEM VWTrust
Subject: Indiana VW Mitigation Trust Program Feedback

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

Hello,

I would like to provide feedback on the proposed plan for the Indiana Volkswagen Mitigation Trust Program.

The 15% that can be used for infrastructure should be used by IDEM to strategically place electric vehicle charging stations throughout the state, including and especially on highways, interstates, and toll roads between major cities. With the commitments from China, Europe, GM, Ford, and probably many other entities, the car market is changing. The VW funds offer an opportunity for Indiana to be prepared, and we cannot be prepared without supporting infrastructure.

The distribution of funds should be spread geographically throughout the state, and not centered in one particular area, such as a port. All residents need to see that this electric car infrastructure is happening.

The match for public projects should be much lower than for private projects. Local governments' budget are being hit harder and harder. Additionally, it will relieve reliance on taxpayer dollars.

A portion of the funds should be dedicated to electric school buses. Offering cleaner air for children is a no-brainer. Think of the bus line-up after school and all of the on-site emissions that would be prevented. I imagine Cummins would be willing to partner on this effort.

All funding should require that the vehicles paid for through the program be operated in Indiana 75% of miles driven or more.

I appreciate your willingness to listen to my input. I recently worked for Louisville Mayor Greg Fischer's Office of Sustainability, where I served on the electric vehicle task force. I currently work for IU's Environmental Resilience Institute.

Sincerely,

Andrea Webster
Resident of Bloomington, IN

VIA ELECTRONIC MAIL

March 31, 2018

Indiana Department of Environmental Management
Indiana Government Center North
100 North Senate Avenue
Indianapolis, IN 46204
Email: VWTrust@idem.IN.gov

RE: Comments Regarding Indiana's Use of Volkswagen Environmental Mitigation Trust Funding

Dear Commissioner Pigott and members of Indiana's Volkswagen Environmental Mitigation Trust Fund Committee:

Thank you for this opportunity to provide input on the Indiana Department of Environmental Management's (IDEM) Request for Information soliciting input on the agency's Draft Framework of the State's Beneficiary Mitigation Plan prepared pursuant to the Third Partial Settlement and Consent Decree and the Environmental Mitigation Trust for State Beneficiaries.

Under the Volkswagen settlement, Indiana will receive \$40.9 million to reduce emissions from diesel engines across the state. Decades of research show that reducing air pollution saves lives and reduces costs to the economy. This is a tremendous, unprecedented and unlikely to be repeated opportunity to significantly improve air quality and public health in some of our most polluted communities for some of our most vulnerable residents, and to make choices that will result in long-term, transformative change in transportation-related technology that is both cleaner and less costly.

Maximize public health benefits. Indiana should prioritize projects where diesel emissions are high and population is dense or particularly vulnerable. This includes inner-city and highly industrialized neighborhoods, where diesel hotspots affect vulnerable residents, especially children. We should also prioritize the kinds of technologies that deliver the most public-health bang for the VW buck. Research shows, for example, that electric buses get more health benefits dollar-for-dollar than do other engine upgrades. States like Ohio and Michigan have proposed to set aside portions of their VW money for cleaner buses. Indiana should adopt a similar set-aside.

Invest in the most transformative technologies. Indiana should put the maximum amount of money allowed under the settlement into the infrastructure needed for electric vehicles, such as charging stations, which will improve air quality the most and make a lasting impact on moving our communities forward toward new, cleaner energy technology for transportation. Among other competing applications, Indiana should prioritize those that will be the most transformative.

Background and Expectations of Consent Decree and Indiana Executive Order

The purpose of the VW NOx Mitigation Fund, as explained in Attachment A to the Consent Decree,¹ is “to fully mitigate the total, lifetime excess NOx emissions from the Subject Vehicles where the Subject Vehicles were, are, or will be operated.” The Trust was established so as to assure that money is distributed to states for projects that are eligible under the terms of the Trust over a ten-year period in accordance with each state’s Beneficiary Mitigation Plan. It was designed to be able to be administered in a way that is both straightforward and will assure the funds are in fact spent on projects that will reduce NOx emissions, thereby improving public health.

On October 4, 2017, Indiana Governor Holcomb issued Executive Order 17-22,² in which he designated IDEM as the lead Indiana agency for management of the Trust funds and created the Indiana Volkswagen Environmental Mitigation Trust Fund Committee.³ The responsibilities of the Committee include the following:

- Establish reasonable and appropriate processes and procedures for the timely and efficient administration, use, and distribution of the Indiana VW Funds;
- Engage with IDEM in the development of the draft plan to be released to the public for consideration and comments;
- Develop a schedule and host a series of public meetings to seek public comments and ideas about the proposed plan and all of the aspects of our State’s implementation of the VW settlement and use of the Indiana VW Funds;
- Make appropriate revisions and modifications to the proposed plan based on the public comments received;
- Ensure that there is appropriate transparency in connection with the work of the Committee as well as the administration, use, and distribution of Indiana’s VW Funds; and
- Perform other duties and responsibilities as necessary and appropriate under the circumstances.

The Beneficiary Mitigation Plan

According to Attachment A to the Consent Decree, the Beneficiary Mitigation Plan (hereafter referred to as “the Plan”) must summarize how the state plans to use the mitigation funds allocated to it under the Trust, addressing:

- The state’s overall goal for the use of the funds;
- The categories of eligible projects the state anticipates will be appropriate to achieve the stated goals and the preliminary assessment of the percentages of funds anticipated to be used for each type of eligible project;
- A description of how the state will consider the potential beneficial impact of the selected eligible projects on air quality in areas that bear a disproportionate share of the air pollution burden within its jurisdiction; and
- A general description of the expected ranges of emission benefits the state estimates would be realized by implementation of the eligible projects identified in the Plan.

¹ <https://www.epa.gov/sites/production/files/2017-10/documents/statebeneficiaries.pdf>, p.1.

² http://www.in.gov/idem/airquality/files/executive_order_17-22_executed_final.pdf.

³ The Committee includes representatives of several Indiana agencies in addition to IDEM: Energy, Transportation, Agriculture, Economic Development and Ports; and five Indiana residents, to be appointed by the Governor.

Further, Attachment A states that the Plan “is intended to provide the public with insight into a Beneficiary’s high-level vision for use of the mitigation funds and information about the specific uses for which funding is expected to be requested.”⁴

IDEM has made a draft Plan available to the public for review and comment. It has held five public meetings around Indiana, where IDEM staff provided an overview of the program and answered questions. It has provided a lengthy period for written comments. This outreach is appreciated.

IDEM’s draft Plan acknowledges that it is barebones. It does not, for example, include a proposed high-level vision for Indiana’s use of the funds, stating, rather, that it “is intended to provide the State with enough information to develop a high level vision for use of the mitigation funds. The Final BMP submittal will contain that vision and will be used to guide development of the process for identifying specific projects to be funded.”⁵

Revisions to the draft Plan were posted to the IDEM website on or about March 15, 2018. The revisions appear mostly to address the potential location of projects, and to be responsive to comments already received from the public concerned that the original draft Plan emphasized ozone nonattainment areas to the potential exclusion of other areas where NOx and diesel pollution may be concentrated and adversely affecting public health. It is a positive development that IDEM has clarified this point.

The revised draft plan says that IDEM “has identified areas in Indiana that currently have the highest NOx emissions. NOx is a precursor to ozone and is the pollutant required to be to be mitigated through the Indiana Volkswagen Mitigation Trust Program by the national mitigation trust. IDEM proposes to prioritize (in part) the use of the settlement funds to reduce NOx emissions, as well as fine particulate matter (PM2.5) emissions, in areas of concern across Indiana to the extent possible. IDEM is encouraging all areas of the state to apply for funds to improve air quality through repower or the early replacement of other vehicles and equipment.” It would have been helpful for IDEM to include the areas it has identified with high NOx or PM2.5 emissions and to give as much information as possible about how the agency intends to evaluate projects for anticipated public health impacts. I encourage IDEM to work with other agencies, such as the Indiana State Department of Health and local Health Departments to develop those evaluative criteria and make them available to the public and potential applicants.

The draft plan explains that it is proposing to allocate funds in four categories allowed by the Consent Decree: specific projects listed in Appendix D to the Consent Decree; projects eligible under the DERA program; electric vehicle infrastructure; and necessary administrative costs for the agency. These four categories include all the eligible activities under the Consent Decree. The proposed Plan does not give any preliminary indication of how the funds would be allocated among these four categories.

The draft plan says that the emissions reductions from specific projects will be determined using the U.S. EPA Diesel Emissions Quantifier or other appropriate methodology.

After the first year of the program, during which the program procedures will be established, implementation in years 2-10 is described as follows:

⁴ <https://www.epa.gov/sites/production/files/2017-10/documents/statebeneficiaries.pdf> at 21.

⁵ http://www.in.gov/idem/airquality/files/vw_settlement_mitigation_framework.pdf at 3.

- Lessons learned in previous solicitation cycles will be applied and project planning, partner development, feasibility studies, project implementation (including DERA) will continue.⁶
- DERA projects will continue through all ten years if the State continues to receive allocation of funds from the U.S. EPA.

Finally, the draft Plan asks commenters to complete a table where they would weigh in on the relative priority to be given to each category of activity, and the percentage of the available funds that should be used in each category.

Specific Comments

1. Comments on the process moving forward

As noted above, IDEM provided a lengthy comment period and several opportunities at public meetings for the public to hear about the proposed Plan, ask questions, and provide oral comments. However, the bare bones nature of the proposal, the lack of technical information to assist members of the public in understanding the relative costs and benefits of different kinds of technologies, and the lack of specifics about priority locations for projects make it difficult for the public to provide informed input. After considering the input it receives, IDEM should produce an updated, more detailed proposed Plan for consideration by the Committee. Making the updated proposal available to the public at that time will provide another opportunity for Hoosiers to react to a more detailed and complete proposal of how Indiana intends to allocate these funds.

IDEM should engage the Indiana State Board of Health and the Indiana Department of Education in this process. This program is about protecting public health, and input from ISDH on how to prioritize locations for projects would make the process more robust and more likely to address the most compelling health situations. Because of the significant benefits associated with replacement of school busses, as well as the interest expressed by a number of school districts, IDEM should also involve the Department of Education.

Once the program is underway, IDEM will, per the terms of the Consent Decree, provide a semiannual report. Those reports should be made available to the public and to the Committee. If IDEM believes that adjustments need to be made, or if the Committee recommends adjustments, IDEM should provide an opportunity for the public to weigh in on any proposed changes.

It would also be helpful for the Plan to describe more specifically what the role of the Committee will be once the Plan is finalized, especially with respect evaluation of applications and evaluation of the Plan's effectiveness over the years of implementation.

2. Timing of project solicitations

Indiana has all of ten years to use these funds, so should be able to proceed at a pace that allows for the development of quality applications over time, taking advantage of both lessons learned and advances

⁶ I note that this language has been changed in the March 15 revised plan to remove emphasis on large projects, which is a positive revision. While the significant amount of money does allow Indiana to consider some relatively expensive projects that would normally be out of reach for lack of funds, Indiana should also take care not to spend disproportionately on one or a very few projects at the expense of maximizing public health protection and supporting transformational projects in a geographically diverse way.

in technology that will occur over this timeframe.⁷ A schedule that provides for three rounds of applications, spaced at least 2 years apart, would allow applicants and the state agencies to learn over time, and not overwhelm the system right out of the box.

3. Goals of Indiana's Program

As noted above, the draft Plan does not propose a high level vision or goals for Indiana's use of the VW funds. The next version of the Plan should articulate Indiana's goals. Foremost among those goals should be the reduction of NOx emissions through projects and in areas that will make the most improvement to public health to those most vulnerable to adverse health impacts from diesel emissions and in areas traditionally burdened with the most air pollution. Other program goals should include:

- Using the funds for projects that will make lasting and transformative change towards cleaner and more fuel-efficient transportation options. We are on the brink, or over the brink, of a revolution in motor vehicle technology. Who would have thought the transportation sector would be looking at shifting away from petroleum-based fuels in such a major way? These funds are incredibly timely as a catalyst for that transformation;
- Providing geographic diversity. There are areas throughout the state where NOx emissions are high; designation as an ozone nonattainment area is only one indicator of poor air quality.
- Expediting deployment and widespread adoption of zero-emission and near-zero emission vehicles and engines, which provide the most opportunity for reduction in emissions of ALL mobile source air pollutants, including carbon.

4. Allocation of the Funds

Like many commenters, I encourage Indiana to use the maximum allowed for electric infrastructure (15%). This investment is the clearest example of building infrastructure to support transformation of the transportation sector away from petroleum-based fuels to cleaner sources of energy.

Establishing some other set asides would help bring structure to the application process and send a signal to certain types of projects that they have a reasonable chance of success. A set-aside should not be considered a maximum for that particular category, assuming a good diversity of projects that can be funded. I recommend a minimum 10% set-aside for electric school and transit buses—they provide very significant health benefits for the pollution reduced.

I also recommend Indiana assure geographic diversity in allocation and give a high priority to implementing projects that will benefit communities historically unfairly burdened by pollution (environmental justice communities).

Indiana should favor the cleanest and most transformative technologies (e.g. electric) over the less transformative (new diesel).

5. The Scoring Criteria

Projects should be straightforward to score. IDEM should develop clear criteria that tie back to program goals and can be quantified or clearly demonstrated. Most weight should be given to criteria that tie

⁷ For example, electric vehicles are expected to both improve and come down in cost even over the relatively near term, so the costs associated with an electric vehicle project in Year 4 or 5 could be significantly different (less) from one in Year 1 or 2. [cite]

directly to the highest priority goals. These include effectiveness in terms of health risk reduced, cost-effectiveness in terms of emissions reductions, benefit to environmental justice areas and extent that the project is transformative in nature (for example, the project helps build infrastructure to support clean technologies beyond the scope of the project itself, or implementation of the project will encourage implementation of additional projects not funded by the VW settlement). Evaluations of effectiveness and cost-effectiveness should take into account the full life expectancy of the proposed project and costs and benefits related to fuel savings and future maintenance costs.

Thank you again for the opportunity to provide this input.

Very truly yours,

/s/

Janet G. McCabe

From: Maria Conwell <mconwell@dkeschools.com>
Sent: Saturday, March 31, 2018 12:08 PM
To: IDEM VWTrust
Subject: Indiana Volkswagen Mitigation Trust Program Comments

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

Good Morning,

Please accept the following comments from DeKalb County Eastern CSD in regards to the Indiana Volkswagen Mitigation Trust Program.

DeKalb County Eastern Community School District believes 50 percent of the available funds from the Indiana Volkswagen Mitigation Trust Program should be allocated to the category of Class 4-8 school buses. As a school district we transport Indiana's most valuable resource, our future working class and decision-makers. The safety and health of these students is paramount to ensuring Indiana's future. Students and our own employees on school buses can be exposed to emissions that over time may lead to respiratory or cardiovascular health issues. Reducing the emissions from diesel engines in school buses can have an immediate impact on not only our district, but the state as well. School buses must idle in front of houses and schools while dropping off or picking up students, and in addition those students who participate in extra curricular activities or attend off site field trips are exposed to an even larger volume of emissions due to their increased frequency of bus riding. This can be especially harmful for those already suffering from asthma and in the past has lead to complaints of headaches. DeKalb County Eastern CSD is also the LEA for a special education co-operative consisting of 13 school districts and handles the maintenance of those buses and transport of those students. The same health consequences and potential benefits apply to these students as well. It is for these reasons that we feel the majority of the funds be dedicated to the Class 4-8 school buses category.

Thank you,

--

Maria Conwell
Business Manager/Treasurer
DeKalb County Eastern CSD
300 East Washington Street
Butler, IN 46721
Phone: 260-868-2125 ext. 1002
Fax: 260-868-2562



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Shawn Seals
Senior Environmental Manager
Office of Air Quality
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March 31, 2018

Indiana's RFI Regarding the Use of Settlement Funds: Volkswagen Environmental Mitigation Trust ChargePoint Response

ChargePoint is pleased to provide written responses to the State of Indiana regarding the best use of funds stemming from the Volkswagen (VW) settlement and the State's allocation from the Environmental Mitigation Trust. The Trust funds provide a significant opportunity for the State to mitigate the environmental harm VW diesel vehicles caused, as well as advance key transportation segments that produce long-term benefits to the State and its communities.

In summary, ChargePoint recommends that Indiana prioritize investment of Environmental Mitigation Trust funds into projects utilizing electricity as a fuel and that utilize a standard connector. We strongly recommend that Indiana commit the maximum 15% of its Trust allocation towards smart, light-duty electric vehicle charging infrastructure. We believe that this investment in transportation electrification significantly contributes to the NO_x mitigation goals of the Environmental Mitigation Trust, and NO_x reductions from smart charging sessions are easily and empirically calculable. Moreover, funding for electric vehicle (EV) infrastructure is needed to meet the demands of today's 4,700 EVs in Indiana, let alone support the exponential growth of EVs in years to come. In a state that currently has just 330 public charging spots, this small portion of the investment could double the number of public charging stations deployed in communities across Indiana.

ChargePoint has supported EV charging station programs throughout North America. In our experience, competitive grant programs are best for large-scale deployments such as DC fast charging corridors. Competitive solicitations ensure projects maximize the goals of the State, private sector investment, and benefits to drivers. For smaller charging stations installations, regional rebate programs work best. Rebate programs are relatively easy to initiate, promote expedited deployments, and enable a large variety of stakeholders to participate.

ChargePoint is the largest electric vehicle (EV) charging network in the world, with charging solutions for every charging need and all the places EV drivers go: at home, work, around town, and on the road. With more than 46,500 independently-owned charging spots and more than 8,000 customers nationwide, ChargePoint drivers have completed more than 34 million charging sessions, saving upwards of 35 million gallons of fuel and driving more than 834 million gas-free miles. In addition, there are currently more than 125 public ChargePoint charging spots in the State of Indiana.

Responses to Request for Information Questions

1. What percent of the total should be allocated towards the listed project types?

ChargePoint strongly believes that priority should be given to eligible project categories that focus on expanding transportation electrification throughout the State, including:

- a. All-Electric: Local Freight Trucks and Port Drayage Trucks
- b. All-Electric: Class 4-8 School Bus, Shuttle Bus, or Transit Bus
- c. All-Electric: Class 4-7 Local Freight Trucks
- d. All-Electric: Forklifts and Port Cargo Handling Equipment
- e. Light Duty Zero Emission Vehicle Supply Equipment (EVSE)

Committing priority to eligible project categories that promote electrification and utilize a standard connector will accelerate the State's adoption of transportation electrification technologies, increase access to electric-drive vehicles, and enable local energy use to achieve day-one emissions reductions in communities across Indiana.

For Light-Duty Zero Emission Vehicle Supply Equipment, the State should maximize the allowable 15% of the total allocation. Importantly, a majority of states that have a draft or final BMP have already made 15% for EVSE a stated priority. Committing Environmental Mitigation Trust funds to electric vehicle charging deployments will lead to the fastest and most efficient use of Environmental Mitigation Trust funds. A number of charging station providers already operate in Indiana in a highly competitive market, and establishing a funding program can accelerate the existing market's activities. While some eligible categories may require months or years of project and selection diligence, the EV charging market is already setup to fully deploy within a prequalified grant program structure in a matter of months.

For the all-electric priority categories noted above (listed a through d), each may represent a significant percentage of the remaining 85% of funds, but we note the advances made in the electric bus and medium duty markets in recent years and demand for those products in Indiana.

Many communities in the State are already adopting electric bus models, and as more electric truck and forklift models become available over the 10-year investment horizon of the Trust, greater adoption is expected in those categories as well. Indianapolis Airport already has electric buses in operation, and plans to have a fleet of nine shuttles by 2019. Similarly, IndyGo received a TIGER grant for a fleet of electric buses to use in Indianapolis, and transit plans for the City continue to emphasize use of electric buses. Other municipalities in Indiana are exploring a similar procurement, recognizing the benefits of moving public transportation to electric models. For example, electric buses get the equivalent of 21 miles per gallon (MPG), compared to 4 MPG in conventionally fueled buses. Every mile driven in an electric bus will save taxpayers about 60-70% of what they would have paid with a diesel engine, per mile.

Tesla, Cummins, BYD, Fuso, and other truck manufacturers have made recent announcements for new models of electric trucks, indicating that the electric trucking segment is quickly adapting to meet demand. Indiana's investment of Trust funds into medium- and heavy duty electric truck projects will stimulate greater local demand to transform entire trucking fleets.

Under the terms of the Environmental Mitigation Trust, funds used for transportation electrification projects in multiple categories may cover the cost of the vehicle/engine and associated charging infrastructure. ChargePoint notes that many of these technologies utilize a standard connector, which can increase economies of scale as the State procures supporting charging infrastructure across eligible project types. For example, investing in electric models and associated infrastructure could enable public light-duty fast charging stations to be utilized for bus charging and other fleet needs. In addition, across applications in the same category, shuttle bus electrification programs could support regional, municipal, and school bus fleets.

2. *The final consent decree generally allows for a maximum funding amount of 100% for public fleets and 75% for private fleets.*
 - a. *With the intent of leveraging the funds, what percent match should be required of public entities?*
 - b. *With the intent of leveraging the funds, what percent match should be required of private entities?*

In ChargePoint's experience, successful EVSE programs do not typically require public entities to contribute matching funds. Match fund requirements may present a barrier too large for many public entities. Public entities should leverage EV drivers to support ongoing EVSE operations. In early grant programs that provided free EVSE to public agencies many recipients elected to provide free charging to drivers. This was a missed opportunity. Many public entities without an operating budget for the EVSE were challenged when equipment was vandalized or required repair. IDEM can ensure the ongoing operation of infrastructure by requiring minimum uptimes (e.g., three-year minimum) and enabling Trust funds to support extended warranty and maintenance packages. IDEM may also evaluate proposals based on the proposed plan to support future operations (e.g., driver fees).

ChargePoint believes it is important for private sector EVSE site hosts to have skin-in-the-game. Financial investment from site hosts ensures they are committed to the success of the infrastructure. ChargePoint also believes higher incentive levels are required to attract a diverse group of site hosts in an early EV market. To that end, the match requirements outlined in the Final Consent Decree are appropriate. Requiring private entities to provide cost share in accordance with the levels outlined in the Final Consent Decree will lower financial barriers, leverage private sector investment, and accelerate the market. Multiple states have released draft and final Beneficiary Mitigation Plans that mirror the cost share requirements outlined in the Consent Decree.

3. *What is a reasonable maximum award amount per grant (i.e. should there be fewer high-budget projects, or a greater number of lower-budget projects)?*

The maximum award amount per grant depends on two main factors: (1) the goals of the project, and (2) the incentive program structure. In addressing those factors, ChargePoint recommends two approaches for EVSE incentive programs:

- I. Rebate programs
- II. Competitive solicitations

Rebate Programs

Rebate programs typically fund up to a percentage of total project costs incurred, up to a maximum rebate per charging station, whichever is less. Rebate programs generally set a limit for the number of charging stations for a given site and set limits on the number of rebates a single applicant may receive in a given year. These measures ensure more entities are able to participate. Rebates work well for smaller Level 2 charging station and DC fast charger installations. These programs may be effectively administered by a third party, which may alleviate IDEM's administrative burden. ChargePoint recommends the following rebates for private entities:

- A. Single port level 2 public charging station: Up to 80% of total project costs incurred, up to \$5,000 per dual port Level 2 charging station
- B. Dual port level 2 public charging station: Up to 80% of total project costs incurred, up to \$7,000 per dual port Level 2 charging station
- C. Dual port level 2 private charging station: Up to 60% of total project costs incurred, up to \$7,000 per dual port Level 2 charging station
- D. Dual port level 2 private charging station: Up to 60% of total project costs incurred, up to \$7,000 per dual port Level 2 charging station
- E. Dual connector (SAE CCS Combo and CHAdeMO) public DC fast charger (50kW+): Up to 80% of total project costs incurred, up to \$80,000 per DC fast charger

Competitive Solicitations

Competitive solicitations are appropriate for large coordinated deployments. Large coordinated deployments require more labor for project management, utility coordination, and installation. For example, a solicitation may be effective to deploy DC fast charging corridors, which require optimal spacing between locations, easy access from the highway, and robust operations and maintenance plans. Large deployments should be evaluated on a case-by-case basis to determine appropriate funding amounts, capped at the funding percentages outlined in the Final Consent Decree. ChargePoint does believe there should be multiple competitive funding opportunities. A winner-take-all approach should be avoided if possible. ChargePoint looks forward to being a resource and supporting IDEM in estimating costs for specific EVSE installation scopes of work as it has Beneficiaries in other states.

4. How should the similar project types be prioritized for selection?

ChargePoint supports flexible, incentive programs, designed to accommodate a range of project sizes and types of EVSE. For smaller EVSE installations, we recommend rebate programs. Rebate programs are effective in expediting charging station deployments and attracting a wide variety of site hosts. Rebate programs can be targeted to specific areas such as county, zip code, or city. Eligible regions or areas can be prioritized by NO_x emission estimates, socioeconomic factors, traffic flows, and other factors. Rebate programs are typically first-come, first-served and support expedited deployment with low administrative effort.

As mentioned above, large deployments should be evaluated on a case-by-case basis. Detailed evaluation criteria should be included in a competitive solicitation. Below, we recommend a program structure that will enable IDEM to prioritize complex projects. We believe this program design will allow the competitive market for charging infrastructure to drive demand from eligible site hosts, while remaining responsive to the State's priorities for Trust funding.

Light-duty electric vehicle charging infrastructure projects can align with the State's goals for the EV charging sector and complement existing infrastructure. Existing deployments in Indiana have focused around key municipalities and areas of higher density, but there are gaps to address in order to promote broader EV adoption in all communities. IDEM should determine that a funding program be designed to target areas that will drive the greatest near- and long-term utilization of charging assets. Focusing on utilization will significantly contribute to the success of the State's deployment. Additionally, the program can be structured to concentrate on local emissions reductions and prioritize specific non-attainment zones.

In general, ChargePoint recommends that IDEM focus on Level 2 charging stations for municipalities and local points of interest, where people may dwell for longer periods. For DC fast charging stations, we suggest targeted sites along the major corridors. Traffic patterns should be assessed to determine the right corridors for development. Importantly, ChargePoint recommends against investment in Level 1 charging, as it is not cost-effective, not future-proof for the latest EV models, not significant in addressing range anxiety, and inadequate for meeting the long-term needs of drivers.

IDEM can evaluate competitive EV charger projects through a list of weighted evaluation criteria. Outside of baseline requisite eligibility as set forth below, consideration for priority projects may be based on the following factors:

- Facility (e.g., corridor, public, workplace, multifamily, etc.)
- Geographic region (e.g., regions, counties, cities, etc.)
- Socioeconomic (e.g., low-income)
- Environmental (e.g., poorest air quality)
- Cost Share (e.g., exceeds required match)
- Operations and Maintenance Plan (e.g., warranty, driver fees, etc.)

Baseline equipment requirements may include:

Level 2 charging stations

- Must have J1772 connector(s)
- Must 6.2 kW capable or greater
- Must be networked (minimum three-year agreement)
- If payment is required, must accept multiple forms of payment
- Must be certified by the Underwriters Laboratories, Inc. (UL), or equivalent safety standard
- Must be ENERGY STAR Certified
- Must include three-year maintenance agreement that guarantees 95% up time or greater, 24 hours a day, seven days a week

DC fast chargers

- Must have CHAdeMO and SAE Combo connectors
- Must be 50 kW capable or greater
- Must be networked (minimum five-year agreement)
- If payment is required, must accept multiple forms of payment
- Must be certified by the Underwriters Laboratories, Inc. (UL), or equivalent safety standard
- Must include a five-year maintenance agreement that guarantees 95% up time or greater, 24 hours a day, seven days a week

Under this proposed competitive grant program for EVSE, an applicant must be a workplace, commercial, multiunit dwelling, not-for-profit entity or public agency with publicly accessible locations for eligible charging infrastructure. Eligible applicants must agree to a reporting mechanism or data sharing agreement with IDEM, specifically to provide data on electricity consumption (to calculate NO_x mitigation contribution) and utilization patterns.

Conclusion

Thank you for your consideration of ChargePoint's comments. ChargePoint looks forward to being a resource to IDEM as it charts a course for Environmental Mitigation Trust funds to meet the needs of Indiana's communities.

Sincerely,

A handwritten signature in black ink, appearing to read 'David Schatz', with a stylized flourish at the end.

David Schatz
Director, Public Policy
ChargePoint
David.schatz@chargepoint.com
215-858-4748



March 30, 2018

Shawn Seals
Senior Environmental Manager
Indiana Department of Environmental Management
Indiana Government Center North
100 North Senate Avenue
Indianapolis, IN 46204

RE: Comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework

Dear Mr. Seals,

City of Columbus, Indiana is pleased to submit these comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework, pursuant to the Executive Order signed by Gov. Holcomb on Oct. 17, 2017.

City of Columbus, Indiana is a member of South Shore Clean Cities, a 501(c)(3) organization under the U.S. Department of Energy's Clean Cities program. The coalitions are designed to reduce petroleum consumption in the transportation sector by advancing the use of clean fuels and vehicles, idle reduction technologies, hybrid electric vehicles, fuel blends and fuel economy while reducing dependence on imported oil.

City of Columbus, Indiana concurs with South Shore Clean Cities' assertion that Northern Indiana should receive preference in the Indiana Volkswagen Beneficiary Mitigation Plan, with a special emphasis placed on communities or regions that contribute a disproportionate amount of air pollution.

Because South Shore Clean Cities is fuel-neutral, meaning it does not advocate for one type of sustainable fuel choice or technology over another, City of Columbus, Indiana concurs with the organization's stance that projects applying for funding under the Plan should be judged on their potential to reduce the greatest amount of NOx emissions.

City of Columbus, Indiana also concurs with South Shore Clean Cities that, in order to maximize the funding, cost-share requirements be maximized for all projects.

In addition, City of Columbus, Indiana offers the following comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework:

The City of Columbus, Indiana would like to be responsible and do our part to help reduce NOx Emissions that our older vehicles produce. By participating in the Volkswagen Beneficiary Mitigation Trust Fund The City of Columbus will be looking to replace equipment that would qualify within the guidelines with new equipment to help reduce emissions to work towards a greener fleet. The City would like the inclusion of DPW, Sanitation Trucks, Fire Dept. vehicles (engine) and our airport may also have equipment that they would like to consider. With the availability of this grant it gives municipalities the opportunity to replace vehicles at a much more aggressive rate than what was anticipated helping to remove older vehicles from service.

Thank you for this opportunity to participate in this public process.

Sincerely,

Bryan Burton

Director of Public Works

City of Columbus

2250 Kreutzer Dr.

Columbus, Indiana 47201

Phone: 812-376-2508

Fax: 812-376-2566



March 31, 2018

Shawn Seals
Indiana Department of Environmental Management
100 North Senate Avenue
Indianapolis, IN 46204

RE: Draft Beneficiary Mitigation Plan

Dear Shawn,

Greenlots appreciates the opportunity to comment on the Indiana Department of Environmental Management (IDEM) Beneficiary Mitigation Plan (BMP) Draft Framework and provides the following recommendations for funds disbursement.

Greenlots is a leading provider of electric vehicle (EV) charging software and services. The Greenlots network supports a significant percentage of the DC fast charging infrastructure in North America, including deployments in Indiana. Greenlots' smart charging solutions are built around an open standards-based focus on future-proofing while helping site hosts, utilities, and grid operators manage dynamic EV charging loads and respond to local and system conditions. As was requested by the Advisory Committee, we are providing additional details about our operations within the U.S., and a particular emphasis on our role in Indiana as Attachment 1.

Electric Vehicles Are a Good Fit for Indiana

By the end of 2017, there were almost 4,000 EVs on the road in Indiana—though a relatively small number of charging stations—and more EVs are expected as new models continue to be introduced within the state.¹ The market for electric vehicles is increasing nationally, with year over year sales increasing by almost 40%.² EVs are expected to comprise more than half of all light-duty vehicle sales globally by 2040.³ There have been notable announcements by major automakers—Toyota will have an entirely electric lineup by 2025, GM will offer 20 new EVs by 2023, all Volvo models introduced after 2019 will be hybrid or EVs, and Ford is developing 13 new EVs to the tune of \$4.5 billion. Some of these models already can go 200 miles on a single charge. More than 127 EV models will be introduced globally over the next five years.⁴

The upfront cost of EVs in the US is projected to be less than conventional vehicles by 2025.⁵ Already, EV drivers save between \$10,000 and \$16,000 in fuel savings alone over the lifetime of

¹ <https://www.afdc.energy.gov/states/in>

² https://pluginamerica.org/wp-content/uploads/2017/04/Indiana_Electric_Vehicle_Factsheet_May_2017.pdf

³ <https://about.bnef.com/blog/electric-vehicles-accelerate-54-new-car-sales-2040/>

⁴ <https://www.greentechmedia.com/articles/read/how-vehicle-electrification-will-evolve-in-2018#gs.lFrgIXo>

⁵ <https://neo.ubs.com/shared/d1ZTxnvF2k/>

the vehicle.⁶ This means more money is funneled into the local economy, further generating economic benefits for Indiana residents.

Although EVs may not be ubiquitous throughout Indiana today, the market trends toward transportation electrification make it clear that EVs are here—and Indiana should be ready for these vehicles.

EVs provide a whole host of other benefits, including improving air quality and saving money for ratepayers. EVs in Indiana produce about 3,000 fewer pounds of emissions annually than a gasoline vehicle—even though the grid is overwhelmingly dominated by coal.⁷ These air quality benefits will be amplified as more natural gas and renewable energy is added to the grid. Cost savings from EVs accrue for all ratepayers, not just for EV drivers. As more EVs are connected to the grid, increased revenues from EV charging can cover a larger share of the fixed grid infrastructure costs (increased system efficiency), and therefore lower utility bills for all ratepayers,⁸ sometimes by as much as roughly \$10,000 per EV.⁹ More balanced load from utilities can help defer maintenance and leverage additional grid benefits from managed charging.

The Environmental Mitigation Trust Opportunity

One of the most cited concerns of potential EV buyers is the lack of charging infrastructure, commonly referred to as “range anxiety.” At the same time, developers of public charging infrastructure face high costs and often low utilization, creating an extremely challenging business case for deploying chargers.

Greenlots strongly recommends that IDEM invest the full 15% allowable for light-duty EV charging infrastructure. This investment is critical to supporting the growth of EV adoption across Indiana. The deployment of public charging stations can help indirectly incentivize the purchase and use of other zero emission vehicles. From a NOx reduction standpoint, light-duty vehicles are the most effective emissions segment to address with Environmental Mitigation Trust funds in terms of dollars spent per pound of NOx emission reductions. The 15% light-duty EVSE investment represents a critical step toward enabling long-term emissions reductions of NOx and greenhouse gases.

Greenlots encourages IDEM to fund EV charging investments in the near term. Because many of the benefits of transportation electrification occur when there are electric vehicles utilizing the EV infrastructure, early public investments will encourage behavioral shifts to purchase EVs.

⁶ <https://www.rmi.org/wp-content/uploads/2017/10/RMI-From-Gas-To-Grid.pdf>

⁷ <https://www.afdc.energy.gov/states/in>

⁸ <https://www.utilitydive.com/news/why-utilities-need-to-respond-now-to-the-ev-boom/506761/>

⁹ <https://www.rmi.org/wp-content/uploads/2017/10/RMI-From-Gas-To-Grid.pdf>

Indiana Utilities Are Critical for EV Deployment

The corridor chargers need to be DC fast chargers, to meet the needs of EV drivers who need to charge on the go, rather than where the car is parked for more than an hour or two. Level 2 charging will be important for locations with long-dwell times, such as workplaces or fleet charging facilities. There has also not yet been a sufficient regulatory pathway for utilities to invest in and support this deployment. The Mitigation Trust is an excellent opportunity to involve utilities in the deployment of intercity and intracity DC fast charging.

Indiana's utilities are in a unique and powerful position to help drive the investment in light-duty EV charging, in the same way they have done so for many years with energy efficiency and conservation programs to the benefit of their ratepayers. At this early stage of the market, ownership and operation of charging infrastructure—including charging stations—is an appropriate and in many respects necessary role for the utility in accelerating the market, supporting competition and choice, and attracting private investment. Therefore, we recommend that IDEM allocate the entirety of the 15% light-duty EVSE funds from the Environmental Mitigation Trust to the state's utilities to implement EV charging within their service territories—unless a regulatory pathway for investment of ratepayer funds is clearly on the near-term horizon.

There are additional reasons for utilities to deploy charging infrastructure. Utilities have existing customer relationships with ratepayers, EV drivers, and potential EV buyers, and can provide information to ratepayers about EV benefits. A core competency of the utility is to provide safe and reliable service, which is important for the safe operation of electrical equipment. Utilities can ensure EV load integration is done deliberately and with careful planning, maximizing benefits to the grid, which then can be passed on to all ratepayers. Utilities can provide a framework for installation of charging infrastructure statewide, to ensure the NOx pollution the Trust funds are mitigating are abated statewide.

If utilities are able to own and operate rate-based charging equipment, they will be in a position to maintain the equipment—to the benefit of all EV drivers and the market.

Electrification of the Heavy-Duty Sector

Greenlots encourages IDEM to devote the remaining 85% of Mitigation Trust funds toward electrification of the heavy-duty sector, particularly school and transit buses. Some of the many benefits of heavy-duty transportation electrification include: reduced operating costs from fuel and maintenance; increased vehicle longevity resulting from the electric motor; reduction of criteria air pollutants; health benefits for workers, passengers/schoolchildren, and community

members; and reduction of greenhouse gases.¹⁰ It will be important for IDEM to dedicate funds to transportation electrification and avoid stranded assets in the future that do not comply with increasingly stringent air quality standards.

Funding priorities as outlined in the Draft BMP (including reducing lifetime NOx emissions reductions, incentivizing future indirect NOx emission reductions, and providing environmental and social co-benefits) are all achieved through electrification of the heavy-duty sector. Further, by investing in transit and school bus electrification, Indiana could provide direct benefits to populations that may not benefit directly from home EV charging; heavy-duty charging creates indirect public health and social welfare improvements for many surrounding communities – many of which bear the disproportionate share of pollution (e.g., NOx, SOx, PM).

It will be important for IDEM to outline a transformative strategy in the BMP that leads to long-term NOx emission reductions—this objective can only be achieved with wide-scale transportation electrification. As national emissions standards for NOx and other criteria pollutants continue to become more stringent, transportation electrification can help ensure that Indiana is able to maintain compliance with national standards. Rigorous and costly maintenance of diesel emission prevention equipment would be necessary to meet these baseline objectives.

Thank you for your consideration. Greenlots will be available as a resource to IDEM through the finalization and implementation of the Beneficiary Mitigation Plan. Please do not hesitate to contact me should you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Thomas Ashley', with a stylized, cursive script.

Thomas Ashley
Vice President, Policy

¹⁰ Edison Electric Institute. 2014.
http://www.eei.org/issuesandpolicy/electrictransportation/fleetvehicles/documents/eei_utilityfleetsleadingthearchange.pdf

Attachment 1 – About Greenlots

Within the state, Greenlots software operates EV chargers at nine locations, all as part of a relationship with Ricker Oil Company.

Table 1. Greenlots DC Fast Charger Deployments in Indiana (all 50kW DC fast chargers)

Site Host Partner	Location
Ricker Oil 30	2102 N Post Rd, Indianapolis
Ricker Oil 37	2068 E Hadley Rd, Plainfield
Ricker Oil 42	8558 Northwest Blvd, Indianapolis
Ricker Oil 44	1850 E 151st Street, Indianapolis
Ricker Oil 71	3750 East Fall Creek Parkway, Indianapolis
Ricker Oil 78	9797 E 116th St, Fishers
Ricker Oil 79	4002 S East St, Indianapolis
Ricker Oil 80	5061 E Washington St, Indianapolis
Ricker Oil 81	3355 W 16th St, Indianapolis

Additional national projects can help provide context for the types of work Greenlots is engaged in, and our perspective on transportation electrification.

SDG&E and PG&E— Greenlots is supporting two California-based Level 2 charging programs. Under San Diego Gas & Electric's Power Your Drive program, Greenlots was one of two vendors selected to install up to 3,500 charging stations (along with Chargepoint) in SDG&E's territory. This program got underway in late 2017. Greenlots was also selected to provide charging stations and network services to PG&E's EV Charge Network Program, in which up to 7,500 Level 2 stations will be installed. These charging programs are critical to support growth of the EV market.

Electrify America - Greenlots was one of three vendors chosen by Electrify America to implement their 17-city workplace and multi-unit dwelling program (EV Connect and SemaConnect were the other two). Greenlots' role is to install up to 900 charging stations at 140 sites in 8 of the 17 cities, specifically Boston, New York, San Diego, Los Angeles, San Francisco, Fresno, Seattle and Portland. As part of this program, which started at the end of 2017 and will operate during 2018, Greenlots has hired site developers and project managers for each city. Greenlots is also providing the software for Electrify America's national DC fast charging program (2,000+ DCFCs), which will have modest coverage in Indiana.

From: Mike Hayden <Mike.Hayden@co-alliance.com>
Sent: Sunday, April 01, 2018 12:01 AM
To: IDEM VWTrust
Subject: VW Public Comment

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

After attending multiple presentations by Shawn Seals, I have not changed my opinion of the best use of the VW funds. Indiana is a US leader in the implementation of Propane AutoGas powered school buses. We service/supply six school systems that have implemented new AutoGas buses after careful analysis of the return on investment(ROI) of this newly revised technology. One particular analysis of interest is from Avon Schools. Mike Rawlinson, Transportation Director of Avon Community School Corp, included the following in the initial analysis.

- Increased cost of the Propane AutoGas Bus
- Savings on Propane vs. Diesel
- Savings on diesel exhaust maintenance
- Savings on routine maintenance
- Average life expectancy of buses of 11-13 years
- Mike even figured in a replacement engine since the longevity of the gasoline/propane engine

After looking through all these factors, the Propane AutoGas bus clearly was the right financial decision for ACSC. Mr. Rawlinson did not include any FET rebate savings or grant dollars in his analysis knowing that the Propane AutoGas buses would need to stand on their own without rebates or grants. After running the initial eight buses, ACSC added additional buses the following year with the intent to only run gasoline or propane buses in the future.

Wayne Township and Warren Township also added additional buses to their initial purchase and have also had great success with the Propane AutoGas buses.

Propane AutoGas buses make great financial sense. I have not discussed the environmental advantage that is obvious and well founded. I would recommend a substantial amount of the VW funds to go to Propane AutoGas school buses. This technology is a leader in NOx reduction and financially stands on its own. Based on existing school programs in Indiana, the NOx reduction will compound with additional Propane AutoGas bus purchases. If the VW funds can help replace dirty diesel buses at new/existing school systems, Indiana will see a drastic reduction in NOx and will see that reduction continue to increase exponentially over the years to come.

Thank you,
Mike Hayden
Propane Manager
Co-Alliance LLP
5250 E US Hwy 36
Building 1000
Avon, IN 46123
Phone: 317.745.1255
Phone: 800.525.0272
Email: mike.hayden@co-alliance.com | www.co-alliancepropane.com



From: Dave Woronecki-Ellis [REDACTED]
Sent: Saturday, March 31, 2018 11:59 PM
To: IDEM VWTrust
Subject: Comments on use of VW Trust Funds
Attachments: Sierra Club IN VW Mitigation Trust Program Comments.pdf

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

Hello,

As the executive committee chairman of the Dunelands Group of Sierra Club, I represent about 1100 Sierra Club members in Lake, Porter, LaPorte, Newton, Jasper, and Starke counties in Indiana. The Hoosier Chapter of Sierra Club, which represents all members in the state of Indiana, has already submitted comments on the use of the VW Trust in the state, which the Dunelands Group fully supports. Please see the attached file as a reference if needed.

I would like to add that it is important that a priority for funding be given for projects that will have an impact on vulnerable communities such as East Chicago, Whiting, Hammond, and Gary especially, along with other communities around the state with poorer than average air quality coupled with low incomes and high traffic density throughways impacting these communities. These environmental justice areas deserve investments in their municipal vehicles and school bus fleets and they should take precedence over other initiatives.

In addition, I believe that funding should be made available for solar photovoltaic, PV, and battery storage equipment to be included in EV charging station projects. This will reduce the amount of electricity needed from the grid, especially during peak hours during the summer, and make the EV charging network more resilient and efficient over the long term.

Thank you,
David Woronecki-Ellis, Chair
Sierra Club Dunelands Group

Home Address
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

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"It takes five years for a willing person's mind to change. Have patience with yourself and others when treading in an area protected by a taboo." - Garrett Hardin, Ecologist

Beta, Susan

From: jen WORONECKI-ELLIS [redacted]
Sent: Sunday, April 01, 2018 12:01 AM
To: IDEM VWTrust

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

Northwest IN has so many pollution issues that it needs all the help it can get— that means no emissions, not just low-emission vehicles (solar charging stations please :-)

Thanks
— jen WORONECKI
Hobart, IN

--

~Sent from my iPhone, so keeping it short...✿



City of Bedford

Bedford City Utilities

Shawna M. Girgis, Mayor
Misty D. Adams, Utilities Director



March 27, 2018

Shawn Seals
Senior Environmental Manager
Indiana Department of Environmental Management
Indiana Government Center North
100 North Senate Avenue
Indianapolis, IN 46204

RE: Comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework

Dear Mr. Seals,

The City of Bedford is pleased to submit these comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework, pursuant to the Executive Order signed by Gov. Holcomb on Oct. 17, 2017.

The City of Bedford is a member of South Shore Clean Cities, a 501(c)(3) organization under the U.S. Department of Energy's Clean Cities program. The coalitions are designed to reduce petroleum consumption in the transportation sector by advancing the use of clean fuels and vehicles, idle reduction technologies, hybrid electric vehicles, fuel blends and fuel economy while reducing dependence on imported oil.

The City of Bedford concurs with South Shore Clean Cities' assertion that emphasis should be placed on communities or regions that contribute a disproportionate amount of air pollution as well as the State of Indiana as a whole.

Because South Shore Clean Cities is fuel-neutral, meaning it does not advocate for one type of sustainable fuel choice or technology over another, the City of Bedford concurs with the organization's stance that projects applying for funding under the Plan should be judged on their potential to reduce the greatest amount of NOx emissions.

The City of Bedford also concurs with South Shore Clean Cities that, in order to maximize the funding, cost-share requirements be maximized for all projects.

In addition, the City of Bedford offers the following comments on the Indiana Volkswagen Beneficiary Mitigation Plan Draft Framework:



City of Bedford

Bedford City Utilities

Shawna M. Girgis, Mayor
Misty D. Adams, Utilities Director



The City of Bedford has been working in all departments to increase the quality of life for the citizens of Bedford and surrounding communities in many different aspects. As a Stellar Community, Bedford has worked collaboratively with state agencies OCRA, IHCD and INDOT to achieve long-term strategic goals and create opportunities for the local community and the region through many projects. Many utility and city projects have also been completed in the past few years including adding UV and removing chlorine gas by going to sodium hypochlorite at the water plant, installation of radio read meters, working with IDEM to remove sanitary sewer overflows, adding toters to pick up trash curbside, funding a large storm water project and constructing a roundabout.

Economic welfare and economic growth rates are improved because cleaner air means fewer air-pollution-related illnesses, less money spent on medical treatments and lower absenteeism among our workforce. Our municipality is on the road plowing snow, picking up trash, recyclables, compost and leaves, fixing water and sewer main breaks, providing public transportation, providing public safety by providing a police force and responding to fires, and running activities at our parks and golf course. Larger vehicles such as dump trucks and trash trucks are on the road 8 hours a day 5 days a week. Bedford wants to reduce the emissions from the older fleet of vehicles with older emissions to increase the quality of life in Bedford.

Thank you for this opportunity to participate in this public process.

Sincerely,

Shawna M. Girgis, Mayor