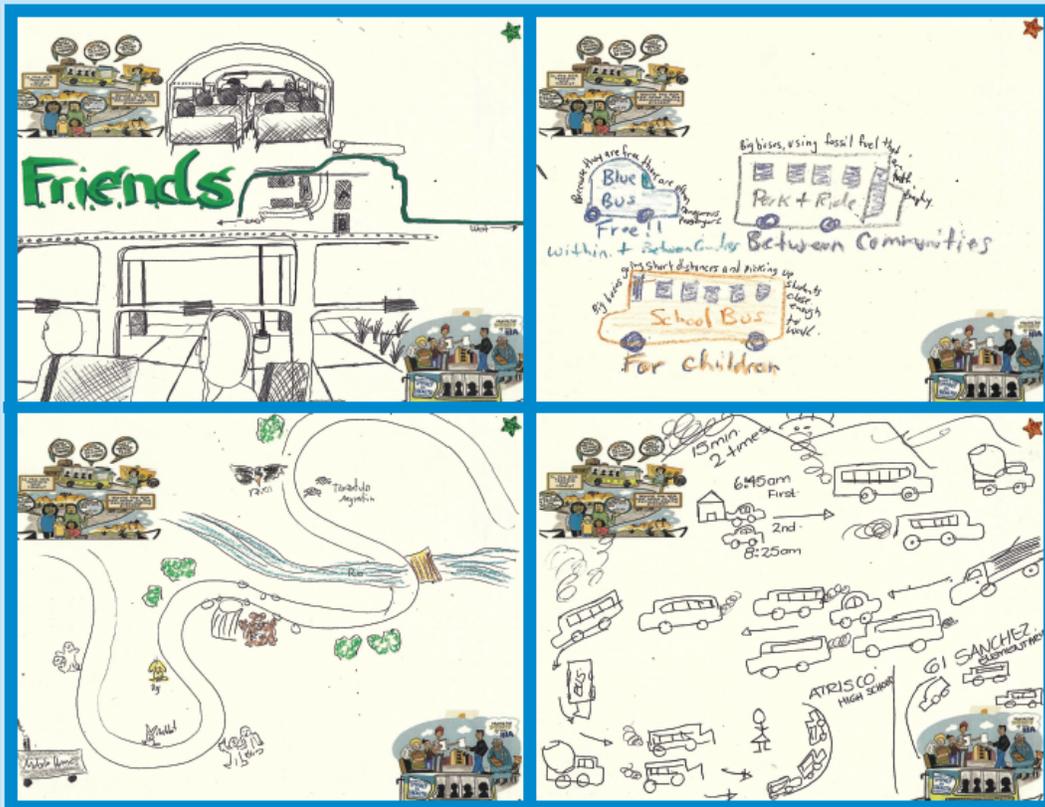


TRANSPORTING NEW MEXICAN CHILDREN TOWARD THE FUTURE:



AN ASSESSMENT OF THE HEALTH IMPACTS OF MOVING TO ELECTRIC SCHOOL BUSES ON SCHOOL-AGED CHILDREN AND THEIR FAMILIES **EXECUTIVE SUMMARY**

ABOUT THIS EXECUTIVE SUMMARY

This document summarizes findings from a health impact assessment (HIA) that was conducted in 2018 and 2019 on the potential health impacts of electric school buses. The full HIA report and appendix can be found at www.CVNMEF.org.

ACKNOWLEDGEMENTS

Conservation Voters New Mexico (CVNM) Education Fund would like to acknowledge the following individuals and groups for their support in the development of this HIA through community engagement efforts, research into community-level data and review of or engagement around the recommendations contained herein: Charlie de Saillan, Derrick Toledo, Estefany Gonzalez Mendoza, Latasha James, Matthew Cross-Guillen, Percy Anderson, Rebecca Touchin, League of Conservation Voters' Chispa Program, Moms Clean Air Force, Moving Arts Center Espanola, New Mexico Health Equity Partnership and *Juntos: Our Air, Our Water* staff, volunteers and promotoras.

The report author is M. Tyanne Benallie (Diné).

DISCLAIMER

This report is supported by a grant from the Health Impact Project, a collaboration of the Robert Wood Johnson Foundation and The Pew Charitable Trusts. The views expressed are those of the author and do not necessarily reflect the views of the Health Impact Project, The Pew Charitable Trusts, or the Robert Wood Johnson Foundation.

COVER ART

The drawings represent what families and students see and experience when taking the bus to school or work. They were drawn during a community convening in February 2019.

PROJECT BACKGROUND

Many of New Mexico's school-aged children ride a diesel-fueled bus to attend school each day. In New Mexico, approximately 166,000 children ride school buses to over 89 school districts, which serve more than 300,000 students, over half of whom are Latino, Indigenous or African American/Black. When an engine combusts diesel fuel, it emits exhaust that contains a mixture of gases, chemicals and fine particles. The fine particles within diesel exhaust are known as diesel particulate matter, 90% of which are ultrafine particles, or those particles 0.1 microns or less in size. They are the most damaging part of diesel emissions because, when inhaled, they bypass the body's natural defense systems and are linked to increases in cancer and asthma or other respiratory illnesses (U.S. EPA, 2019a).

A still highly relevant 2001 study exploring the adverse health effects from exposure to diesel exhaust from school buses found that a child riding a diesel-fueled school bus might be exposed to four times the levels of toxic diesel exhaust as a person being transported in a car (Solomon et al., 2001). These exposures have not changed, in many cases, over the past 18 years, as some school districts still rely on old, polluting diesel school buses to transport children, which expose children riding them to higher levels of pollutants than their newer counterparts.

For specific communities, often communities of color that are already burdened by poverty, legacy pollutants—those pollutants that still exist long after having been released—this exposure represents an additional harm above and beyond the existing conditions. In discussions with community members, we learned that families living at or below the poverty line often live farther away from their public school. These longer distances lead to a higher reliance on public transportation options, such as school buses, resulting in longer bus rides and thus, higher diesel exposure (Community Forum, March 2019).

This means that children who live in poverty and rely on school bus transportation are more likely to be exposed to diesel exhaust for longer periods of time, which can lead to chronic illnesses such as asthma. Asthmatic children are more likely to miss school due to respiratory health issues. Families of asthmatic children face having to miss work and experience high related medical costs, which impacts their income and job security.

During the course of CVNM Education Fund’s community-based work, volunteers expressed concerns about the adverse impacts of diesel exhaust emissions from school buses on the health and well-being of their community. Through a series of community conversations, CVNM Education Fund staff determined that the adverse impacts of diesel emissions on physical and mental health, and consequently on educational attainment, and income and job security, were particularly urgent concerns in many local communities. CVNM Education Fund therefore decided to conduct a detailed assessment of these impacts and how these impacts might be mitigated.

This assessment explores how an investment in electric school buses may impact physical and mental health, educational attainment, and income and job security for school-aged children and their families living in the communities of South Valley, Westgate Heights/Vecinos, Gallup and Espanola, and the potential benefits that could result from an investment in electrification of school buses.



Image caption: Body Collage for McKinley County From HIA Kickoff, Convening February 2019

HIA GOALS

This health impact assessment has the following goals:

1. Assess the potential health and well-being impacts on school-aged children and their families if school districts within the target neighborhoods transition their school bus fleet from diesel to electric.
2. Expand community engagement in the decision-making process within each of the four target communities identified in the assessment by working collectively on the galvanizing and unifying issue of school bus electrification.

HIA METHODOLOGY

An HIA is conducted in six stages:

- screening,
- scoping,
- assessment,
- recommendations,
- reporting, and
- monitoring/evaluation.

This process facilitates strong community engagement in data collection, policy analysis and development, and action around key issues of concern.

This HIA’s focus on assessing the benefits of electrifying school buses within environmental justice communities, or those communities overburdened by environmental harms, aligns with CVNM Education Fund’s mission, as it provides an avenue for our community to identify and develop a solution to address asthma and respiratory illnesses caused by diesel fuel.

*"My son is 7 years old and when he comes home he is struggling to breathe because he takes his inhaler himself. He's only 7, he doesn't know how. **They call me all the time and he is missing a lot of school [due to his asthma].**"*

—Comments from residents at community forum, August 2019

OVERALL ASSESSMENT FINDINGS

Ways that adopting electric school buses impact:

Physical and mental health

- A decrease in respiratory illnesses or episodes in children
- A resulting decrease in stress, depression and anxiety in the parents who care for their sick children, and the associated increase in job security
- An increase in student well-being due to stronger social networks and school performance, and fewer days of missed school

Educational Attainment

- A decrease in missed days of school due to respiratory illness by eliminating the presence of a significant trigger of asthma (diesel exhaust from school buses)
- An increase in school performance indicators like test scores and grade point averages when children miss less school
- A resulting increase in rates of high school graduation and college admission

Income and Job Security

- A decrease in sick or unpaid leave from work required by parents by eliminating a key trigger of asthma (diesel exhaust from school buses)
- An increase in parent job performance and job security and a decrease in economic or emotional stress when parents do not have to miss work to care for sick children
- An increase in critical income necessary for family survival when parents do not have to miss work to care for sick children
- An increase in employer satisfaction due to a consistent work force presence and strong work product when parents do not have to miss work to care for sick children

***"I miss a whole day of work because I have to take my child to the hospital. I can't work because my child gets sick so much. I am an hourly wage employee, and it's hard for me to take off work to take my child to the doctor."** —Comments from residents at community forum, August 2019*

RECOMMENDATIONS

The following recommendations were drawn from the findings of this HIA based on literature, data, and stakeholder feedback:

1. School districts should enforce bus idling restrictions to ensure that students attending their schools and the surrounding communities do not experience unnecessary exposure to air pollution from diesel school buses.

2. School districts should work to replace diesel-powered school buses with electric-powered school buses, prioritizing communities with a large population of low-income, Latino/Hispanic or Indigenous populations, in particular those whose students are burdened by long bus rides in rural communities. School districts should:

- a. use their annual budgets to replace diesel school buses with electric school buses;
- b. use their budgets to purchase and install electric infrastructure, such as solar panels, storage batteries, and charging stations, to accommodate electric school buses;
- c. apply for funding from the Volkswagen settlement to replace diesel school buses with electric school buses; and
- d. monitor other funding sources, including the U.S. EPA's Clean School Bus USA funding, to continue working toward the full replacement of diesel buses with electric school buses.

3. School officials should work with their school bus contractors to initiate mitigation efforts immediately to decrease exposure while the transition from diesel to electric is underway. These efforts can include installing filters on diesel buses to minimize diesel exposure for riders, and ensuring that bus drivers seat

students at the front of the bus first (where diesel levels are lower).

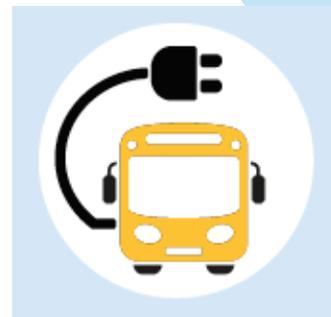
4. The New Mexico Environment Department, in administering the funds under the Volkswagen settlement, should encourage the replacement of diesel school buses with electric school buses.

5. The New Mexico Environment Department should work with the Navajo Nation to obtain and make publicly available any air quality monitoring data generated in Navajo lands.

6. School districts should ensure that students in grades K–12 have access to school-based health centers to provide for the existing healthcare needs of students so that they do not miss school unnecessarily.

7. School districts should fully fund certified nursing staff positions with certified nurses (not nursing aides) in schools, especially those that are in communities with poor air quality or high rates of childhood asthma or disabilities, to ensure that students have access to readily available in-school care and do not miss school unnecessarily.

8. School districts should fund after-school tutoring programs to assist students who miss school due to illness, such as asthma, so they may stay up-to-date on their assignments/workload. They should prioritize funding for schools in communities where diesel school buses require students to ride 30 minutes or more to and from school, as these bus rides represent a clear trigger of asthma.



CONCLUSIONS & NEXT STEPS

While the upfront costs of electric buses are higher than those for diesel buses, evidence from case studies of cities choosing to move beyond combustion engines to electric ones shows that not only are these vehicles non-emitting, but they are also proving to be less expensive and more reliable to operate in the long term, with cost savings in fuel and maintenance being readily recouped (U.S. PIRG Education Fund, 2018). Further, unique funding mechanisms exist where school districts are willing to be bold and move away from traditional combustion engines.

By supporting the developing industry of electric vehicle manufacturing, school districts that opt for this technology are supporting an industry invested in reducing the harmful effects of air pollution on community health. What's more, replacing diesel-powered buses with electric-powered buses reduces greenhouse gas emissions that are contributing to global climate change. Diesel exhaust contains significant levels of carbon dioxide, a primary greenhouse gas. If electric buses are powered by renewable energy sources, such as solar energy, they do not contribute to the emission of greenhouse gases or other harmful pollutants. And because electric motors are more efficient than internal combustion engines, even if electric buses derive their power from fossil fuel combustion, fewer pollutants will be emitted.

Given the myriad benefits that result from the electrification of school buses, and given the existing funds and programs available to assist in electrifying school bus fleets, a tremendous opportunity exists to discard polluting diesel buses in favor of clean electric buses. Taking this action will have a lasting positive impact on the health and well-being of school-aged children and their families across New Mexico.

REFERENCES

Solomon, G. M., Campbell, T. R., Feuer, G. R., Masters, J., Kavita, A. S., & Paul, A. (2001), No breathing in the aisles: diesel exhaust inside school buses.

U.S. EPA Health and Environmental Effects of Particulate Matter (PM). (2019a). Retrieved from <https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm>

For a full list of references and to view the full HIA report, please visit www.CVNMEF.org.

