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Fellowship Capstone | Policy Brief

Diesel Freight Emissions and Childhood Asthma in Washington

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I. Executive summary

Diesel exhaust from freight trucks remains one of the largest sources of toxic air pollution in Washington. Children living close to ports and highways breathe the highest concentrations, and childhood asthma rates in these neighborhoods far exceed the state average. Although new engine standards have cut emissions from trucks built after 2010, thousands of older engines are still on the road. This brief explains the health burden, shows why existing rules are not enough, and recommends practical steps that the Legislature and Department of Ecology can adopt in the next five years to deliver cleaner air and healthier children.

II. Overview

Childhood asthma affects more than one hundred twenty thousand Washington residents under eighteen, and hospital data show that admissions are two to three times higher in the Duwamish Valley, South Tacoma, and sections of south King County than in the rest of the state. Ambient monitoring and source apportionment studies link these hotspots to heavy diesel traffic on Interstate 5, Interstate 405, and port corridors. Diesel particles are small enough to lodge deep in the lung and carry carcinogens such as benzene and formaldehyde. According to the Department of Ecology, diesel exhaust drives over seventy percent of the state's cancer risk from airborne toxics. Because many freight corridors run through historically redlined neighborhoods, the burden falls disproportionately on low income households and communities of color. Asthma flare ups keep children out of class and parents out of work, costing an estimated thirty four million dollars in medical bills and lost wages each year.

A. Relevance

Addressing diesel freight emissions is critical for Washington's public health, economy, and commitment to equity. Asthma is a leading cause of school absences and emergency-room visits among children; cleaner air will boost attendance, improve learning, and lower family medical bills. Truck pollution also drives up lost productivity and health-care costs statewide. Communities that border freight corridors—often lower-income and predominantly Black, Indigenous, and other people of color—bear the brunt of these exposures. In South Park and Georgetown, for example, 71 percent of residents are people of color, and diesel particulate levels rank among the nation's highest. Similar patterns appear in South Tacoma and along highway corridors in south King and Snohomish counties. Delivering clean air to these neighborhoods is a civil-rights obligation that aligns with the Healthy Environment for All (HEAL) Act. Moreover, strategies that curb diesel exhaust, such as electrifying trucks, advance Washington's

climate targets and create green-industry jobs. Tackling freight emissions therefore protects children's health, promotes social justice, and strengthens the state's economy every year.

III. History

A. Current Stances

Diesel truck pollution has threatened public health in Washington for decades, especially in neighborhoods that border highways, ports, and freight yards. Until the mid-2000s most heavy-duty engines lacked modern emission controls, so particulate matter and toxic gases settled disproportionately over lower-income communities and communities of color. By 2002 researchers had confirmed that diesel exhaust drives some of the state's highest cancer risks and aggravates asthma and other respiratory diseases. Federal rules that took effect in 2007 and 2010 forced cleaner engine designs, and Washington paired those standards with voluntary retrofit grants and anti-idling initiatives. Port-specific programs such as the Northwest Ports Clean Air Strategy and ScRAPS replaced or upgraded hundreds of trucks and delivered measurable gains in air quality. Even so, progress has been uneven because many pre-2007 trucks still operate on major freight corridors.

Washington has recently expanded its toolkit. The state adopted the Advanced Clean Trucks rule, which will require manufacturers to increase sales of zero-emission models, and it now channels Climate Commitment Act revenue into incentives for electric and low-NOx freight. These policies set a clear direction but leave critical gaps. Enforcement of existing limits varies by region, and no statewide mandate yet compels owners to retire the oldest, highest-emitting engines. Trucking associations warn that rapid turnover could raise operating costs, while residents who live in pollution hotspots argue that stronger deadlines are essential for environmental justice. Closing this divide will require consistent enforcement, targeted funding, and a legally binding phase-out schedule for legacy diesel fleets.

IV. Policy Problem

A. Stakeholders

Reducing diesel freight emissions in Washington involves many stakeholders. First are children and families who live near highways, ports, and freight hubs in communities like South Park, Georgetown, South Tacoma, and along major corridors such as Interstate 5 and Interstate 90. Their health is directly affected by diesel pollution, and they have the most to gain from cleaner air. Environmental justice communities, often composed of low-income residents and people of color, face the greatest burdens and seek fair treatment and equal protection. Public health professionals are also key stakeholders. They see firsthand how diesel pollution fuels asthma, hospital visits, and long-term respiratory problems, and they support stronger prevention efforts. The trucking industry and freight companies have a stake in how regulations impact their operations and costs, though many also recognize the long-term benefits of cleaner technologies. Government agencies and regulators are responsible for protecting air quality while balancing economic activity. Advocacy groups, including local environmental and health organizations, work to raise awareness

and push for policies that reduce pollution. The general public has an interest too, since everyone benefits from healthier communities and lower healthcare costs.

B. Risks of Indifference

If Washington fails to act decisively, the consequences will fall hardest on the most vulnerable communities. Asthma rates in high-pollution areas could remain high or climb further, leading to more hospital visits, missed school days, and chronic health problems that follow children into adulthood. The gap between protected and overburdened communities would widen, deepening environmental injustice and eroding trust in government. Indifference also carries financial costs. Families and public health systems will face rising expenses to treat preventable illnesses, while polluted areas may see property values fall and economic opportunities decline. Inaction could cause Washington to fall behind in clean transportation innovation and job creation. There is also the risk of violating clean air standards, which could bring legal challenges or loss of federal funding. Doing nothing allows harm to continue and would cost far more in the long run than taking preventive action now.

C. Nonpartisan Reasoning

Addressing diesel freight emissions offers benefits that cross political lines and serve the broader public interest.

1. Reducing asthma and other respiratory illnesses lowers healthcare spending and improves quality of life. Cleaner air means fewer hospital visits, lower public health costs, and healthier children who can attend school more consistently and succeed in the classroom.

2. Investing in clean freight technology creates jobs and supports local innovation. A transition to zero-emission trucks can strengthen Washington's economy, build new industries, and position the state as a leader in green transportation.

3. Protecting overburdened communities upholds core values of fairness and equality. Ensuring that no neighborhood is left exposed to harmful pollution helps build trust in government and strengthens social cohesion.

4. Stronger standards provide regulatory certainty for businesses and help avoid future legal risks. Clear statewide policies make compliance easier for industry and reduce the chances of lawsuits or federal intervention if air quality goals are not met.

Together, these outcomes appeal to a wide range of stakeholders and offer a path forward that balances economic strength, public health, and environmental justice.

V. Tried Policy

Over the years, policymakers have introduced federal and state measures to cut diesel truck emissions, with mixed success. Federal standards required new trucks from 2007 onward to meet strict limits, greatly reducing soot and nitrogen oxide emissions. However, older trucks remain in

service for decades, and there is no federal mandate to retrofit or retire them, leaving many high-polluting vehicles on the road.

Washington has used grants and incentives to encourage cleaner freight. The Department of Ecology administers programs to help truck owners replace engines or install anti-idling devices. Initiatives like ScRAPS at the ports helped scrap hundreds of older trucks and improve air quality near Seattle and Tacoma. Yet these efforts have been voluntary, limited in scope, and time-bound.

Local governments have set anti-idling rules and long-term clean air plans. The Northwest Ports Clean Air Strategy, for example, sets targets for zero-emission port trucking by 2050. The state has also adopted the Advanced Clean Trucks rule to boost sales of zero-emission trucks in coming years. While these policies represent progress, they are gradual and have not yet closed the gap in pollution exposure between communities. Stronger, faster action is still needed.

VI. Policy Options

A stronger, coordinated approach is needed to close policy gaps and protect children's health in communities near freight corridors.

Phase-Out of Older Diesel Trucks and Stronger Emission Standards

Washington can require the retirement or retrofitting of the oldest, most polluting trucks by a target date. For example, all heavy-duty trucks could be required to meet at least 2010 emission standards by 2030. This would remove high-polluting engines that disproportionately harm overburdened communities. Enhanced inspection programs would help ensure compliance. Financial assistance could help small trucking businesses make the transition.

Investment in Zero-Emission Freight Infrastructure and Incentives

Transitioning to zero-emission trucks is the long-term solution to eliminate diesel pollution. Washington should expand funding for electric charging stations and hydrogen fueling along major corridors and at freight hubs. Incentives for zero-emission truck purchases, especially for port and delivery fleets, would speed adoption. Public fleets should set aggressive targets for electrification. Investments in workforce training are also needed to support this transition.

Community Protection Zones and Enhanced Enforcement

The state and local governments can create clean air zones in areas near schools, parks, and homes. These zones would limit truck idling, lower speed limits, and reroute non-essential diesel traffic during sensitive times. Air quality monitoring and stronger enforcement would ensure protections are effective. Additional steps such as air filters in schools and vegetative buffers along highways would offer immediate health benefits.

These options reinforce one another. Phasing out older trucks addresses the biggest pollution sources. Clean technology investments build a healthier future. Community protection zones provide relief now. Together, they offer a comprehensive strategy that requires collaboration among government, industry, and communities.

VII. Conclusions

Diesel freight emissions and the resulting childhood asthma crisis in Washington represent an urgent call to action. This issue sits at the intersection of public health and environmental justice. Children in communities near freight corridors, from Seattle's Duwamish Valley to South Tacoma, face higher asthma rates and long-term respiratory harm due to diesel pollution. While existing policies have helped, they have not gone far enough to protect the most affected neighborhoods or close the gap in health outcomes.

Washington can lead by adopting stronger, equity-focused policies. Phasing out older diesel trucks, expanding zero-emission freight infrastructure, and creating protection zones near vulnerable communities will significantly reduce pollution and improve health. These solutions will require political will, investment, and collaboration among government, industry, and communities. The benefits will be clear: cleaner air, healthier children, and stronger, more just communities across the state. Now is the time to act and ensure no community is left behind in the transition to cleaner freight corridors.

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