

Greening Transportation at North American Land Ports of Entry

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Commission for Environmental Cooperation
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Commission for Environmental Cooperation

In 1994 the three countries signed the North American Agreement on Environmental Cooperation (NAAEC) as a side agreement to the North American Free Trade Agreement (NAFTA).

The Commission for Environmental Cooperation (CEC) supports the cooperative environmental agenda of Environment Canada, Mexico's *Secretaría de Medio Ambiente y Recursos Naturales* and the Environmental Protection Agency to protect North America's environment and the health of its citizens.

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Greening Transportation at North American Land Ports of Entry (PoEs)

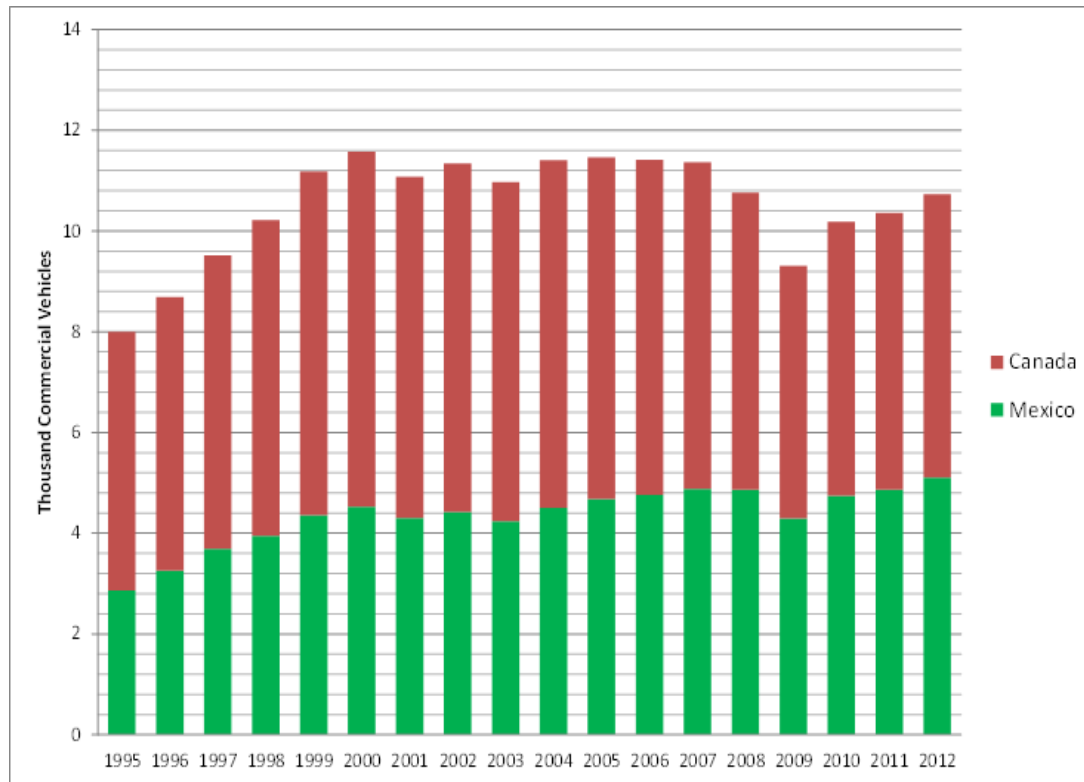
- **Phase 1** is to review and summarize all work related to air emissions at POEs on the U.S.-Canada and U.S.-Mexico borders.
- **Phase 2** is to identify and prioritize best practices implemented in North America and elsewhere to improve air quality, transportation flows, and border community and human health.
- **Phase 3** is to conduct air quality studies at two POEs: Blaine/Surrey Pacific Highway and San Ysidro/Puerta México.
- **Phase 4** is to plan and carry out training on air emission reduction mechanisms at each POE.

Timeline: March 2014 – June 2015



North American Border Crossing Volumes

Commercial vehicle crossings from Canada and Mexico into the United States

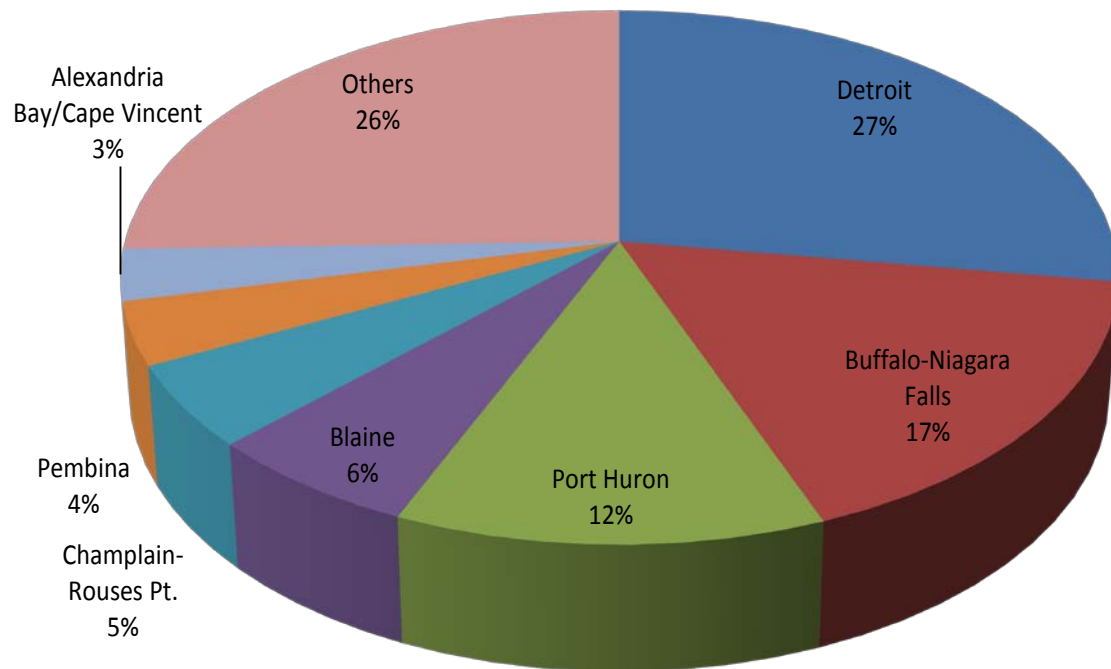


Privately-owned vehicle crossings from Canada and Mexico into the United States

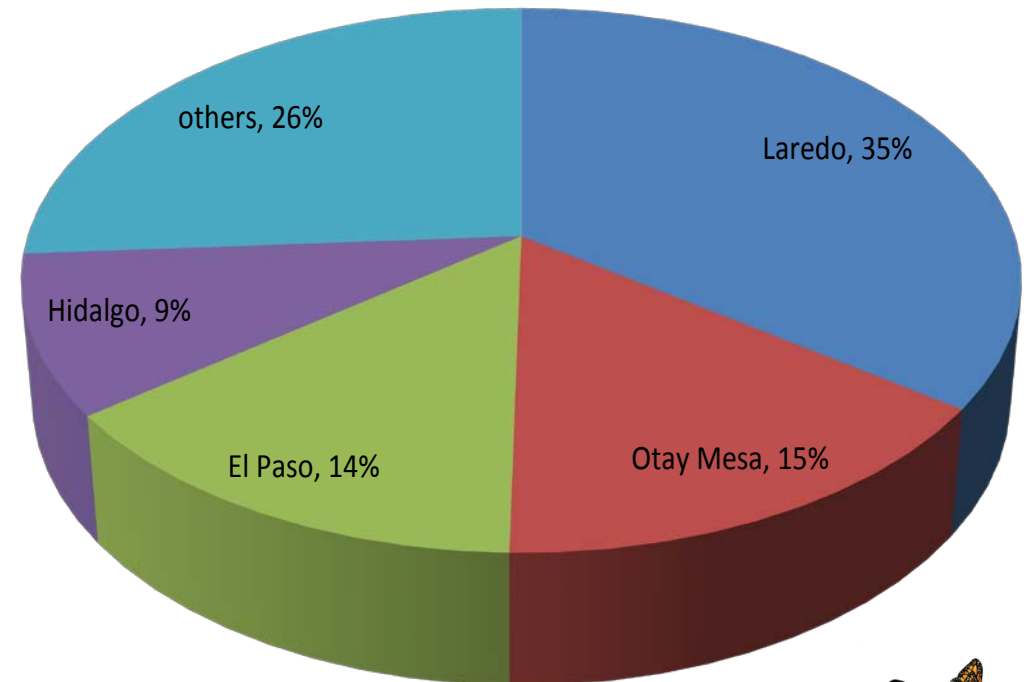


North American Border Crossing Volumes

Proportion of Commercial vehicle crossings by POE at the **U.S.-Canada border**



Proportion of commercial vehicle crossings by POE at the **U.S.-Mexico border**



Strategies to Reduce Air Emissions from Transportation

1. Fuel Technologies

A positive step toward reducing air emissions would be to reduce dependence on highly polluting fossil fuels and consider alternatives that are less damaging to the environment.

2. Vehicle Technologies

Air emissions associated with commercial vehicles (CVs) or privately-owned vehicles (POVs) can be reduced by one or a combination of the following types of measures:

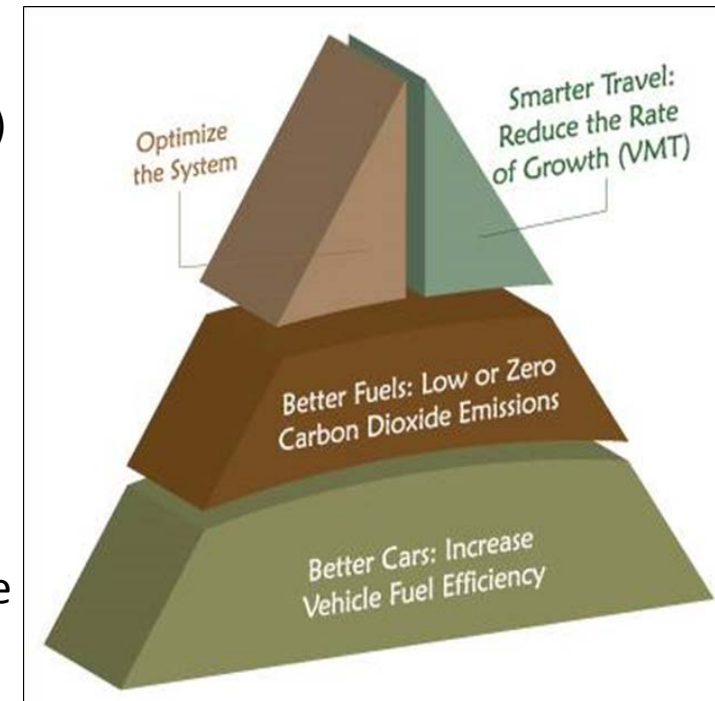
- **Reducing the loads** (weight, rolling and air resistance, and accessory loads) on the vehicle, thus reducing the work needed to operate it.
- **Increasing the efficiency** of converting the fuel energy to work, by improving drive train efficiency and recapturing energy losses.
- Reducing emissions from **vehicle exhaust and climate controls**.

3. System Optimization/Operational Efficiency

System efficiency can be achieved through operational strategies that change the way vehicles are used, either within each modal system or across two or more modal systems.

4. Smart/Sustainable Growth

Activity reduction refers to direct or indirect **reduction in vehicles miles traveled**, hence reduction of air emissions.



Air Emission Reduction Best Practices at POEs

1. Vehicle Retrofit

The *Transporte Limpio* program (BECC-SEMARNAT), the Texas A&M Transportation Institute (TTI) analyzed various truck retrofit technologies to reduce particulate matter (PM) from drayage trucks at the U.S./Mexico border.

2. Emissions Reduction Demonstration Project

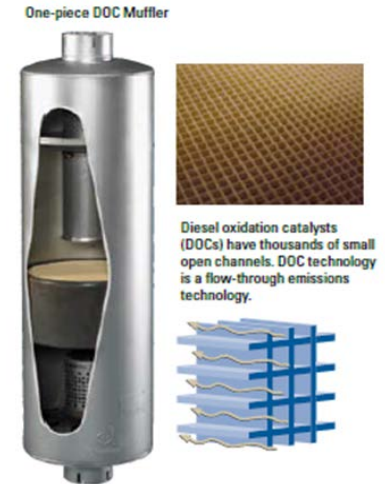
The US EPA funded a scoping study to evaluate the costs and effectiveness of emission control retrofit technologies on Mexican heavy-duty diesel vehicles operating in the San Diego County-Tijuana border region.

3. SmartWay, *Transporte Limpio* and FleetSmart

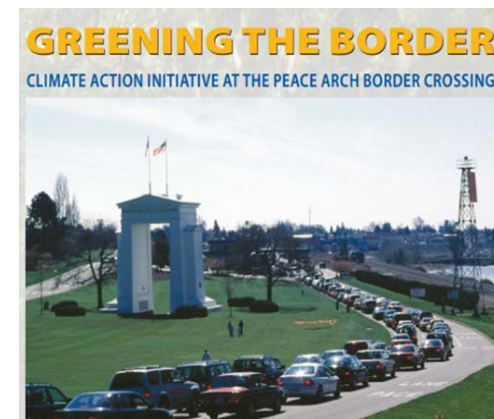
All three North American countries have implemented a version of the SmartWay® Program.

4. Anti-Idling Program

The WA State and BC initiative to reduce greenhouse gas emissions in the Cascade Gateway is focused on reducing idling at the border as well as supporting the efforts of other international organizations in reducing congestion and environmental impacts.



DOC: Diesel oxidation catalysts



Air Emission Reduction Best Practices at POEs

5. Port Anti-Idling Program

The EModal Port Community System for Drayage (EPA, SmartWay) reduces the amount of time trucks spend waiting in queues at terminal gates by establishing terminal appointments and eliminating delays caused by fee payments and incomplete information.

6. Truck Stop Electrification

An initiative, known as electrified parking spaces, allows truck drivers to provide power to necessary systems, such as heating, air conditioning, or appliances, without idling the engine.

7. Border Trusted Traveler Programs

Several Trusted Traveler programs provide an improved passenger experience, while enhancing security and increasing system-wide efficiencies. E.g. Global Entry, NEXUS, SENTRI, FAST.

8. Ecodriving

According to the UN Environmental Program, ecodriving is a driving style that significantly reduces fuel consumption and thus emissions.



Literature Review and Findings

- Literature review of all work related to air emissions at POEs on the U.S.-Canada and U.S.-Mexico borders.
- Preliminary Findings and Recommendations
 1. EPA's emission analysis procedures are typically originated and implemented in the United States and then adopted first by Canada and second by Mexico. As a result, approaches and methods/models are identical to the ones developed in the United States. Nevertheless, each country uses its corresponding data.
 2. Difficulties were found in data integration and data collection (monitoring equipment) on the Mexican side of the border at U.S.-Mexico POEs. Moreover, the United States and Mexico have different pollutants covered (monitored), which makes it difficult to integrate data across the border.
 3. In general terms, studies and technical reports along the U.S.-Mexico border were more common than along the U.S.-Canada border, and the only health studies were done at the Canadian border.
 4. Every POE has different characteristics in terms of layout, traffic volumes and mix, geography, etc. Therefore, it would be difficult to replicate interventions without a detailed analysis of the specific characteristics of each POE.



Lessons learned and next steps

- From the literature review analysis, it is clear that the most important element to perform adequate vehicle emissions estimates is having the appropriate data elements.
- Information on the Mexican side of the border is usually not readily available at most POEs. The 3rd Phase of the project will provide the necessary and missing information on both air emissions as well as health impacts at both the U.S.-Canada and U.S.-Mexican crossings.
- In the 4th phase of the project we will try to implement best practices on North American borders such as the BEST Urban Freight Solutions (BESTUFS) that was created by the European Union.



Thank You

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