Mitigating Emissions and Keeping Traffic Moving on the Gordie Howe International Bridge Project – US Project Components

The Gordie Howe International Bridge project will result in the safe, efficient and effective movement of traffic through the Windsor-Detroit gateway. Residents adjacent to the project have expressed concern regarding the potential negative impact of diesel emissions through construction and from idling commercial vehicles in and around the facility and the negative impact of increased traffic resulting from the project. As such, the components – the Canadian Port of Entry, the bridge, the US Port of Entry and the Michigan Interchange – will be constructed, have been designed and will be operated in a manner that will mitigate the local impact of emissions through construction measures, maximizing traffic flow and limiting idling time. Precautions will be taken to protect social and environmental systems through environmental review in compliance with new guidelines, design, and construction processes.

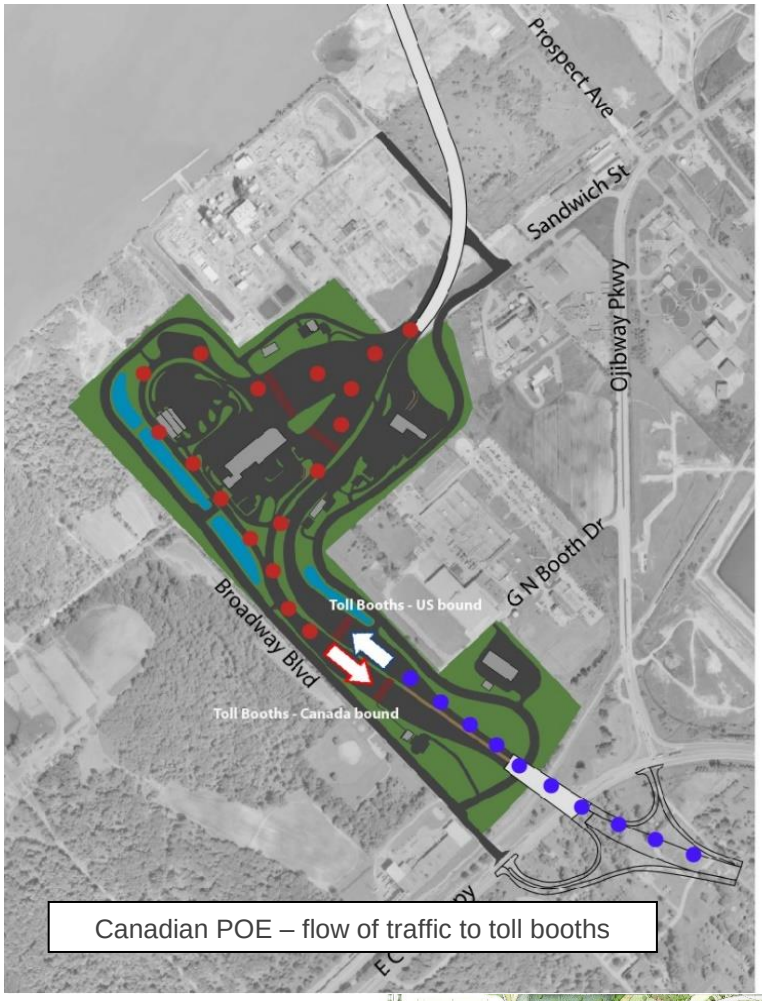
Background

The Environmental Study undertaken between 2005 and 2008 closely examined the potential for localized impacts stemming from the project with a focus on Carbon Monoxide (CO), Particulate Matter ($PM_{2.5}$ and PM_{10}) and mobile air source toxics (MSAT). As well, the proposed geometry of the project was studied in relation to emissions. Based on the information that was accumulated and following US federal guidelines, the analysis suggests that there would be no significant impact resulting from emissions originating from this project. In addition traffic projections and anticipated traffic movements were studied and the focus has been on the notion that “moving” traffic emits fewer emissions than traffic that is either stopped or is “stop-and-go”. An approach to avoid or minimize impacts while allowing for the most efficient movement of vehicles was applied.

Design

In developing the design for the Gordie Howe International Bridge project an end-to-end approach was taken examining how the entirety of the system – from Interstate 75 in Michigan to Highway 401 in Ontario – could function cohesively for the improved movement of traffic and goods. The project team has looked at where key congestion points could occur indicating potential sources of emissions. It was determined that these could occur at toll collection, secondary inspection and where the stopping-and-starting of commercial vehicles occurs. To mitigate this potential, the project team designed the system in a manner that allows for free flowing traffic, and minimizes the potential for congestion which could result in air quality impacts.

Toll collection will occur only within the Canadian Port of Entry. Key performance indicators have been written into the Project Output Specifications that require any delayed processing at the toll collection area to be addressed with additional service lanes being opened. As well, any backed-up traffic heading into the US would line-up within the Canadian Port of Entry and easterly through the controlled access Highway 401 connection into the Port. Any back-up traffic heading into Canada would line up within the Canadian Port of Entry, and across the bridge and into the US Port of Entry. Due to the tolling distance, for traffic to be backed up to the I-75 Interchange a distance of approximately 3 miles and a width of three lanes would need to be occupied.

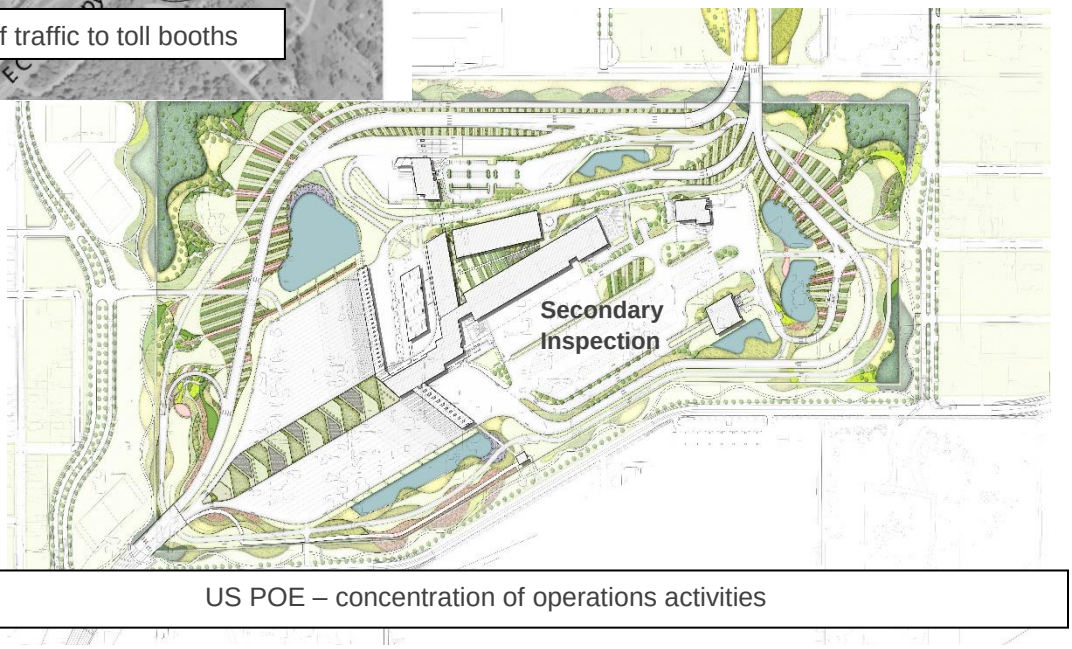


Canadian POE – flow of traffic to toll booths

In the illustration to the left, the red circles demonstrate the path Canada-bound vehicles will take to reach toll booths and with blue circles demonstrate the path US-bound vehicles will take to reach toll booths.

The US Port of Entry will be among the largest ports in North America when completed. At 145 acres, significant space has been allotted to both primary and secondary inspection. Sufficient parking has been designed so that commercial vehicles are not stopping and starting on roadways within the Port waiting to enter secondary inspection. The same approach is reflected at the 130-acre Canadian Port of Entry. This approach will reduce the frequency with which vehicles will idle and stop-and-start.

Also, the design of the US Port of Entry places the majority of operations near the centre of the Port providing distances from the primary sources of emissions to the adjacent community as identified in the conceptual rendering below.



US POE – concentration of operations activities

The Port itself is surrounded by a 100-foot landscaped buffer area comprised of a security fence, trees, shrubs and grasses and a sidewalk which is then adjacent to surrounding roadways as illustrated in the conceptual rendering below.

Construction

The construction contractors will be required to comply with all federal, state and local laws and regulations governing the control of emissions.

Construction emissions may represent a temporary increase of $PM_{2.5}$ emissions. The implementation of a construction emissions reduction plan will be required to target emissions from construction sources. This plan may include actions such as:

- ensuring that all non-road engines (ie. generators) meet EPA Tier 4 emission standards
- using the best available diesel retrofit control technology
- developing and following anti-idling protocols to aid in reducing diesel emissions
- using ultra-low sulfur fuels for all equipment
- limiting the age of on-road vehicles used in construction or requiring diesel particulate traps and oxidation catalysts
- minimizing engine operations
- restricting construction activities around certain more sensitive receptors
- instituting fugitive dust control plans
- using existing power sources or clean fuel generators, rather than temporary power generators.

Operations

A key mechanism to mitigate emissions during operations will be the mandatory “no-idling” rule for vehicles on the US side. In addition, vehicles being processed through secondary inspection will not be allowed to idle.

In terms of processing, all US-originating, Canada-bound vehicles will be processed at the Canadian Port of Entry. Similar to tolling, any back-ups into the US and onto the I-75 ramps related to inspections, both primary and secondary, would be the result of over 300 vehicles waiting to be processed. For Canada-originating, US-bound vehicles, primary and secondary inspections will take place at the US Port of Entry with any back-ups being along the bridge, through the Canadian Port of Entry and onto Highway 401. Again, in excess of 300 vehicles would be lined up to result in such a back-up.

Regardless of the distance required for extreme back-ups to occur at I-75 or Highway 401, WDBA is working closely with US Customs and Border Protection and Canada Border Services Agency to ensure efficient processing of vehicles.

The Canadian POE will accommodate a total of 29 Primary Inspection Lanes (PILs) with 12 non-commercial and 17 commercial. The US POE will include 36 PILs with 21 non-commercial and 15 commercial.

Significant attention is being given to ensuring the bridge includes features that will contribute to the efficient and timely movement of drivers through the facility and toward their destinations. WDBA expects to integrate design elements to make it easier for trucks to cross such as: dedicated truck lanes on bridge and in the POEs and safety design accommodations such as the ability to deal with truck breakdowns in a timely fashion with minimum impact on traffic flow. Tolling may include manual, automatic and electronic lanes. It is anticipated that E-manifest programs and other trusted traveller and trader programs will be in place on both the Canadian and US POEs to help make for an efficient crossing. These measures will result in less stopping and starting for commercial vehicles.

In addition, since the environmental study was completed, fuels have become cleaner and diesel engines have become cleaner contributing to a decrease in emissions from commercial vehicles.

Traffic Management

A specific concern heard from the community arises from observing traffic flows and conditions in and around the existing border crossing infrastructure and extrapolating those to the Gordie Howe International Bridge project. These observations, as expressed by the community, relate to traffic congestion issues and are:

- Trucks backing up on I-75 leading to the Ambassador Bridge
- Idling trucks at US commercial secondary inspection
- Commercial vehicles backing up on the ramps leading to I-75 from the Ambassador Bridge.

These back-ups can be caused by physical limitations (just not enough room to “hold” vehicles as they are being processed or waiting to cross into Canada), customs functions and toll collection. The Gordie Howe International Bridge has been designed and will be operated in a manner that prevents these congestion issues from occurring. This is being done through:

- Six lanes for traffic always being open on the bridge thereby ensuring that there are no physical limitations that would cause back-ups

- Operating requirements for trucks going to secondary inspections to turn their engines off and there being adequate facilities at secondary inspection for trucks to park without impacting the movement of other vehicles

- Toll collection taking place on the Canadian side for both Canadian inbound as well as outbound traffic so that there should not be reason for trucks to stop in the US POE or for trucks to back up on the ramps connecting to I-75 or on I-75 itself.

A key factor in understanding traffic management and to addressing the community concerns related to anticipated traffic volumes is understanding whether there will be an increase of traffic in the project area resulting from the operations of the bridge.

The Gordie Howe International Bridge project will see a re-distribution of commercial and passenger traffic between Springwells Court and the Ambassador Bridge with limited “new” traffic.

The redistribution of traffic between Springwells Street and the Ambassador Bridge that will result from the new bridge is based on analysis conducted during the environmental study, derived from the SEMCOG traffic model. Through that study, it was identified that during the morning peak, total traffic is expected to increase by 3.6% between the Gordie Howe International Bridge and Ambassador Bridge, however this is due to mainly northbound car traffic, while the truck traffic is reduced by 3% on this segment of I-75. During the afternoon peak, total traffic is expected to increase by 2.3%, however this is mainly due to southbound car traffic, while the truck traffic volume is decreasing by 13% due to the new bridge.

Total traffic volumes on I-75 between Livernois Avenue and Springwells Street will remain the same after bridge opening. Thus whether that traffic enters or exits this bridge, the traffic that flows, say at Livernois Avenue, should virtually be the same with or without the this bridge.

The major benefits of the Gordie Howe International Bridge is that the current back-up of traffic to and from I-75 should be eliminated for the reasons listed above. As well, with the new directional ramps connecting the new bridge to I-75, traffic will be free flow on the ramps and additional entry and exit points to I-75 providing better distribution of traffic along I-75.

While existing traffic levels are anticipated to be maintained, the traffic itself will be better managed due to the implementation of a second international crossing which will allow for the redistribution of vehicles and the elimination of stop-and-go traffic.

Additional Information

Additional information related to air quality analysis completed as part of the Detroit River International Crossing study can be found at www.partnershipborderstudy.com, along with information on activities related to emission control that the Michigan Department of Transportation committed to under the Community Enhancements page of the Green Sheets.

The project team has heard and taken seriously the concerns residents have expressed regarding the potential impact of emissions originating from the Gordie Howe International Bridge project and the effective management of traffic. Through design that favours the effective movement of traffic and buffered centres of operation, construction that will employ emissions reducing measures, and operations focused on efficient border processing and continual traffic movement, the impact of emissions both during and following construction will be mitigated and the current traffic management will be positively enhanced, thereby addressing the concerns expressed by the community.

For more information about the Gordie Howe International Bridge project visit www.wdbridge.com. Follow us on Twitter at www.twitter.com/GordieHoweBrg, like us on Facebook at www.facebook.com/GordieHoweBridge and connect with us on LinkedIn at www.linkedin.com/company/wdba-apwd.