

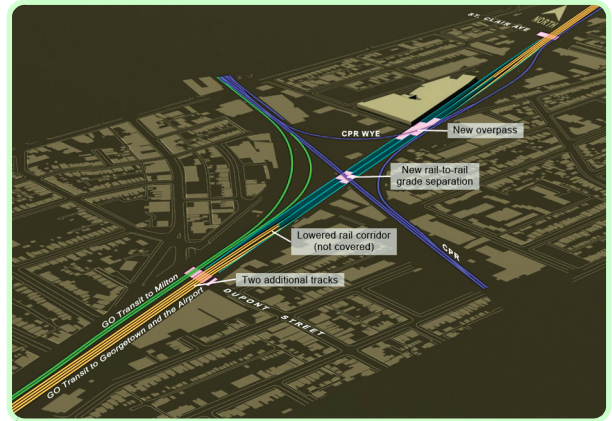
CASE STUDY

West Toronto Diamond Project Construction Noise & Vibration

Canada

The West Toronto Diamond Project, a large construction project located in the community, initially failed to address community concerns over noise from piling activities. After investigation the regulatory authorities stipulated the piling technology that could be used in the future and imposed operational limits and reporting requirements that significantly increased costs and extended the project by three years.

If an active monitoring programme and a Web-based community engagement programme had been established prior to construction, complaints and the subsequent lengthy delays and cost overruns may have been avoided.



Project Description

The project consists of the construction of an underpass to separate GO Transit commuter rail lines and Canadian Pacific Railway's (CPR) freight trains along GO Transit's Georgetown line to the west of Toronto. The West Toronto Diamond project will separate Canadian Pacific Railway's North Toronto freight line from GO's Weston Subdivision (Georgetown line). The north-south tracks to and from Georgetown will be lowered so that they run under CPR's North Toronto line.

"This investment will help cut commute times on GO trains and will help get commuters out of their cars and onto public transit," said John Baird, Canada's Transport and Infrastructure Minister. "Projects like this will help clear the air, reduce congestion and stimulate the economy in the Greater Toronto Area."

The project will bring about a number of improvements:

- More reliable GO service by eliminating the need to accommodate both freight and GO trains at this crossing point
- Less pollution and noise for residents due to fewer trains stopping and idling in the neighbourhood, and commuter traffic running through the lowered corridor
- Less noise and whistling from trains crossing the West Toronto Diamond
- Increased train service for northwest Toronto and Peel Region

Construction started in January 2009 with a budget of \$277 million and was originally scheduled for completion in early 2011.



The Community Response to Construction

Early in the project piling activities started and almost immediately complaints were made by the communities – residents felt disruptive and irritating vibration in their houses. Within three months a number of initiatives were formed against the project. Community rallies were organised to protest about the construction noise and vibration levels and GO Transit's failure to deal with them in a reasonable manner. A Facebook page, "Citizens United against West Toronto Diamond Pile Drivers" was opened and a complaint was filed on behalf of the community by the West Toronto Diamond Community Group.

The Canadian Transport Agency Investigation

Silent piling using a Giken hammer

The Canadian Transport Act of 2007 requires the Canadian Transport Agency (CTA) to investigate all complaints made regarding noise and vibration from railway operations and construction. In October 2009, the CTA decided in favour of the community group ruling that “GO Transit was in breach of its obligation to cause only such noise and vibration as is reasonable during pile driving activities at the site”.



While recognising the long-term benefits for works to progress, the ruling emphasised the need to balance these against the interests of local residents impacted by noise and vibration. It went on to state that insufficient measures had been taken to reduce noise and vibration impact and proposed a range of corrective measures including:

- Stipulating the use of different pile-driving hammers and techniques such as replacing impact hammers with lower noise alternatives such as a vibratory hammer or a Giken hammer, operating hammers with reduced power, implementing noise shrouds and deploying moveable noise barriers
- Limiting work hours for pile-driving activities to 08:00 – 16:00 weekdays only
- Implementing a continuous noise and vibration monitoring program with weekly reporting
- Establishing a range of communication measures including daily updates to a website showing activity schedules, two weeks notice to any schedule changes, e-mail and phone complaint centres responding to complaints within maximum 48 hours and posting weekly noise and vibration reports on the web for review

Go Transit was given two weeks to appeal the ruling and to provide the CTA with detailed evidence as to why the transit company should not be required to implement the proposed measures. In December 2009, the CTA announced that “... the Agency finds that GO Transit has failed to demonstrate sufficient evidence as to why the proposed measures cannot be implemented. As a result, the Agency is ordering GO Transit to implement corrective measures”.

The announcement continued, “The interests of communities affected by noise and vibration must be considered at first instance by railway companies and urban transit authorities in determining how best to perform their activities in order to meet their obligation under section 95.1 of the Canada Transportation Act”. In this way, the Agency emphasized that noise and vibration mitigation is critical and must be addressed by railway companies and urban transit authorities early in the planning process of any project.

The Implications of the Ruling

The GO Transit website setup in response to the CTA ruling to report noise and vibration levels

The ruling effectively requires Go Transit to use quieter equipment less often. However, the equipment is less efficient and more expensive.

GO Transit Spokesperson Vanessa Thomas said, “The CTA has ordered GO to use a vibratory hammer from France and a Giken press-in machine, one of only two in the world. We brought that from overseas. It’s important to remember, these are slow technology... the Giken installs two piles a day while the vibratory hammer installs three to four. By comparison, the impact hammer or pile-driver installs six to eight”.

Thomas said, “The decision will significantly increase the cost of the project and extend the construction duration”.

According to the original construction plan, piling was due to be completed by December 2009 but as a direct result of the noise mitigation measures, piling activity extended to late 2010. The entire project will now not complete until December 2014, over three years later than originally planned.

