The Options For Davenport Sound and Noise Study

A component of "Our EA, Our Say: The Options For Davenport Community Environmental Assessment"

Prepared by Options For Davenport community group

April 26, 2016

INTRODUCTION:

The primary goal of our Environmental Assessment was to gather comprehensive feedback from communities that will be physically impacted by changes to the Barrie Corridor. As part of that research, Options For Davenport polled more than 500 residents about their thoughts, concerns and hopes for Metrolinx's project. In reviewing that data, it became apparent that the primary concern for the vast
majority of residents was noise. At present, trains pass along the route just seven times in the morning and seven times at night. This will soon change. Metrolinx has plans to convert 1.45 kilometres of track into an elevated rail line. When the agency is finished with the line, there will be all-day, two-
directional service along the corridor, totalling 180 trains a day — or one train every seven minutes. If an overpass is built, these trains will pass within metres of houses, condos, businesses and parks. Our
survey indicates that locals are extremely worried about the impact this will have on the
neighbourhood's noise levels and quality of life.

This was an area that we felt we could investigate further.

METHODOLOGY:

On April 3, 2016, three members of Options For Davenport rented a Casella sound level meter and calibrator — the CEL-621C model — from Maxim Environmental in Mississauga. We had two goals. First, we wanted to collect data from relevant sites along the Barrie Corridor to gauge the current impact train noise levels are having on those communities. And second, we wanted to capture readings from a trench, tunnel and overpass in order to gauge how those
communities will be impacted in the future by Metrolinx's project.

Photo: Casella USA website

We identified five sites of interest.

The overpass at Rogers Road near Caledonia Road was one, because the tracks are elevated and the site is along the Barrie Corridor. Davenport Village was another, as it is also along the Barrie Corridor. There, the train passes below grade and behind a sound wall on the west side. Campbell Park in the Junction Triangle was the third site we selected. The at-grade "Davenport Diamond" rail crossing, where the Barrie Corridor and the CP tracks intersect, was another key location we wanted to measure.

(In addition to safety concerns associated with freight and passenger trains sharing a crossing, area residents have complained about the loud clanging that happens whenever a train crosses the Diamond.) Finally, when Metrolinx first proposed the overpass option, Davenport residents pointed to Toronto's Weston community, where the transit agency built a tunnel for residents after locals expressed concerns about how increased traffic along the Georgetown Corridor would impact the neighbourhood. We wanted to take a reading standing on top of the tunnelled GO Train. Additionally,

the site allows for a trench measurement, since the line dips into a trench before heading underground.

After a brief lesson in how to operate the machine, we conducted a test run at four of the sites with the seven evening Barrie-bound trains. There was not time to do a test run at Weston. (The photos included in this report are from the test run.)

We concentrated on four types of sound readings and each is included in our report: LAEQ, LASMAX, LCEQ and LCSMAX. “A” frequency, we learned, is the most widely-used measurement and represents what human ears are physically able to hear, as we are less sensitive to high and low frequencies. “C” frequency on the other hand, more closely mimics how we respond to loud sounds. The LEQ measurement evaluates sound energy over a period of time and represents it as one decibel reading. The MAX reading, unsurprisingly, pinpoints the maximum level for each frequency.

Included in this report is a description of the site, a satellite photo of the area with red arrows indicating the approximate area a reading was taken and a yellow arrow pointing to the GO Train tracks, as well as the four different sound measurements captured, ambient noise (we tried our best to capture a typical noise level for the time and place) and comparable industrial sounds. These were taken from the website of an American engineering firm called Industrial Noise Control. It is included for interest only: http://www.industrialnoisecontrol.com/comparative-noise-examples.htm

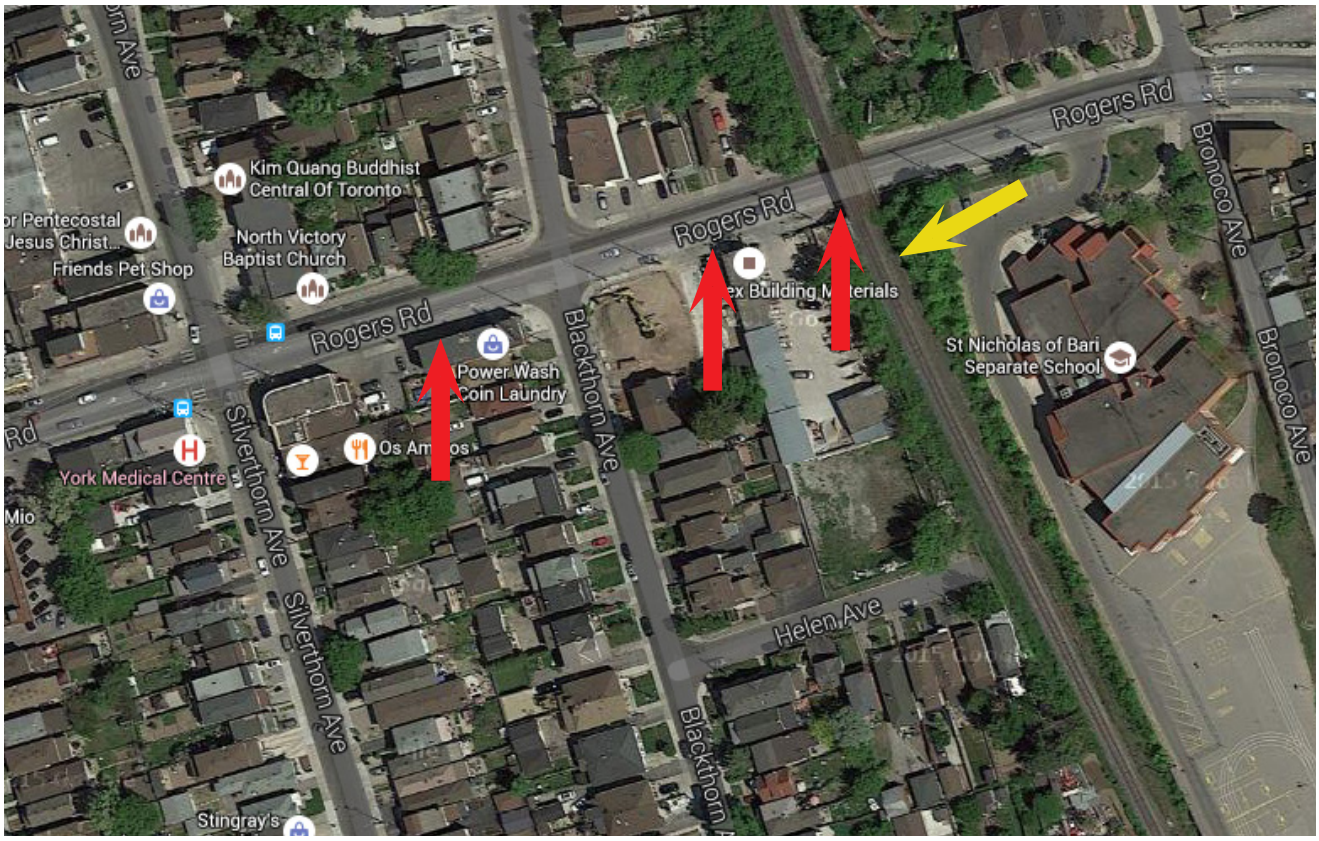
SUMMARY:

Our study is not meant to be scientific. We are by my no means sound experts. There are many flaws in our study, including the fact that some GO Trains are longer than others, but we believe our findings are interesting and lend credence to the concerns of the community.

At present, it seems that Metrolinx plans to build the overpass with a noise mitigation strategy designed only for electric trains. This is concerning because as of the writing of this report, there is no set date to electrify the line and until then, diesel trains — which are dramatically louder — will continue to run. Initially, Metrolinx promised that no more than 36 diesel trains will use the overpass a day, but a draft copy of the agency’s latest report (April 2016) shows that Metrolinx is now considering increasing traffic to 60 trains per day. This means that residents along the Barrie Corridor will be seeing a dramatic increase in daily train traffic — up from 14 a day —and there will be no proper noise protection.

SITE 1 — Rogers and Caledonia Roads

The Barrie Corridor passes Rogers Road at an elevated crossing just west of Caledonia Road. It is similar to what the at-grade crossing at Wallace Avenue will look like if Metrolinx builds an overpass. These readings were taken between 6:31 a.m. and 6:51 a.m. We took six readings at three locations at this site. Our first measurement was taken standing directly beneath the overpass, the second was 30 metres west from the tracks along Rogers Road and the third was 100 metres west of the tracks along Rogers Road.



Measurement point

Train tracks

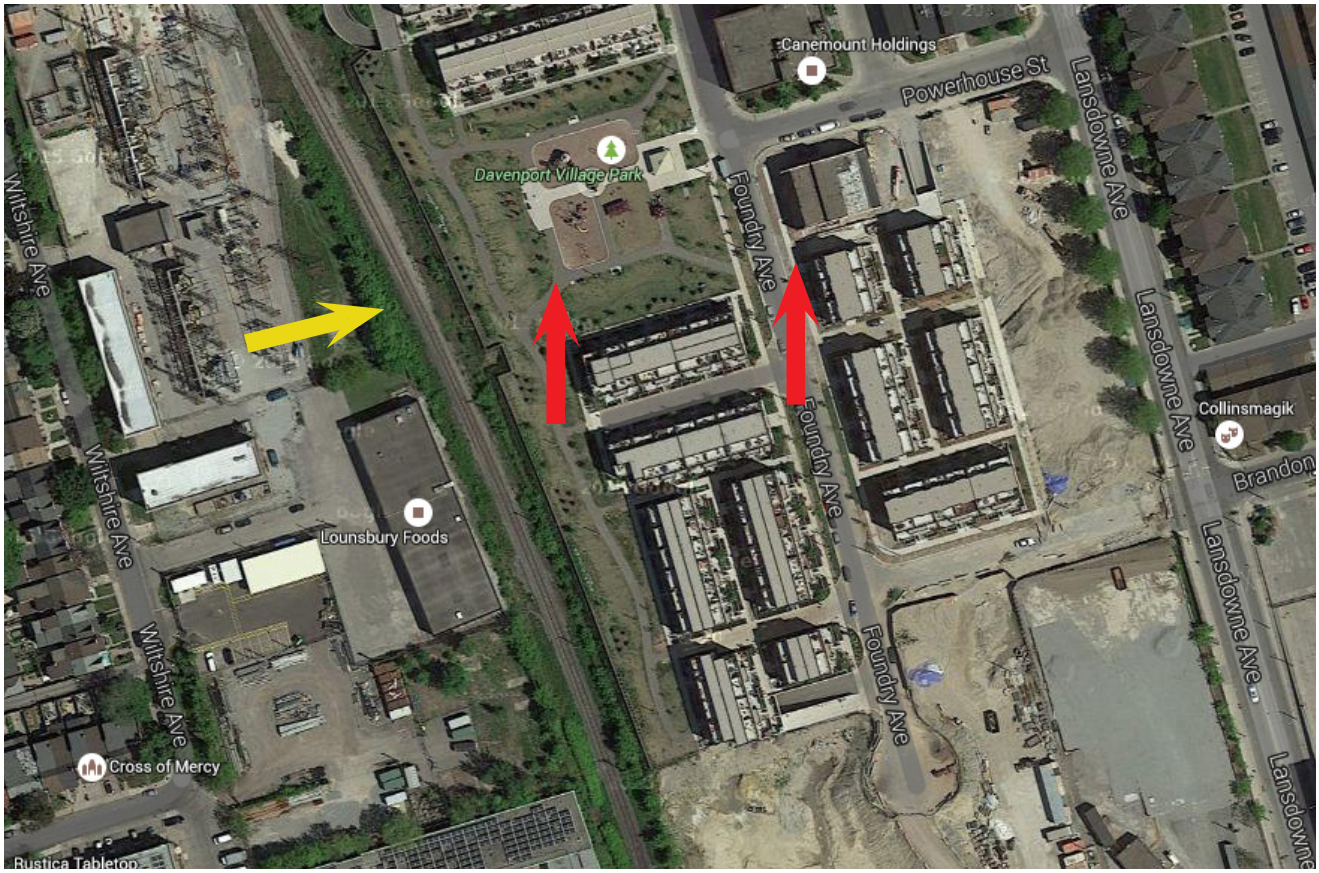
	LAEQ	LASMAX	LCEQ	LCSMAX	Comparable Against
Ambient Noise Under Overpass	73.1 dB	77.8 dB	78.9 dB	83.8 dB	Freeway at 50 feet (76 dB)
Train passing overhead	90 dB	92.6 dB	101.2 dB	106.1 dB	Jet take-off at 300M, jackhammer, lawn mower (100dB)
Ambient noise at 30M	70.4 dB	73.9 dB	76.3 dB	78.9 dB	Passenger car at 65 mph at 25 feet (77 dB)
Train passing at 30M	77.8 dB	80.8 dB	86.3 dB	92.2 dB	Motorcycle at 25 feet (90 dB)
Ambient noise at 100M	66.7 dB	72.7 dB	71.3 dB	75.4 dB	Conversation in a restaurant (60dB)
Train passing at 100M	70.4 dB	73.6 dB	77.5 dB	82.3 dB	Garbage disposal (80 dB)

KEY FINDINGS:

The province and Metrolinx have promised to make the overpass an asset to the Davenport community. One of the key parts of that plan involves utilizing the newly unlocked public space beneath the overpass. Metrolinx has proposed building an outdoor cinema, public square, farmer's market, bike lanes and gardens beneath the structure — among other things. But our sound study has shown that standing beneath a GO Train overpass sounds like standing near a jackhammer or jet taking off. It's hard to imagine a quiet Sunday shopping with a jackhammer going off every 7 minutes. Additionally, even at 100M, the noise threshold is worrisome given the volume of proposed traffic and unclear plans about moving to the more quiet electric trains. Metrolinx will doubt point out that the Rogers Road crossing is old and that the Davenport overpass will employ better technology. This is true. However, the Rogers Road overpass condition has been deemed acceptable enough to leave as is and the Davenport overpass is a 100-year piece of infrastructure that will not be new forever. We believe it is an inexact, but relevant comparison.

SITE 2 — Davenport Village

The Union-Barrie GO train passes Davenport Village (located just north of Dupont Street and west of Lansdowne Avenue, above the Junction Triangle) below grade on the community's west side. There are also large sound walls between the tracks, townhouses and condos. These readings were taken between 7:19 a.m. and 7:39 a.m. We took four readings at this site at two locations. The first was approximately 30 metres east of the tracks. The second was 100 metres east of the tracks. Both were taken standing in Davenport Village Park, the hub of this community.



	LAEQ	LASMAX	LCEQ	LCSMAX	Comparable Against
Ambient Noise at 30M (Edge of the park)	52.8 dB	54.5 dB	71.1 dB	74.9 dB	Freeway at 50 feet (76 dB)
Train passing 30M	62 dB	68.3 dB	78 dB	83.5 dB	Upper 70s "annoyingly loud to some people"
Ambient noise at 100M	57.9 dB	65.1 dB	77.0 dB	78.3 dB	Conversation in a restaurant (60dB)
Train passing at 100M	64.2 dB	69.4 dB	84.4 dB	91.7 dB	Motorcycle at 25 feet (90 dB)

KEY FINDINGS:

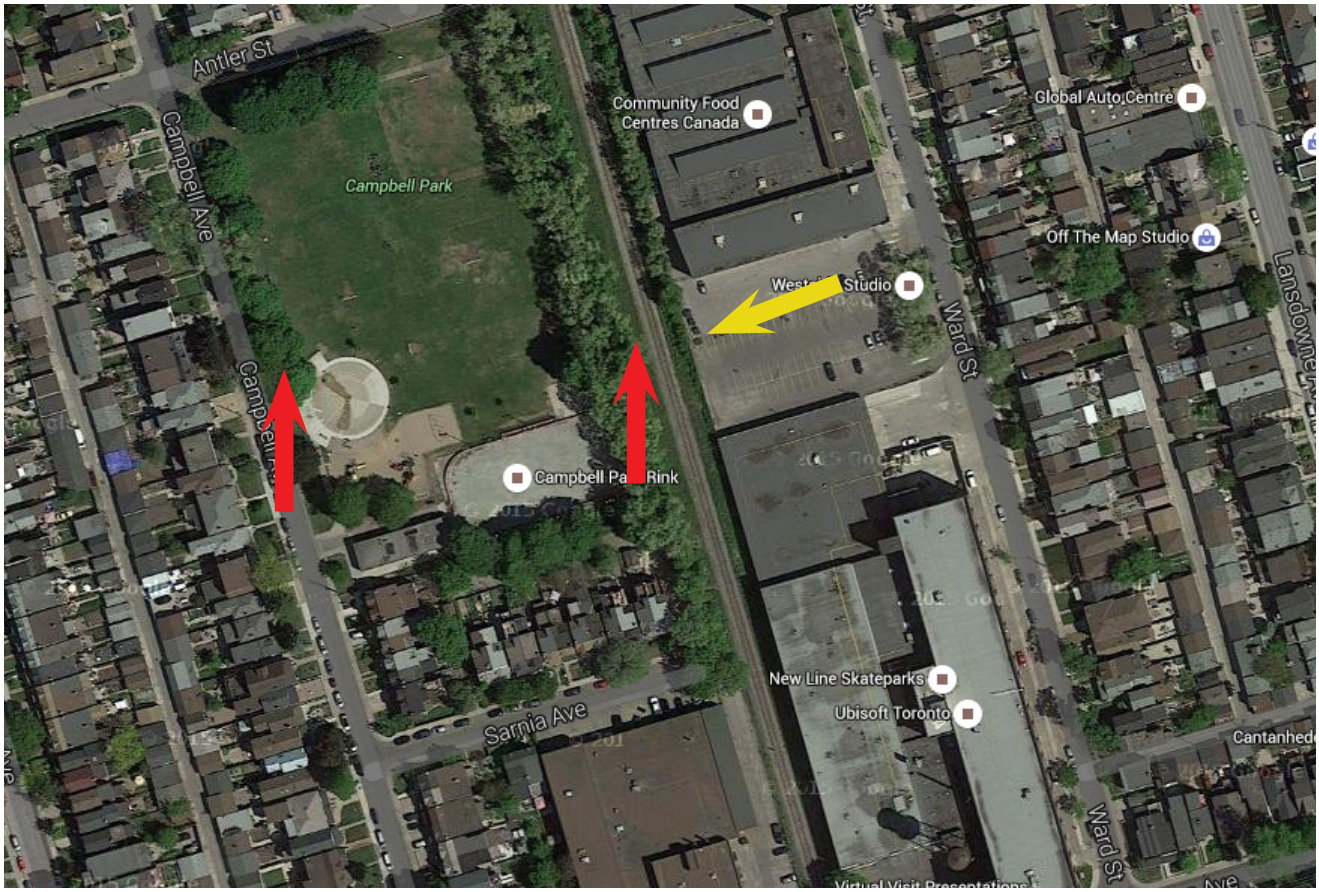
The below-grade route and sound walls definitely shield Davenport Village from some of the noise associated with the Barrie Corridor. In community consultation, Options For Davenport has heard that some Davenport Village residents are much more concerned about the noise coming from the Davenport Diamond crossing (see next section) and our readings support that concern. If Metrolinx proceeds with an overpass, the residents of Davenport Village will be freed of the noise from the Diamond, but will gain issues associated with the elevated overpass, as the structure will continue on past their community. It will also be closer to the ground since the current tracks are below grade.

Measurement point

Train tracks

SITE 3 — Campbell Park - Junction Triangle

The Barrie Corridor closely borders Campbell Park, one of the Junction Triangle's only green spaces. The tracks run at-grade along the east side of the park and pass within 6 metres of the park's row of mature Siberian Elm trees. These readings were taken between 7:51 a.m. and 8:50 a.m. We took a measurement standing 5 metres from the tracks and another 100 metres west from the corridor, while standing in Campbell Park.



Measurement point

Train tracks

	LAEQ	LASMAX	LCEQ	LCSMAX	Comparable Against
Ambient Noise at 5M	46.4 dB	48.1 dB	59 dB	60.4 dB	Freeway at 50 feet (76 dB)
Train passing at 5M	82.8 dB	87.7 dB	90.8 dB	99 dB	Jet take-off at 300M, jackhammer, lawn mower (100dB)
Ambient noise at 100M	51.8 dB	54.6	67.9 dB	73.1 dB	Conversation in a restaurant (60dB)
Train passing at 100M	62.5 dB	66.3 dB	84.4 dB	88.4 dB	Motorcycle at 25 feet (90 dB)

KEY FINDINGS:

Campbell Park is a cherished community hub that boasts an outdoor rink, basketball nets, numerous soccer fields, a playground and splash pad. If the proposed elevated rail line replaces the at-grade tracks, and Metrolinx increases service at the proposed rate, there will be significant implications for Campbell Park. Even standing 100 metres away from the tracks near the western border of the park — with the Siberian Elm trees acting as a natural sound barrier — noise levels were high.

SITE 4 — Davenport Diamond

The GO Train and CP Rail at-grade intersection is located just north of Dupont Street, west of Lansdowne Avenue and directly below Davenport Village. This “Diamond” presents numerous problems, including train delays, safety concerns and noise issues. The sound of the train going over the diamond creates a clanging noise that can be heard for several blocks. We measured two locations at this site between 11:23 a.m. and 11:28 a.m. One, at the southern most tip of Foundry Avenue approximately 90M away from the Diamond). Two, about 200 metres away from the Diamond, at the edge of Davenport Village Park.

Measurement point

Train tracks

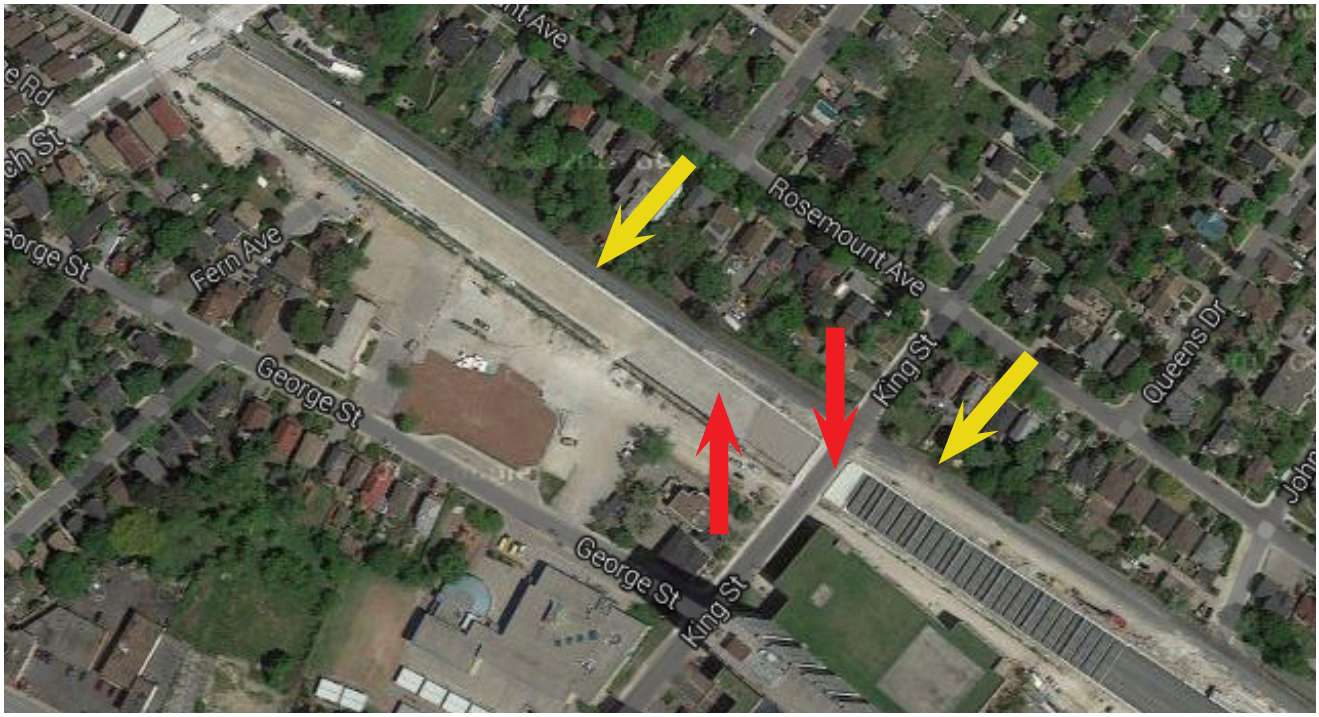
	LAEQ	LASMAX	LCEQ	LCSMAX	Comparable Against
Ambient Noise at 90M	56.9 dB	59.4 dB	72.2 dB	73.4 dB	Freeway at 50 feet (76 dB)
Train passing at 90M	72.9 dB	76.4 dB	84 dB	88.1 dB	Food blender (88dB)
Ambient noise at 200M	58.3 dB	69.1 dB	69.3 dB	73 dB	Conversation in a restaurant (60dB)
Train passing at 200M	60.4 dB	70.7 dB	72.5 dB	82.9 dB	Motorcycle at 25 feet (90 dB)

KEY FINDINGS:

The Davenport Diamond crossing is indeed very loud even from a signficant distance for the people with homes directly facing the intersection. The freight trains that use this east-west corridor, while infrequent, are very long compared to a GO Train, so the noise is sustained for long periods of time. (During our reading the train took about 10 minutes to pass).

SITE 5 — Weston and Lawrence

As part of Metrolinx's $1.2 billion Georgetown South rail corridor project, the provincial transit agency tunneled a portion of the track in Toronto's Weston neighbourhood after residents complained about the impact increased train service would have on the community. We took readings at two sites between 12:07 p.m. and 1:07 p.m. One, 50M north west from the mouth of the tunnel, standing on top of the tunnel. Two, from the southern edge of King Street, about 10M from where the trench ends and the tunnel begins. This was to try and capture the sound of a train passing through a trench.



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Metrolinx construction leaves a bad taste in Weston

Building a rail tunnel for the Union Pearson Express has coated Weston residents dust.

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VIEW 3 PHO

NICK KOZAK / FOR THE TORONTO

A view of tunnel construction for the rail expansion looking southeast. Dust and truck traffic fro building the air-rail link route is taking a toll on area residents.

By: Tess Kalinowski Transportation reporter, Published on Fri Aug 16 2013

	LAEQ	LASMAX	LCEQ	LCSMAX	Comparable Against
Ambient Noise at 50M	47.7 dB	54.1 dB	62.4 dB	63.7 dB	A library, bird calls (44 dB)
Train passing at 50M	53.4 dB	57.2 dB	67.4 dB	71.8 dB	Air conditioning unit at 100 feet (60dB)
Ambient noise at 10M from the trench	48.6 dB	52.6 dB	64.8 dB	69.5 dB	Vacuum cleaner (70dB)
Train passing at 10M from the trench	67.9 dB	78.4 dB	78.2 dB	87.9 dB	Motorcycle at 25 feet (90 dB)

KEY FINDINGS:

This was the most difficult reading to take because, perhaps unsurprisingly, it was difficult know when the train was passing underneath us as we could not hear it. We initially tried 100M away from the mouth of the tunnel, but we missed the reading. At 50M, we were able to watch the train go underground and therefore take a reading. Our research at this site indicates that the tunnel option would be the most desirable for the community from a noise and sound perspective.

Measurement point

Train tracks

The “Comparable Against” column in each chart was taken from:
http://www.industrialnoisecontrol.com/comparative-noise-examples.htm