

HOUSING MARKET INSIGHT

Hamilton-Niagara



CANADA MORTGAGE AND HOUSING CORPORATION

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"The Hamilton-Niagara GO stations increased house prices in the areas they were planned by up to \$40,000, and in some cases, those price increases occurred even before construction began."



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GO Train Expansion: The Impact on House Prices in Hamilton-Niagara

- The West Harbour GO station increased house prices in Hamilton Centre by up to \$30,000 or 9%.
- Most of the estimated price increase from the West Harbour GO station occurred between the project's announcement (May 2013) and completion (July 2015) dates.
- The Confederation GO station project increased house prices in Stoney Creek by as much as \$40,000 or 8% so far.
- The St. Catharines and Niagara Falls GO station projects increased house prices in their areas by up to \$30,000 so far, which amounts to an 8% and 7% increase respectively.

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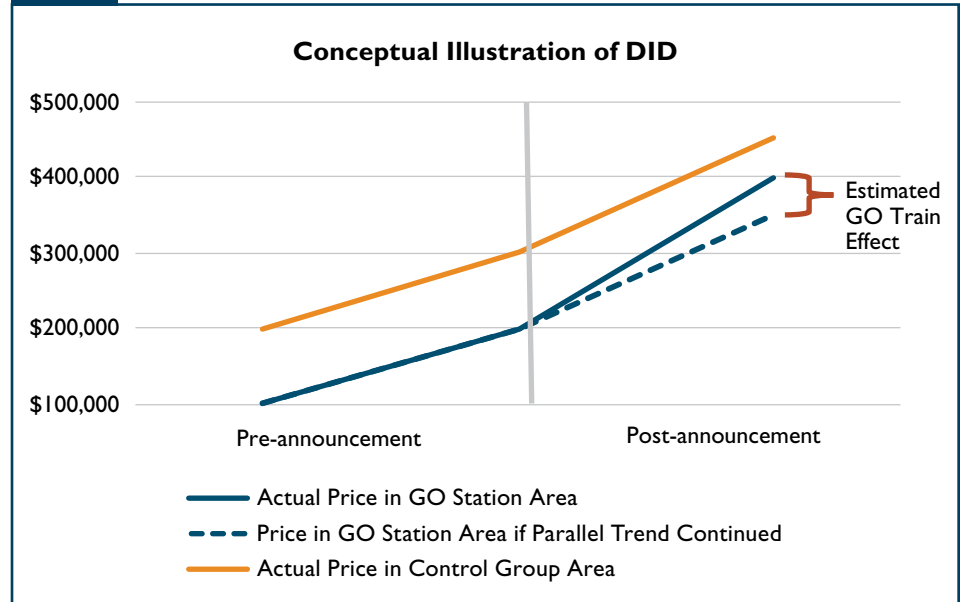
Estimating How Much Transit Improvements Affect House Prices

This report provides an estimate of how much house prices in Hamilton-Niagara were potentially affected by GO train expansion to the region. This information is timely because most of these transit expansion projects are still underway. The West Harbour station in Hamilton Centre was completed in July 2015. Construction of the Confederation station in Stoney Creek is almost complete, while ground has not broken on stations in Grimsby, St. Catharines, and Niagara Falls.¹

Knowing how much prices were affected by a transit improvement project is of major interest to stakeholders in real estate. They include homeowners living near these new transit hubs, and homebuyers who are considering moving there or to other areas where similar transit improvements are planned. Other interested stakeholders are developers who are considering building homes near transit stations, as well as municipal government departments that deal with land use, public infrastructure, and government services. This also affects realtors and mortgage professionals as they strive to gain market share in a growing area.

Estimating the contribution of one particular price factor, such as a GO train station, is difficult since there are several other factors that are also influencing prices at the same time. This was especially true in the period following the announcements of GO train expansion into the Hamilton-Niagara region. Prices rose very quickly there due to supportive economic and demographic fundamentals and low housing supply, not to mention price spillover from the Greater Toronto Area.

Figure 1



Source: CMHC

In an attempt to detach the GO train price effect from these other factors, we used the difference-in-differences (DID) method.² Our DID estimator compares actual house prices in Hamilton-Niagara GO train station areas³ to what house prices would have been there if no stations were announced, all other factors being equal. To determine what prices would have been, we searched for control groups. These are areas from the same economic region that are not located close to a GO train station but their prices ran parallel to GO station area prices before the stations were announced.

The conceptual illustration in figure 1 visually explains how the actual price increase of the control group area (orange line) in the post-announcement period allows us to estimate the price increase of the GO station area (dashed line), had the announcement not occurred there. We assume that prices in the control group area and the GO station area would have continued to run parallel to each other. Subtracting the actual

price of the GO station area (solid blue line) from its alternative price scenario (dashed blue line) provides us with the estimated GO train price effect.

Prices in GO Station Areas Compared to Prices in Brantford

Areas⁴ within the City of Brantford, Brant County and Haldimand County were considered for the control groups, since they are in the same economic region⁵ as the Hamilton-Niagara GO station areas, while also being far enough away from any GO station. Only areas within the City of Brantford⁶ ended up qualifying as control groups because of the need to satisfy the parallel price trend condition. Each GO station area had one to three control groups from the City of Brantford. The only GO station area with less than two control groups was Hamilton East.

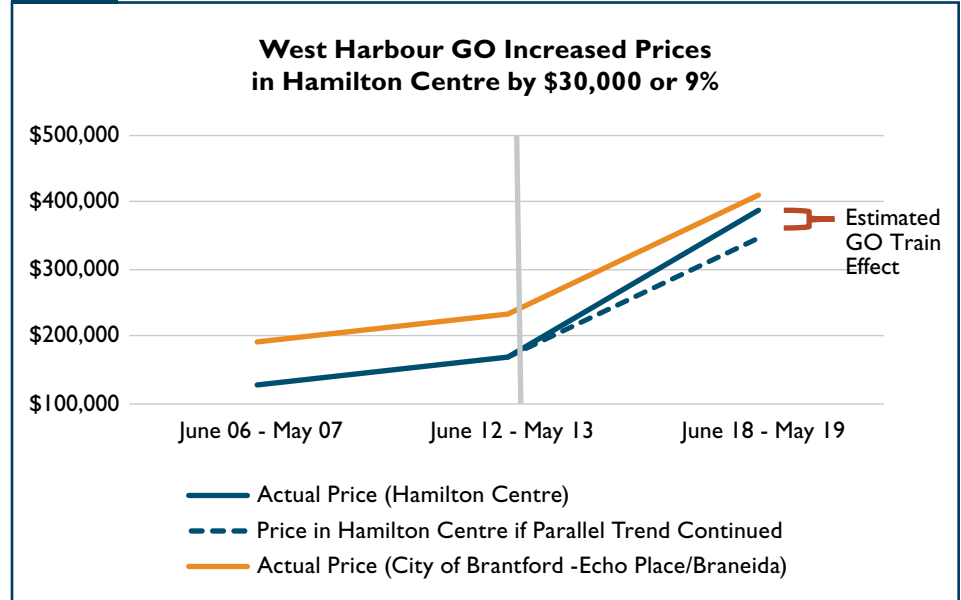
West Harbour GO Station

West Harbour GO station, located in Hamilton Centre, was officially announced in May 2013.⁷ Therefore, the 12-month period of June 2012-May 2013 leading into the announcement was the baseline year for our analysis. We compared house prices in the baseline year to prices in both the most recent year June 2018-May 2019 and June 2006-May 2007, making the pre-and-post announcement periods equal amounts of time.

In the pre-announcement period, prices in Hamilton Centre and two areas of the City of Brantford (Brierpark/Greenbrier, and Echo Place/Braneida) increased by an average of \$40,000, when the composition of homes in each area are kept constant. As a result, the difference between their prices and Hamilton Centre prices were stable over that time. Since they had parallel price trends to Hamilton Centre in the pre-announcement period, they qualified to be the control groups. Figure 2 illustrates the price patterns of Hamilton Centre and City of Brantford – Echo Place/Braneida.

In the post-announcement period, prices in Hamilton Centre increased by approximately \$215,000, while prices in the two control groups increased by an average of \$185,000. The alternative price increase scenario for Hamilton Centre is also \$185,000, based on the assumption that its house prices would have continued to run parallel to prices in the two control groups if GO train expansion did not occur there. Therefore, the West Harbour GO station is estimated to add up to \$30,000 to house prices in Hamilton Centre. That additional \$30,000 meant the actual price in Hamilton Centre was 9% higher than its alternative price scenario.

Figure 2



Source: CMHC, adapted from Ontario Regional MLS® database

Given that the West Harbour GO station was completed in July 2015,⁸ we also looked at the price increase it may have generated from the baseline year to the completion year (June 2015- May 2016). Interestingly, the price increase attributed to the West Harbour station up to the completion year was just slightly smaller than it was up to the most recent year. This suggests that most of the GO train price effect from the West Harbour station occurred from project announcement to completion.

Confederation GO Station

Confederation GO station, which will be located in Stoney Creek, was officially announced in May 2015.⁹ Therefore, the 12-month period of June 2014-May 2015 leading into the announcement was the baseline year. House prices in the baseline year were compared to prices in both the most recent year June 2018-May 2019 and June 2010-May 2011, making the pre-and-post announcement periods equal amounts of time.

In the pre-announcement period, house prices in Stoney Creek and three areas of the City of Brantford (Brierpark/Greenbrier, Henderson/Holmedale and West Brant) increased by an average of \$65,000, when the composition of homes in each area are kept constant. As a result, the difference between their prices and Stoney Creek prices were stable over that time. Since they had parallel price trends to Stoney Creek in the pre-announcement period, they qualified to be the control groups. Figure 3 illustrates the price patterns of Stoney Creek and City of Brantford - Henderson/Holmedale.

In the post-announcement period, the average price increase in Stoney Creek was approximately \$195,000. Over the same time, the average price increase in the three control groups was \$155,000, which is also the alternative price increase scenario for Stoney Creek if the parallel trend continued. As a result, the Confederation GO station has added up to \$40,000 to house prices in Stoney Creek so far.

The additional \$40,000 caused the actual price in Stoney Creek to be 8% higher than its alternative price scenario. Confederation GO station will likely increase prices in Stoney Creek slightly more, as Metrolinx estimates that the project will likely be completed in late 2019 or early 2020.¹⁰

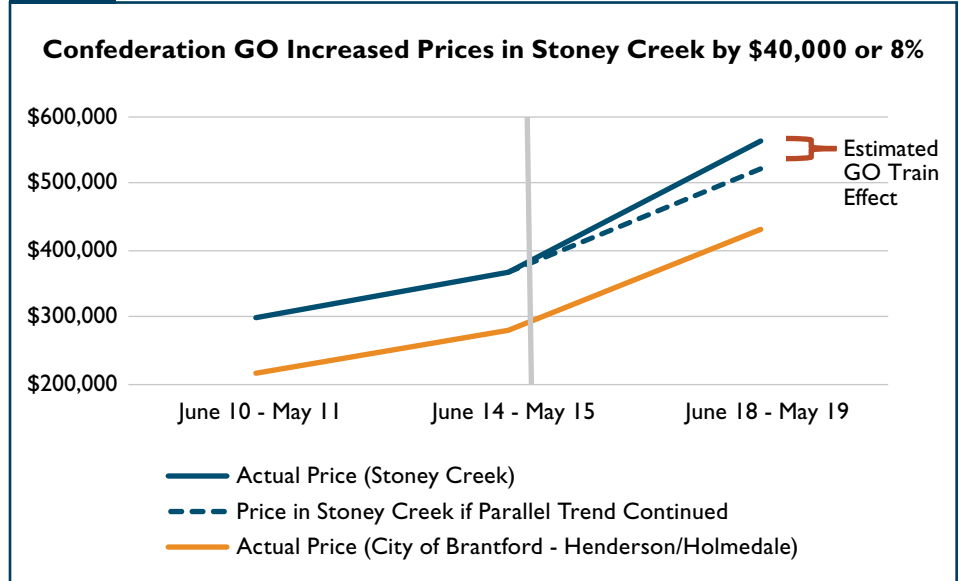
Confederation GO Station is also in very close proximity to some homes in East Hamilton. In the pre-announcement period, East Hamilton and one area of the City of Brantford (Echo Place/Braneida) had parallel price trends. The average price increase in East Hamilton in the post-announcement period was \$155,000, compared to \$140,000 in Echo Place/Braneida. As a result, the Confederation GO station added up to \$15,000 to house prices in East Hamilton. The actual price in East Hamilton was 4% higher than its alternative price scenario.

St. Catharines, Niagara Falls and Grimsby GO Stations

The Niagara Region GO stations, which will be located in St. Catharines, Niagara Falls and Grimsby, were officially announced in June 2016.¹¹ As a result, the 12-month period of July 2015-June 2016 was the baseline year. House prices in the baseline year were compared to prices in the most recent year July 2018-June 2019 and July 2012-June 2013, making the pre-and-post announcement periods equal amounts of time.

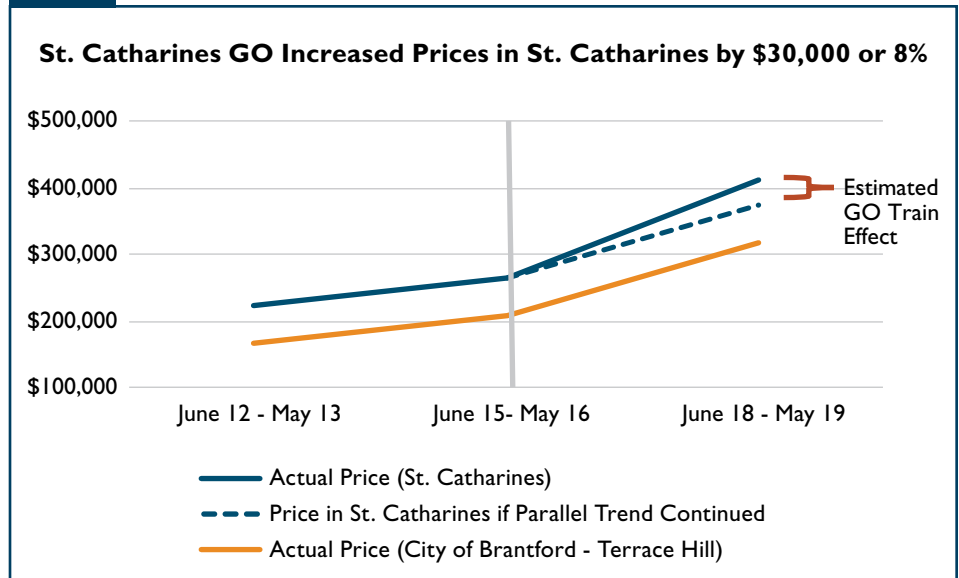
In the pre-announcement period, St. Catharines, Niagara Falls and three areas in the City of Brantford (Eagle Place, Echo Place/Braneida and Terrace Hill) had parallel price trends, each growing by approximately \$45,000. Figure 4 illustrates the price pattern of St. Catharines and Terrace Hill, while Figure 5 shows the price pattern of Niagara Falls and Eagle Place.

Figure 3



Source: CMHC, adapted from Ontario Regional MLS® database

Figure 4



Source: CMHC, adapted from Ontario Regional MLS® database

In the post-announcement period, prices in St. Catharines and Niagara Falls both increased by approximately \$145,000, while prices in the three control groups increased by an average of \$115,000. Therefore, the GO stations in St. Catharines and Niagara Falls are estimated to have increased house prices in their

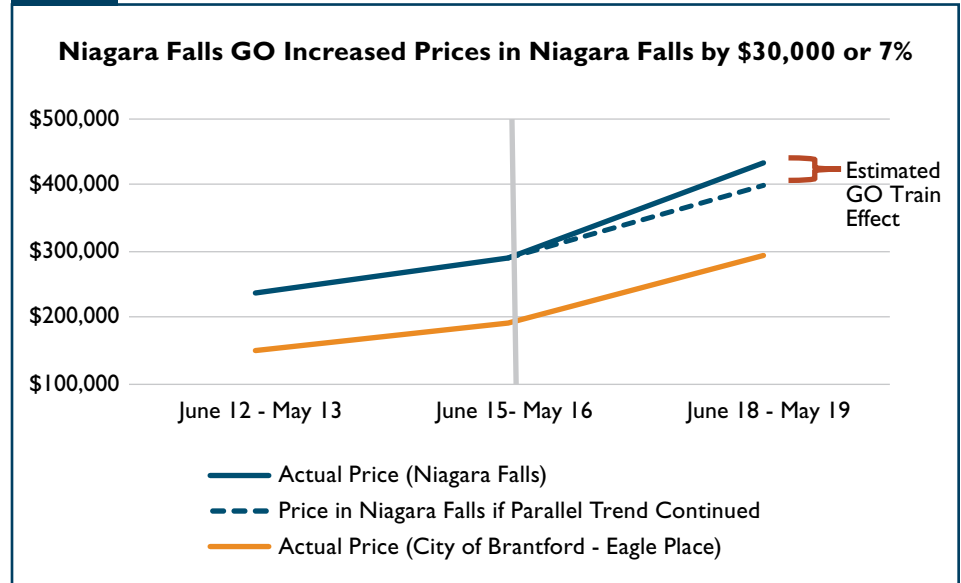
respective areas by up to \$30,000 so far. Actual prices in St. Catharines and Niagara Falls were 8% and 7% higher than their alternative price scenarios. Both GO stations are expected to increase prices in their areas even more, as Metrolinx estimates they will likely be completed in 2023-2024.¹²

Grimsby and two areas in the City of Brantford (Henderson/Holmedale and West Brant) had parallel price trends in the pre-announcement period. The average price increase in Grimsby in the post-announcement period was \$150,000, compared to an average increase of \$130,000 in the two control groups. As a result, the Grimsby GO station has increased house prices there by \$20,000. The actual price in Grimsby was nearly 4% higher than its alternative price scenario. The Grimsby GO station is also expected to continue to increase prices there, as Metrolinx estimates that the project will likely be completed in 2021-2022.¹³

GO Train Expansion into Hamilton-Niagara Had Many Positive Effects

Our estimates of the GO Train price effect in areas of Hamilton-Niagara illustrate how the stations were just one of a multitude of factors that contributed to the significant price

Figure 5



Source: CMHC, adapted from Ontario Regional MLS® database

increases which occurred there since the announcements. The decision to expand GO Train service into Hamilton and Niagara provided an extra incentive for people to move to these areas. The GO train stations had a positive impact on house prices in the areas they were planned before

being completed, and in many cases, before construction even started. Not only were property values positively impacted, but these projects were also catalysts for other amenity improvements, resulting in positive spin-off effects for the local economy.

Appendix

Methodology

Difference-in-Differences Estimator

- Collected transaction level data for the GO station areas (Hamilton Centre, Hamilton East, Stoney Creek, Grimsby, St. Catharines and Niagara Falls), and the potential control groups in the City of Brantford, Brant County and Haldimand County.
- Transactions were collected for three 12-month periods.
 1. The 12-month period ending in the month of the GO train expansion announcement (baseline year).
 2. The most recent 12-month period with the same first and last months as the baseline year.
 3. The 12-month period prior to the baseline year that makes the pre-and-post announcement durations equal.
- Variables collected for every transaction were sale price, number of bedrooms, number of bathrooms, housing type, housing tenure (freehold or condominium) and property age categories.
- Each Ordinary Least Squares (OLS) regression used data from one GO station area and one potential control group pooled together, for all three 12-month periods.
- For the OLS equations, the sale price was the dependent variable. The explanatory variables were as follows:
 1. Number of bedrooms.
 2. Number of bathrooms.
 3. Dummy variables (0 = no, 1 = yes) for property age categories (0 to 5 years, 6 to 15 years, 16 to 30 years, 31 to 50 years, 50 years and older).
 4. Dummy variable for housing type (single-detached vs. multi-unit).
 5. Dummy variable for housing tenure (freehold vs condominium).
 6. Dummy variable for GO station area - The coefficient represents the average price difference between the **GO station area** and **control group** in the baseline period (year of announcement), **controlling for the housing variables (number of bedrooms, bathrooms, age categories, freehold vs. condominium, single-detached vs. multi-unit)**.
 7. Dummy variable for first 12-month period (pre-announcement) - the coefficient represents the average price change in the **control group** from the first 12-month period to the baseline year, **controlling for the housing variables**.
 8. Dummy variable for most recent 12-month period (post-announcement) - the coefficient represents the average price change in the **control group** from the baseline year to the most recent 12-month period, **controlling for the housing variables**.
 9. Dummy variable for the combination of first 12-month period and GO station area (pre-announcement) - The coefficient represents the average price change in the **GO station area** in the pre-announcement period minus the average price change in the **control group** in the pre-announcement period, **controlling for the housing variables**. If not statistically significant, the GO station area and potential control group had a parallel price trend in the pre-announcement period.
 10. Dummy variable for the combination of most recent 12-month period and GO station area (post-announcement) - The coefficient represents the average price change in the **GO station area** in the post-announcement period minus the average price change in the **control group** in the post-announcement period, **controlling for the housing variables**. This is the estimated GO train price effect.

ENDNOTES

- ¹ The complete GO system map can be found at <https://www.go-transit.com/en/trip-planning/system-and-route-map>.
- ² See Appendix for methodology. An extensive explanation of DID by the World Bank can be found at http://siteresources.worldbank.org/EXTTHDOFFICE/Resources/5485726-1295455628620/Impact_Evaluation_in_Practice.pdf.
- ³ As defined by the Realtors® Association of Hamilton-Burlington (includes Grimsby) and the Niagara Association of Realtors® (St. Catharines and Niagara Falls). See Appendix for map of GO station areas. Interactive maps with these areas of Hamilton and Niagara can be found at <https://www.rahb.ca/map/> and <https://www.niagararealtor.ca/> respectively.
- ⁴ As defined by the Realtors® Association of Hamilton-Burlington (Haldimand) and the Brantford Regional Real Estate Association (City of Brantford and Brant County). An interactive map with the City of Brantford areas can be found at <http://brrea.com/index.php?id=mapszones>.
- ⁵ Statistics Canada Economic Region 3550 - Hamilton-Niagara Peninsula. The City of Burlington is also within the Hamilton-Niagara Peninsula, but already has 3 GO train stations within its boundaries. The closest GO stations to the City of Brantford, Brant County and Haldimand-Norfolk were all approximately 40km away. Data from the 2016 Census show that very small percentage of people from Brantford that commute to work take a light-rail, streetcar or commuter train (Statistics Canada, 2016 Census of Population, Catalogue no. 98-400-X2016326).
- ⁶ The City of Brantford as a whole was not chosen because the parallel price trend condition was not met.
- ⁷ <https://www.cbc.ca/news/canada/hamilton/an-official-go-for-go-station-on-james-north-1.1355732>
- ⁸ <https://www.cbc.ca/news/canada/hamilton/news/first-commuters-ride-go-from-hamilton-s-new-west-harbour-station-1.3144602>
- ⁹ <https://news.ontario.ca/opo/en/2015/05/ontario-investing-up-to-1-billion-for-light-rail-transit-in-hamilton.html>
- ¹⁰ <http://www.metrolinx.com/en/greaterregion/projects/confederation-go.aspx>
- ¹¹ <https://news.ontario.ca/mto/en/2016/06/new-weekday-go-rail-service-planned-between-hamilton-and-the-niagara-region.html>
- ¹² http://www.metrolinx.com/en/aboutus/mediarelations/news/20180816_metrolinx_niagara_go_service.aspx
- ¹³ Ibid.

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