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The Way to GO

Advancing transit-supportive development in the Greater Toronto and Hamilton Area

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About the Pembina Institute

The Pembina Institute is a national non-partisan think tank that advocates for strong, effective policies to support Canada's clean energy transition. We employ multi-faceted and highly collaborative approaches to change. Producing credible, evidence-based research and analysis, we consult directly with organizations to design and implement clean energy solutions, and convene diverse sets of stakeholders to identify and move toward common solutions.

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Executive summary

- Transit-supportive development is a critical component to leverage public investments in the GO transit network in the Greater Toronto Hamilton Area (GTHA).
- Transit-supportive development can improve the overall livability for Ontarians but only if there are viable public transit options for commuters to make the switch from driving personal vehicles.
- Residents living in transit-supportive communities (defined as 10 minute walking distance from transit stations) can potentially have lower housing and transportation costs.
- Redeveloping areas within walking distance of GO stations can help cities increase housing supply and choice.
- Well-designed policy interventions are needed to ensure cities provide a range of land uses and housing types that will address needs and create vibrant and economically prosperous cities.

1.   Introduction

1.1 Building liveable cities with transit-supportive development

The population in the GTHA is expected to attract approximately 110,000 new residents every year, and grow to more than 10 million people by 2041.[1] While the City of Toronto is expected to grow by 20%, the surrounding regions will also experience rapid growth. Durham region is expected to have the highest population growth rates by 2041, at 79%, followed by Halton region (77%), York region (56%), Hamilton (41%) and Peel region (38%).[2] This mounting pressure presents economic growth opportunities but also challenges municipalities to keep up with demands to keep people moving across the region and offer affordable housing options.

> **Fast Fact:** It is projected that 25% of new population growth will be in areas where the current share of transit use is below 5%.[3]

The cost of housing in the GTHA has risen over the past decade. Metrolinx notes, "As many families and larger households feel priced out of the housing market in core areas, some are choosing to locate further away where housing is more affordable. This poses a growing transportation challenge because lower-density suburban areas typically have poorer access to transit."[4]

> **Fast Fact:** When picking a home, 56% of GTA residents value a neighbourhood that has access to convenient and frequent rapid transit (e.g., GO train, LRT, subway).[5]

Cities must create compact communities that include appropriate densities and a balanced mix of housing, jobs, shopping and services — all within walking distance to

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[1] Metrolinx, *2041 Regional Transportation Plan for the Greater Toronto and Hamilton Area* (2018), 4. http://www.metrolinx.com/en/regionalplanning/rtp/Metrolinx%20-%202041%20Regional%20Transportation%20Plan%20%E2%80%93%20Final.pdf

[2] Ibid., 33.

[3] Ibid., 33.

[4] Ibid., 36.

[5] Ipsos poll, *Priorities in a new neighbourhood* (2018), commissioned by the Toronto Real Estate Board.

major transit stations such as GO stations. This planning approach is referred to as "transit-supportive development" (TSD) or "transit-oriented development". There is a significant opportunity to leverage the existing and future planned investments in the GO regional transit network to increase housing and employment. That is why it is important for municipalities to work with Metrolinx and the provincial government to meet the Growth Plan for the Greater Golden Horseshoe (GGH) policies for minimum density targets of 150 residents and jobs combined per hectare within a 10-minute walk (800 metres) around GO transit stations.

1.2 Strategic opportunities around the GO network

The potential for transit-supportive development is not uniform across the region's GO rail network, and municipal planners and policymakers will need to identify stations with the biggest potential for redevelopment.

GO station case examples

Based on an analysis of market conditions, area conditions, and transit service and functionality in Durham region and the City of Toronto, two stations that illustrate significant opportunities for greater residential and commercial development in the near term are Pickering GO station and Long Branch GO station. Communities around these stations are good candidates for transit-supportive development because they share a mix of stable to strong property values, walkable districts, supporting infrastructure and amenities, and employment districts.

2. Study purpose and methodology

2.1 Study purpose

The purpose of this study is to examine the benefits and impacts of transit-supportive development and the housing market. Specifically, the scope of work includes the following:

1. Identify the benefits of transit-supportive development in terms of household savings on housing and transportation costs and potential increases to housing supply.

2. Select two GO stations located in the GTHA (one in the City of Toronto and one in Durham Region) as illustrative examples of stations that may benefit and be redeveloped over time with greater transit-supportive development.

3. Recommend policy interventions and actions to advance transit-supportive development.

2.2 Study methodology

Quantifying transit-supportive development benefits

To quantify the benefits of TSD, we calculated the potential impacts that transit-supportive development may have on housing affordability. Research shows that both housing and transportation costs should be considered when determining housing affordability given that these choices are closely related and typically represents the two largest household expenditures.[6] For the purpose of this study, we determined the cumulative costs of housing and transportation, and applied the aggregated housing and transportation costs to different homeowner profiles and home location options. See Appendix A for a more detailed approach to calculating total housing and transportation costs.

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[6] Metro Vancouver, *The Metro Vancouver Housing and Transportation Cost Burden Study: A new way of looking at affordability* (2017). http://www.metrovancouver.org/services/regional-planning/PlanningPublications/HousingAndTransportCostBurdenReport2015.pdf

Home option analysis: homeowner profiles

Three hypothetical homeowner profiles were developed to reflect different homeownership circumstance:

The **Young Professional** profile consists of a one-person household who is a first-time homebuyer. This profile is based on a pre-tax household income of $75,000 annually, (presuming that the income of first-time homebuyers are higher than median incomes in the same municipality), and therefore they have scoped their search to condo apartments. Under the "Status Quo" housing option, they would live within 5 km of a station, drive approximately 20,000 km per year, and not take transit to work. Under the "TSD" housing option, they would live within 800 m of a GO station and not own a personal vehicle; we assume they would take both GO transit and local municipal transit (TTC) to travel to the City of Toronto for work.

The **Family** profile consists of a dual-income household with two adults and child(ren), looking for a new home. Both adults work in the City of Toronto's downtown and their combined household income is $120,000 annually before taxes. Under the "Status Quo" housing option, they live within 5 km of a station but commute to/from work separately with their own personal car (20,000 km per car per year). Under the "TSD" housing option, they live within 800 m of a GO transit station, and one individual commutes by transit (GO rail and TTC) while the second individual uses a personal car (e.g., to drop-off/pick-up their child(ren) from school/daycare; travel to/from work).

The **Retiree** profile is an individual who has fully paid their mortgage on their home, and their pension provides them a pre-tax income of $25,000 annually. Under the "Status Quo" housing option, they live in a detached home and drive approximately 10,000 km per year. Under the "TSD" housing option, this individual lives in a condo apartment within 800 m of a GO station, where they would rely primarily on public transportation for their needs. See Table 1 in **Appendix A** for more details on scenario homeowner profile types.

Identifying potential redevelopment land parcels

To estimate the impact of transit-supportive development by units built and population housed, a two-step procedure was employed to (a) identify land parcels that could potentially be redeveloped in the long term near Pickering and Long Branch GO stations and (b) determine development potential for these parcels.

3. Key findings

3.1 TSD can lower housing and transportation costs

Improvements to GO Regional Express Rail could make housing up to 18% more affordable in some areas of the region, such as Barrie, Guelph, Hamilton, and King.[7] Capturing this benefit, however, depends on municipalities being able to incentivize commuters to take the GO train to/from work, instead of taking a single-occupant car. When areas within a 10-minute walk around GO stations fully realize their development potential — as envisioned in the Growth Plan — Ontarians could shift their modes and potentially lower their overall housing and transportation costs.

To demonstrate the benefits of transit-supportive development to households, we examined the differences in household housing and transportation costs under various conditions. The cumulative housing and transportation costs consists of the costs of housing (e.g., mortgage costs, property taxes, and energy and water costs across home types and municipalities) and transportation (e.g., car ownership costs, transit costs). Household housing and transportation costs, as a percentage of household pre-tax income, were assessed for three different homeowner profiles: young professionals (first-time homebuyers), families, and retirees (mortgage-free). The household housing and transportation cost burden for each homeowner was assessed for two housing options: "Status Quo" option representing areas around GO stations with limited TSD, and "TSD" option representing walkable, transit-supportive communities around GO stations.

> **Fast Fact:** Families and retirees in particular could see a substantial reduction in housing and transportation costs by living in more compact and transit-supportive areas.

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[7] Toronto Real Estate Board, "Regional Express Rail's Impact on Housing Affordability in the Greater Golden Horseshoe: Executive Summary 2016," *Market Year in Review & Outlook Report 2017: Connecting to Affordability* (2017), 52.
http://www.trebhome.com/market_news/release_market_updates/news2017/pdf/2017-MarketYearInReview.pdf

Analysis results show that there are potential reductions in household housing and transportation costs when individuals/families live within walking distance of transit, and as a result, take transit more often:

- **Young professionals (first-time homebuyers)** could potentially lower their housing and transportation cost burden by 10-11% by taking transit and reducing vehicle ownership, despite higher condo apartment ownership costs near transit.
- **Families (homeowners)** could potentially lower their housing and transportation cost burden by 40-45% by reducing vehicle ownership to one car, replacing that car with transit use, and choosing a different housing type (from a single-detached dwelling to a two-bedroom condo apartment).
- **Retirees (mortgage-free)** could potentially lower their housing and transportation cost by 50-56% by reducing vehicle ownership and taking transit, and choosing a different housing type (from a single-detached home to a one-bedroom condo apartment). The higher reduction in housing and transportation cost burden compared to other homeowner profiles can be explained by the lower incomes of retirees compared to working individuals and families. Thus, a reduction in housing and transportation costs by a few hundred dollars can significantly alter their cumulative cost burden as a percentage of income.

Homeowners' housing and transportation costs were calculated according to homeowner characteristics and market conditions near the selected GO stations. The budgetary impact of transit-supportive development for homeowners is the difference, in absolute terms and in percentage change, between "Status Quo" and "TSD" housing options per homeowner type and selected GO Station. The projected difference in total housing and transportation costs for each homeowner profile and scenario is illustrated in Figure 1 for the area near the Pickering GO station and in Figure 2 for the area near the Long Branch GO station.
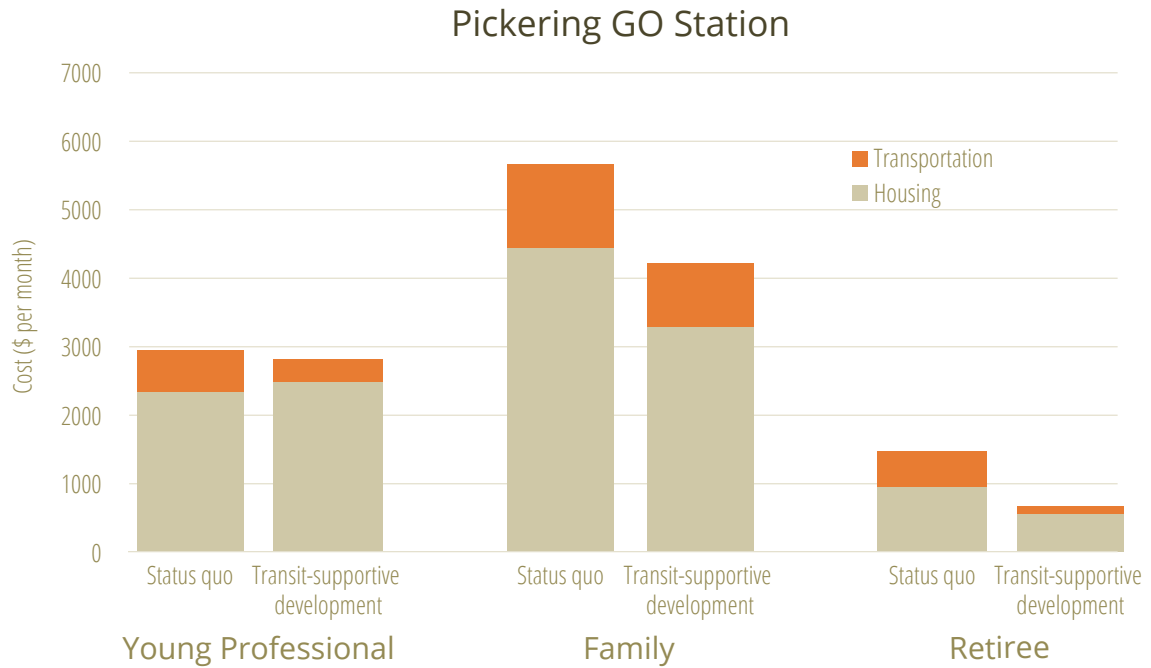
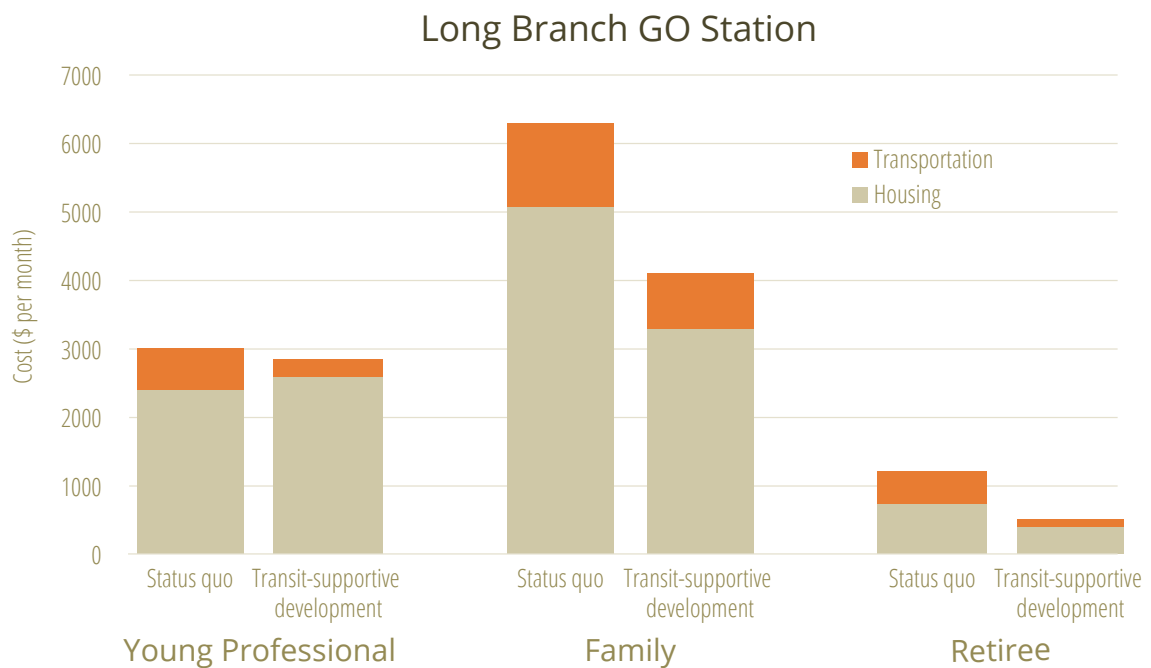Figure 1. Housing option analysis for Pickering GO station

Figure 2. Housing option analysis for Long Branch GO station

3.2 TSD can increase the housing supply

Transit-supportive development done right around existing and future planned GO stations can unlock development potential for new housing, allowing these areas to accommodate future growth. For example, vacant and/or underutilized parcels of land around GO stations can be brought into productive reuse for redevelopment.

Analyses of intensification potential around GO stations across the region can reveal the scale of new housing and jobs that could be potentially accommodated. To provide illustrative examples of the redevelopment and infill potential, Pickering and Long Branch GO stations were examined. Based on a high-level analysis, redeveloping publicly owned land (e.g. parking facilities) within an 800 m radius of Pickering and Long Branch GO stations would allow such areas to absorb a portion of their projected regional growth and provide new housing close to commuter rail service.

> **Fast Fact:** Redeveloping GO parking lots within 800 metres around Pickering and Long Branch GO stations could offer around 1,250 and 250 new homes (or 3,100 and 600 residents), respectively, in the long term.

Redeveloping other privately owned lands within 800 m around the two GO stations could offer additional housing supply and accommodate additional residents in the long term.

4. Recommendations to prioritize transit-supportive development

Many GO stations across the GTHA have investment and redevelopment potential. A prioritization framework is needed to align transit and real estate investment decisions around GO stations to advance transit-supportive development in the near and long term. Government actors need to plan and partner with stakeholders to promote mixed uses and appropriate densities around GO stations.

Policy actions are needed in four strategic areas to advance transit-supportive development:

- o Land access and acquisition (e.g., recruit interested developers for redevelopment activity; partner with private developers to introduce public and institutional anchors to generate economic activity)
- o Policy incentives and regulations (e.g., update municipal zoning by-laws and policies to attract greater real estate development)
- o Financial tools and programs (e.g., fund predevelopment/provide dedicated funding to underwrite the most difficult-to-fund phase of development such as land assembly and environmental remediation)
- o Planning and coordination (e.g., streamline development review and approval process)

Furthermore, public policy interventions are needed to ensure equitable transit-supportive development, which means ensuring there are housing options to meet the needs of low- and moderate-income households. Providing mixed-income housing around GO stations can give families with low and moderate household incomes an equal opportunity to live near work or commute by transit, thereby saving money on both housing and transportation.

Appendix A. Detailed methodology

A.1 Study methodology to quantify TSD benefits

Calculating housing costs

For the purpose of this study, the total cost of housing comprises mortgage costs, property taxes, and energy and water costs across home types and municipalities. Steps taken include:

1. Gather median home prices, per home type, for all homes sold in May 2018 within 800 metre (m) and 5 kilometre (km) radial buffers of the selected GO stations in the City of Toronto and Region of Durham.[8]
   o Condo apartment prices were assumed to weigh heavily toward one-bedroom apartments.
   o Multiplier for two-bedroom + den apartments was estimated to be 1.33 based on condo market conditions, in the second quarter of 2018,[9] and applied to apartments for the "Family" homeowner type, where applicable.
2. Estimate monthly mortgage payments per location-home-type crosstab, given 25% down payment and 5.59% 5-year closed rate with 25-year amortization period.[10]
3. Assess property taxes per property given 2018 rates in GO stations' municipalities.

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[8] Toronto Real Estate Board, "TREB MLS HPI and GO Station Buffer Roll-Ups for Pembina September 20 2018," spreadsheet, September 20, 2018.

[9] Toronto Real Estate Board, *Condo Market Report: Second Quarter 2018* (2018). http://www.trebhome.com/market_news/condo_report/2018/condo_report_Q2-2018.pdf

[10] TD Canada Trust, "Mortgage Payment Calculator," October 24, 2018. https://tools.td.com/mortgage-payment-calculator/

4. Calculate home energy, water, and wastewater costs per home type according to estimates from several sources.[11] [12] [13]

5. Sum monthly mortgage, property tax, and energy costs to determine overall housing costs per home type, municipality, and proximity to selected GO stations.

For the purpose of this report, condo fees and home maintenance fees are assumed to be generally proportional to home value and are therefore excluded from the analysis as they would not change the relative cost difference between housing options.

Calculating transport costs

The total cost of transportation in the context of Toronto and Durham is assumed to comprise the following, where applicable: car ownership costs, and commuter rail travel between home stations and Union Station (fares based on applicable age category). The following steps were taken to calculate total cost of transportation:

1. Calculate monthly car ownership costs using the CAA Driving Costs Calculator[14] based on the following conditions:
   o Car-owning households own 2018 Honda Civics.
   o Gasoline costs an average of $1.30 per litre throughout the year.
   o Employed adults drive twice as many kilometres annually as retired adults.
   o Maintenance and insurance costs based on CAA Driving Costs Calculator estimates.
   o The number of cars per household equals the number of adults per household, where applicable.

2. Calculate monthly public transportation costs in lieu of car ownership based on the following conditions:
   o Individuals access their respective GO stations by walking, cycling, or kiss-and-ride (i.e., no cost for the "first mile" of this trip).

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[11] Numbeo, "Cost of Living in Toronto," October 24, 2018. https://www.numbeo.com/cost-of-living/in/Toronto

[12] Durham Region, "Water Billing and Rates," October 24, 2018. https://www.durham.ca/en/living-here/water-billing-and-rates.aspx

[13] National Post, "Portrait of five Ontario hydro bills: How a rural couple pays $500 a month, and Toronto brothers pay $100," October 24, 2018. https://nationalpost.com/news/canada/portrait-of-five-ontario-hydro-bills-how-a-rural-couple-pays-500-a-month-and-toronto-brothers-pay-100

[14] Canadian Automobile Association, "CAA Driving Costs Calculator," October 24, 2018. https://www.caa.ca/carcosts/

- o Public transportation users pay fares using PRESTO cards.
- o Employed adults take more GO rail trips monthly (40) than retired adults (30).
- o Individuals transfer to TTC subways or buses upon reaching Union Station, taking advantage of the Discounted Double Fare[15] program available to PRESTO members.
- o Individuals do not have monthly transit passes for local transit services.

Home option analysis: homeowner profiles

Three hypothetical homeowner profiles were developed to reflect different homeownership circumstances. Table 1 below provides details on scenario homeowner profile types.

Table 1. Assumptions for homeowner profiles and housing options

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[15] PRESTO, "Save Even More with PRESTO," October 24, 2018.
https://www.prestocard.ca/en/about/discounted-double-fare

Homeowner Profile	Young Professional		Family		Retiree	
Scenario	Status Quo	TSD	Status Quo	TSD	Status Quo	TSD
Home Type	Condo Apt	Condo Apt	Detached	Condo Apt	Detached	Condo Apt
# of Bedrooms	1	1	2	2	2	1
Proximity to GO station	≤ 5 km	≤ 800 m	≤ 5 km	≤ 800 m	≤ 5 km	≤ 800 m
Mortgage Payment	Yes	Yes	Yes	Yes	No	No
# of Cars	1	0	2	1	1	0
Distance driven by household (km/year)	20,000	0	40,000	20,000	10,000	0
GO rail roundtrip to/from Union Station and origin GO station (monthly)	0	20	0	20	0	15
Household pre-tax income	$75,000		$120,000		$25,000	

Location analysis: GO station case examples

Among GO stations across the City of Toronto and Durham Region, Pickering GO station in the City of Pickering and Long Branch GO station in the City of Toronto were selected to provide illustrative examples of the redevelopment and infill potential of transit-supportive development, based on an assessment of three characteristics:

- o market conditions (stable to strong property values)
- o area conditions (walkable and bikeable conditions, supporting infrastructure and amenities)
- o transit service (high order transit service; high potential to increase ridership due to planned service/access improvements).

See Table 2 for details of GO station profiles.

Table 2. Community profiles of selected GO stations

	Pickering GO station 1322 Bayly Street, Pickering	Long Branch GO station 20 Brow Drive, Toronto
Market Conditions	Growth in median home price within 800 m of station (2013-2018): 54.2% Moderate development potential Relatively low municipal and regional development charges in GTHA: apartment: $23,610; detached: $36,165	Growth in median home price within 800 m of station (2013-2018): 80.6% Moderate development potential Municipal and regional development charges: apartment: $36,165; detached: $60,739
Area Conditions	Walk score: 71 (high) Transit score: 61 (high) Land use mix in proximity: low-density residential and commercial zoning	Walk score: 64 (high) Transit score: 83 (high) Land use mix in proximity: low- to mid-density residential and commercial zoning
Transit Service/ Function	Forecasted (2031) transit ridership: • Daily riders' home station: very high (>8,001) • Daily riders' destination station: average (251-1,000) GO Regional Express Rail planned on Lakeshore East line (15-min, two-way service, all day) Planned GO station access improvements in the medium and long term (bike parking, pick-up/drop-off facilities; bus facilities expansion) Parking supply (surplus): 3589 (1273) Walk/bike modal split to station: 25% Commute time to Union: 43 min	Forecasted (2031) transit ridership: • Daily riders' home station: low (1,001-2,000) • Daily riders' destination station: average (251-1,000) GO Regional Express Rail planned on Lakeshore West line (15-min, two-way service, all day) Parking supply (surplus): 49 (-309) Walk/bike modal split to station: 61% Commute time to Union: 29 min

A.2 Study methodology to identify potential increases to housing supply

Identifying potential redevelopment land parcels

An 800 m buffer (10 minute walking distance) was calculated around Pickering and Long Branch GO stations and overlaid onto aerial maps of the stations using Google Earth, to identify underutilized lots within the area to support transit use. Within these 800 m buffers, polygons in two categories were drawn:

•   Parking facilities at GO Stations
•   Low-density mixed-use and/or employment parcels

This exercise derived an approximate area of 44,200 m^2 and 8,700 m^2 of parking lots located at Pickering and Long Branch GO stations, respectively, that could be potentially redeveloped over time. In addition, surrounding privately-owned low-density lands in close proximity of the GO station could also be redeveloped with higher densities, including residential uses, in the long term should there be an interest to do so.

Maps illustrating the areas around the two stations are shown in Figure 3 and Figure 4 below.

Figure 3. Aerial photo of Pickering GO station showing areas for possible redevelopment/intensification within a 10 minute walking distance

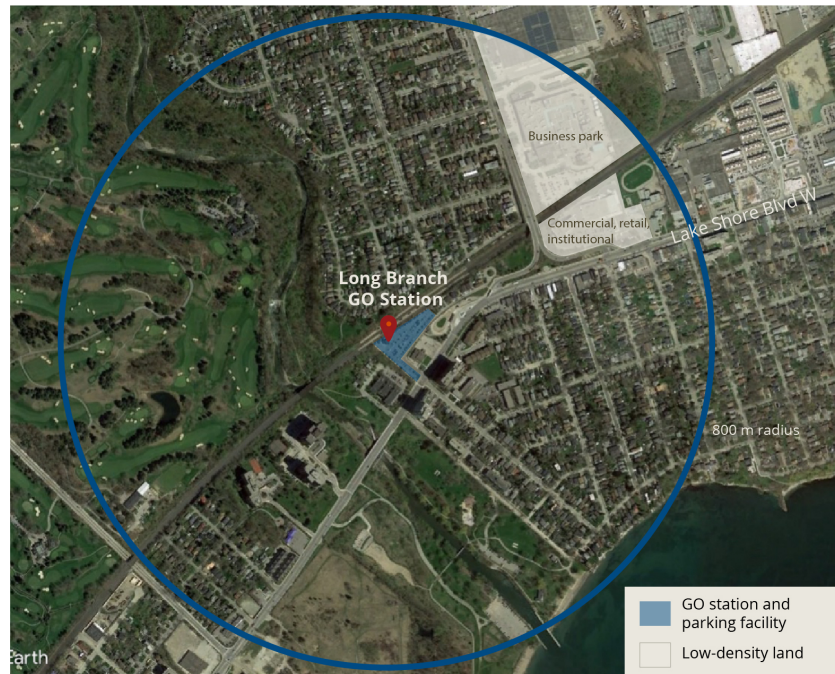Source: The Pembina Institute; custom map using Google Earth

Figure 4. Aerial photo of Long Branch GO station showing areas for possible redevelopment/intensification within a 10 minute walking distance

Source: The Pembina Institute; custom map using Google Earth

Determining potential redevelopment yields

The total number of units per polygon was derived using criteria based on specific assumptions/criteria developed for the GTHA context, prepared by the Ryerson University City Building Institute.[16] The assumptions that were applied in this analysis include the following:

1. Apply development potential coefficient (0.54) to all parcels to acknowledge space for right-of-way, green space, and other factors beyond the footprint of residential structures.

2. Determine floor space per developable land using floor space indices of 6.0 for GO station parking lots to acknowledge provincial policy direction for higher densities around GO stations, and 3.5 for nearby low-density commercial and residential parcels.

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[16] G. Haines, B. Aird, *Finding the Missing Middle in the GTHA: An Intensification Case Study of Mississauga*, prepared by the Ryerson University City Building Institute (2018), 16. https://www.citybuildinginstitute.ca/portfolio/missing-middle/

3. Derive number of units by dividing floor space per parcel by 113 m^2, an average unit size suggested in the aforementioned study as suitable for families. This unit size assumes living space around 95 m^2 per unit.

The total estimated number of units that could potentially be created within the two stations' developing zones was multiplied by an average household size of 2.5 to reflect family oriented housing, to determine the total number of residents expected by transit-supportive development.

Results: Potential redevelopment yields

Table 3 presents details of the analysis and results.

Table 3. Estimated redevelopment potential of selected GO stations

Existing use	Official Plan Land Use Designation[17][18]	Area (approx.) (hectares)	Floor Space Index* (FSI)	Development potential* (% of buildable land)	Estimated # of new homes	Number of residents (2.5pph*)
Pickering GO station						
GO parking facility (Metrolinx)	City Centre	4.42	6.0		1,267	3,168
Low-density commercial, retail, sports facilities	City Centre	19.4	3.5		3,244	8,111
Pickering Town Centre	City Centre	26.7	3.5	54%	4,465	11,164
Big box retail	Mixed Corridors and City Centre	17.5	3.5		2,926	7,317
				Total	**11,904**	**29,762**
Long Branch GO station						
GO parking facility (Metrolinx)	Apartment Neighbourhoods	0.87	6.0		249	623
Low-density commercial, retail, institutional	Mixed Use Areas	2.81	3.5	54%	469	1,174
Business park	Employment Areas	7.30	3.5		1,220	3,052
				Total	**1,940**	**4,851**

Note: Table illustrates parcels of land that could be potentially redeveloped with higher densities, including residential uses, in the long term should there be an interest to do so.

*denotes specific assumptions developed for the GTHA context, as outlined in a report by the Ryerson University City Building Institute[19]

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[17] City of Toronto, *Official Plan Map 15 Land Use Plan* (2015). https://www.bot.com/Portals/0/Board%20of%20Trade%20Metrolinx%20Submission_Superlinx%20Strategy_Nov2017.pdf

[18] City of Pickering, *Official Plan Schedule 1 Edition 8* (2018). https://www.pickering.ca/en/city-hall/resources/op8-schedules.pdf

[19] *Finding the Missing Middle in the GTHA*, 16.