

Highway 7/Concord GO Station Initial Business Case

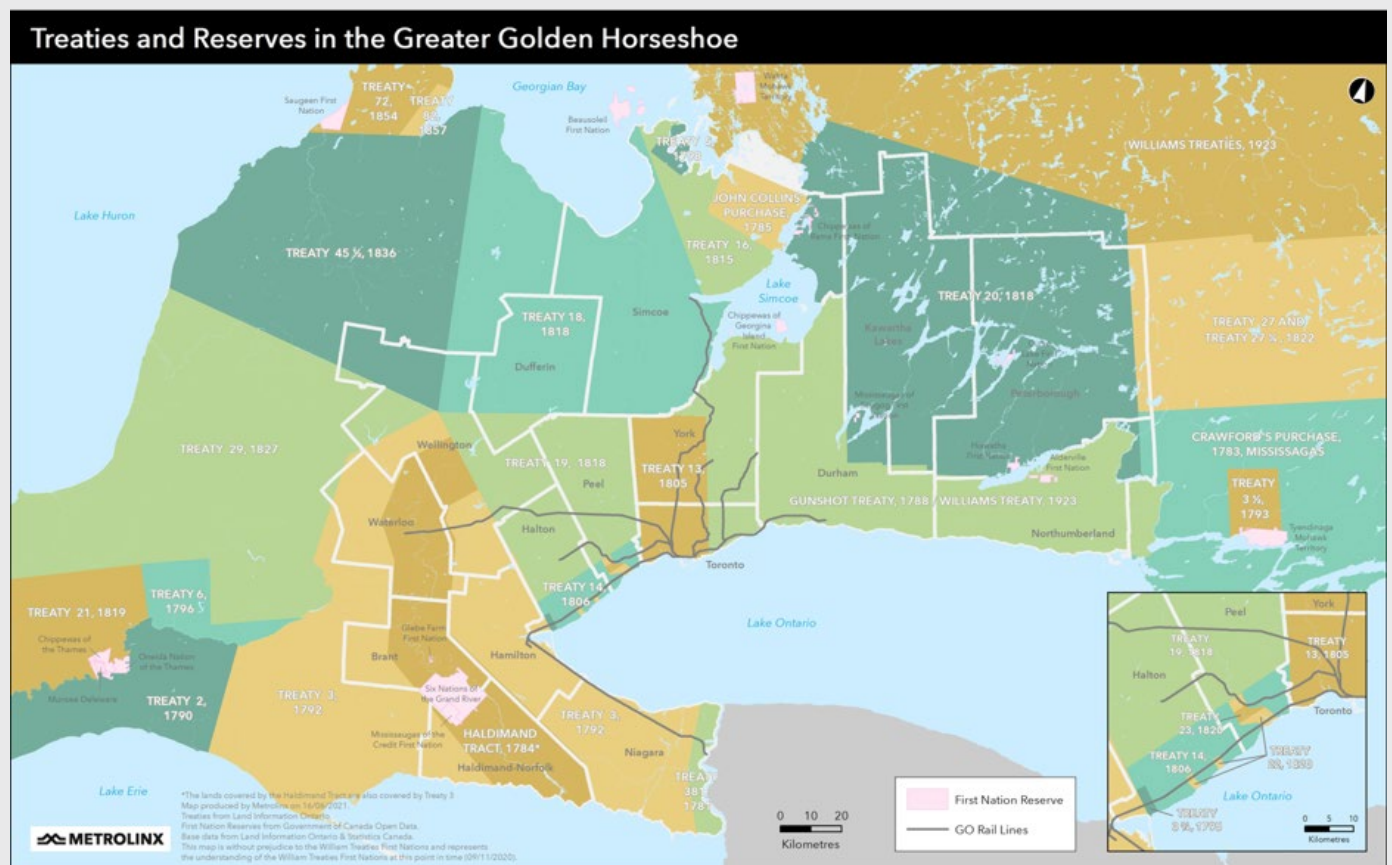
Final
March 2023

METROLINX

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Quality information

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Final

Contents

| | |
|------------------------------------|----|
| Introduction | 1 |
| The Case for Change | 5 |
| Investment Scenario | 16 |
| Strategic Case | 24 |
| Economic Case | 49 |
| Financial Case | 60 |
| Deliverability and Operations Case | 64 |
| Business Case Summary | 71 |

Executive Summary

Introduction

Metrolinx has developed an Initial Business Case (IBC) for a proposed new GO station in the City of Vaughan (the City) on the Barrie Corridor, notionally referred to as the 'Highway 7/Concord GO Rail Station' (the "proposed station"). An IBC for the proposed station was completed previously in 2016 and updated in 2018 for the station site assumed to be south of Highway 7. The results demonstrated a positive strategic case, but a negative financial and economic case. In 2021, an updated sensitivity test was conducted for Concord, incorporating enhanced GO Bus service and updated ridership forecasting and modelling, which identified potential positive benefits. The current IBC is being conducted as a result of updated land use plans, new plans for the GO Regional Express Network, updated modelling tools and rail network assumptions, as well as in response to enhanced Transit-Oriented Communities (TOC) opportunities.

This IBC evaluates a station site that is proposed to be located north of Highway 7 and east of the Barrie Corridor (Figure E.1). The study area is within a Major Transit Station Area (MTSA) as it contains the Barrie Corridor, the VIVA Bus Rapid Transit (BRT) line and the future 407 Transitway and would also be served by Metrolinx's Regional Express Bus service (Figure E.2). The Barrie Corridor is part of the GO Expansion program which would provide two-way all-day service with up to 15-minute headways, seven days a week.

Figure E.1 Approximate Location of the Proposed Station

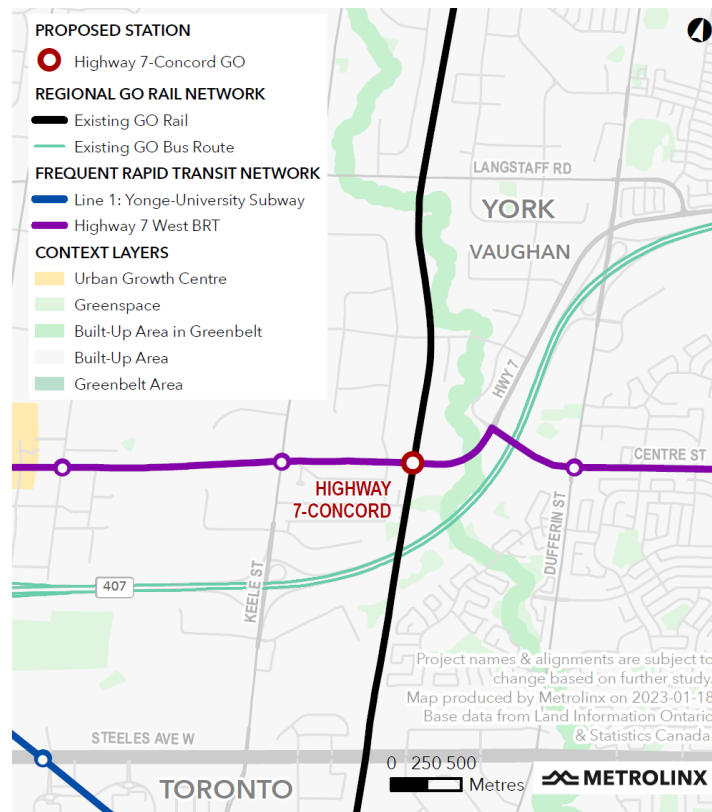
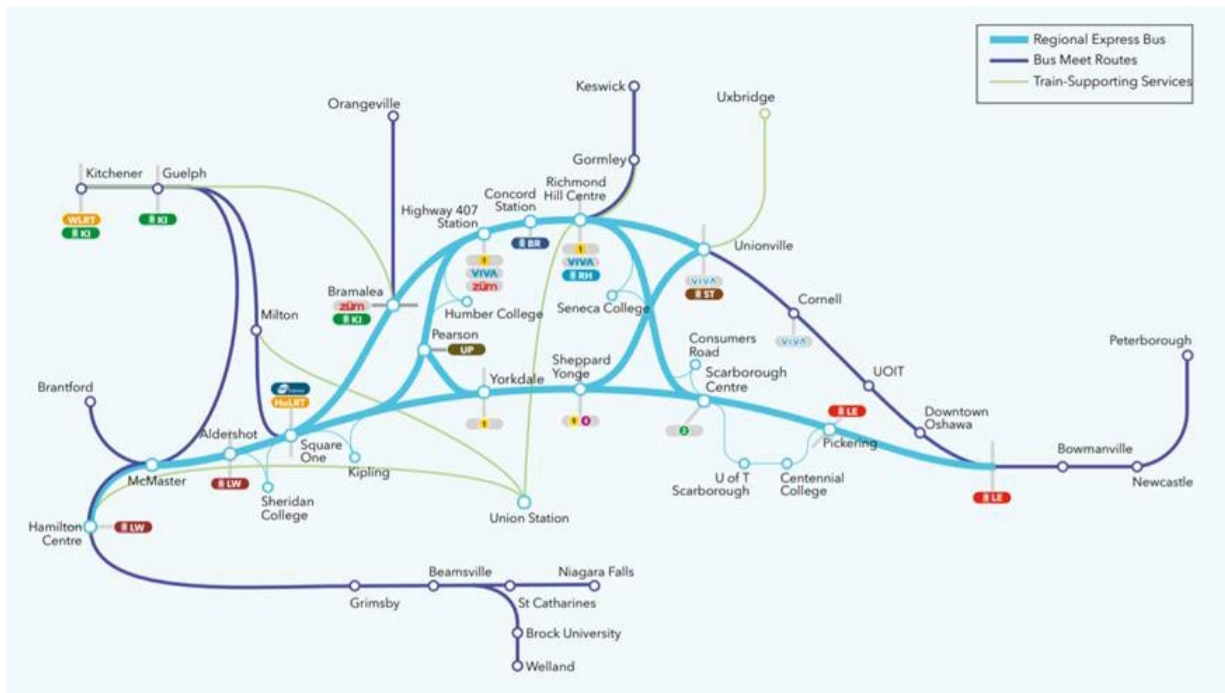


Figure E.2 Future GO Bus Network Concept Vision to Regional Express Bus*



*Note: The “Concord Station” indicated on the figure is proposed and would be implemented through TOC opportunities.

Options for Analysis

The IBC explores the feasibility of the proposed station under two alternative land use scenarios: Market Land Use and Secondary Plan Land Use. Both land use scenarios were also compared against their own Business As Usual (BAU) scenarios, in which the same population and employment forecasts would remain the same, but the proposed station would not be implemented.

1. **2041 Market Land Use Scenario:** This scenario was based on future land use projections by Metrolinx through their Greater Golden Horseshoe Model Version 4 (GGHMv4) regional travel demand model, which are based on approved plans filed with the Ministry of Municipal Affairs and Housing. This is a standard land use scenario tested in Metrolinx Business Cases.
2. **2041 Secondary Plan Land Use Scenario:** This scenario was developed based on the City's 2041 population and employment forecasts for the Concord GO Centre Secondary Plan area and surrounding MTSA area;
 - a. A sensitivity test was also conducted as part of this scenario where all conditions remained constant, except parking was not provided. The objective of this sensitivity test was to assess ridership at the proposed station with and without parking.

Method of Analysis

The Metrolinx Business Case Guidance served as the basis for the analysis, which is based on four cases:

- **The Strategic Case (Page 24):** Reviews strategic benefits and provides an overview of meeting regional and local policy objectives;
- **The Economic Case (Page 49):** Reviews the economic performance;
- **The Financial Case (Page 60):** Reviews the financial performance; and
- **The Deliverability and Operations Case (Page 64):** Reviews technical considerations, implementation requirements, and risks.

Business Case Results

2041 Market Land Use Scenario

The results of the Market Land Use Scenario show that the station would attract fewer riders as the population and employment forecast for this scenario is significantly lower than the City's Secondary Plan. In addition to lower ridership forecasts, the analysis also indicates lower travel time savings and automobile reduction than the Secondary Plan Land Use Scenario, when compared to the respective BAU scenarios.

Moreover, the Economic Case results in a Benefit-Cost Ratio (BCR) of 0.37 and a negative NPV of \$112 million, falling below the threshold for economic viability as per Metrolinx's Business Case Manual Volume 2: Guidance. However, the Financial Case results in \$174 million in revenue that could be realized by Metrolinx. Lastly, in terms of deliverability considerations for the proposed station, the Market Land Use Scenario and Secondary Plan Land Use Scenario would share most of the same considerations and risks if a station were to be built in the Concord area.

The results demonstrate the importance of realizing the expected development levels and density for the station to drive positive benefits. Thus, the importance of integrating the proposed station with TOC opportunities is emphasized in order to achieve the needed density targets.

2041 Secondary Plan Land Use Scenario

Under the 2041 Secondary Plan Land Use Scenario, the increase in density around the proposed station would attract new and existing GO train riders, allowing for those who originate from within the local community to make shorter trips to access the GO train and bus network instead of travelling to other stations such as Rutherford GO. This results in travel time savings, reduces vehicle kilometres travelled (VKT) and automobile-related emissions, as well as increases connectivity north-south on the Barrie Corridor and east-west along Highway 7 into other areas of York Region.

Once these societal benefits are quantified and monetized, they may be able to offset the capital and operating costs necessary to build and operate the proposed station over the valuation period. The Economic Case results in a Benefit-Cost Ratio (BCR) of 0.99 and a negative Net Present value (NPV) of approximately \$2 million in present value terms, meaning the proposed station is close to the thresholds of economic viability as per Metrolinx's Business Case Manual Volume 2: Guidance. As per the Financial Case, the additional farebox revenue

attributed to the proposed station (\$ 239 million) has the potential to outweigh the capital and operating costs that would be incurred by Metrolinx.

In terms of deliverability considerations for the proposed station, the greatest consideration would be the dependency associated with the planned development and infrastructure works under the Concord GO Centre Secondary Plan, the Barrie GO Expansion program and the potential environmental impacts that would need to be assessed prior to any development within and adjacent to West Don River and TRCA regulated areas. It should also be noted that the station site is on a 25-year flood zone; therefore, a comprehensive flood assessment would be required to determine mitigation opportunities to reduce flooding and impacts to rail operations.

Overall, the IBC results under the Secondary Plan Land Use Scenario indicate that Metrolinx would experience a marginal new revenue gain as a result of including the proposed station within the GO network. Furthermore, the proposed station also offers strategic benefits through its attraction of new riders, travel time savings and support for the vision of the Concord area.

Recommendations and Next Steps

In order to deliver the proposed station and realize the forecasted benefits, it is imperative to enable the realization of the Secondary Plan's density targets, including co-ordination with the appropriate stakeholders regarding planned developments and transit plans. Therefore, co-ordination is required to integrate the proposed station well with the other planned infrastructure projects and surrounding development to ensure a compact and complete community.

One of the major concerns for the study area is that it is within a flood plain, which could impact the site plan; therefore, a comprehensive flood plain evaluation would be required, including an environmental impact assessment and a detailed cost estimate outlining the mitigation measures required. Furthermore, since the proposed station site is near natural heritage features and TRCA regulated areas, the additional potential environmental impacts need to be assessed early on in order to avoid any delays later due to major environmental concerns.

The high-level analysis presented in this business case reflects the best assumptions and modeling capabilities available as of September 2022. Further preliminary design work and consultation is required to fully understand project benefits and feasibility. The assumptions in this business case are subject to change as the project and its associated planning context continue to evolve. The business case results are particularly sensitive to changes in assumptions about future land-use in the Concord area, the additional costs for flood mitigation measures, as well as the details of the future GO Rail Service pattern, such as through the OnCorr Development Phase. A benefits management process would be used to ensure that the benefits identified in this business case can be maintained should the underlying assumptions change.

The tables below summarize the key findings of each case.

Table E1. Strategic Case Summary

| Strategic Case | 2041 Secondary Plan Land Use Scenario | 2041 Market Land Use Scenario |
|-------------------------------------|--|---|
| Strong Connections | <ul style="list-style-type: none"> • 4,730 riders are anticipated to use the proposed station in the 2041 2-hour AM peak, where 3,440 would board and 1,290 would alight. • 275 and 790 net new* transit users would be added in the 2041 2-hour AM and 7-hour peak (6-9 AM & 3-7 PM), respectively. • No Parking Sensitivity: 3,740 riders are anticipated to use the proposed station in the 2041 2-hour AM peak, where 2,470 would board and 1,270 would alight. | <ul style="list-style-type: none"> • 3,780 riders are anticipated to use the proposed station in the 2041 2-hour AM peak, where 2,660 would board and 1,120 would alight. • 200 and 550 net new* transit users would be added in the 2041 2-hour AM and 7-hour peak (6-9 AM & 3-7 PM), respectively. |
| | <ul style="list-style-type: none"> • The proposed station would enhance transit connectivity between the Barrie Corridor and east-west local and express services, including the VIVA BRT and the 407 corridors. | |
| Complete Travel Experiences | <ul style="list-style-type: none"> • In 2041, the proposed station would produce transfer disbenefits of 4,020 perceived person minutes during the combined AM & PM peak periods (7 hours total). • During the 7-hour combined AM & PM peak in 2041, the proposed station would reduce the number of VKT's by 8,290 kilometres, as well as 430 tonnes of GHG emissions annually. • In 2041, 52,250 minutes of travel time savings would be realized for transit users during the 7-hour combined AM & PM peak. | <ul style="list-style-type: none"> • In 2041, the proposed station would produce transfer disbenefits of 2,730 perceived person minutes during the during the during the combined AM & PM peak periods (7 hours total). • During the 7-hour combined AM & PM peak in 2041, the proposed station would reduce the number of VKT's by 5,750 kilometres, as well as 300 tonnes of GHG emissions annually. • In 2041, 14,650 minutes of travel time savings would be realized for transit users during the 7-hour combined AM & PM peak. |
| | <ul style="list-style-type: none"> • Majority of the users would access and egress the proposed station by bus (26% and 85%, respectively) in the 2-hour AM peak. • No Parking Sensitivity: Majority of the users would access and egress the proposed station by bus (42% and 90%, respectively) in the 2-hour peak. | <ul style="list-style-type: none"> • Majority of the users would access and egress the proposed station by bus (28% and 90%, respectively) in the 2-hour AM peak. |
| Sustainable and Healthy Communities | <ul style="list-style-type: none"> • The study area is identified as a MTSA and is also part of a Regional Intensification Corridor, focusing on intensifying the lands to support adjacent higher-order transit. In addition, 9% of the lands within the Secondary Plan area are subject to the Municipal Zoning Order (MZO) and those surround the proposed station site. • The proposed station aligns with the York Region Official Plan, which states to offer a variety of housing, employment and mobility choices within communities. The study area also is subject to the City's Official Plan Amendment 660, which seeks to create a multi-purpose, vibrant community along Highway 7 that supports higher-order transit. | |

| Strategic Case | 2041 Secondary Plan Land Use Scenario | 2041 Market Land Use Scenario |
|----------------|--|-------------------------------|
|----------------|--|-------------------------------|

- The Secondary Plan (2022) supports the creation of a mobility hub through integrating the VIVA BRT and GO Rail line and through intensification.

**Net new user numbers are inclusive of those who choose to leave transit as a result of the additional travel time imposed by the proposed station on the Barrie Line*

Table E2. Income and Journey to Work Equity Summary

| Metric | Sub-Metric | Findings |
|-----------------|--|--|
| Income | Low-Income Measure (LIM) Prevalence (2021) | <ul style="list-style-type: none"> The proposed station dissemination area, nearby Vaughan Metropolitan Centre (VMC), and Thornhill community has some of the highest LIM Prevalence (14-23%) in the City. Thornhill and VMC would be directly connected to the proposed station via the VIVA BRT. The proposed station would potentially improve access to areas with some of the highest LIM Prevalence in the City of Vaughan. |
| | Low-Income Cut-Offs (LICO) Prevalence (2021) | <ul style="list-style-type: none"> Proposed station dissemination area, and nearby Thornhill community have some of the highest LICO prevalence (9-13%) in the City. The VMC has slightly lower LICO prevalence (6-8%). Thornhill and VMC would be directly connected to the proposed station via the VIVA BRT. It was observed that the proposed station would potentially improve access to areas with some of the highest LICO Prevalence in the City. |
| Journey to Work | Commuting Duration +45 Minutes Prevalence (2016) | <ul style="list-style-type: none"> The proposed station dissemination area has 4.6% Commuting Prevalence over 45 minutes. Dissemination areas with some of the highest Commuting Prevalence over 45 minutes (25-38%) are located in the adjacent Thornhill community. Other dissemination areas with high Commuting Prevalence are located to the north near the Rutherford GO and Maple GO stations. It was observed that the proposed station would potentially improve access to areas with some of the highest commuting prevalence over 45 minutes in the City. |

Table E3. Economic Case Summary

| Economic Case | 2041 Secondary Plan Land Use Scenario (Compared to Respective BAU) | 2041 Market Land Use Scenario (Compared to Respective BAU) |
|--|---|---|
| Total Costs (2022 \$ Millions, Present Value) | \$178 M | \$178 M |
| Capital Costs | \$140 M | \$140 M |
| Operating and Maintenance Costs | \$28 M | \$28 M |
| Land Value Opportunity Cost | \$10 M | \$10 M |
| Total Impacts (2022 \$ Millions, Present Value) | \$176 M | \$66 M |
| User Impacts | \$105 M | \$8 M |
| External Impacts | \$11 M | \$6 M |
| Fare Revenue Adjustment | \$63 M | \$54 M |
| Fuel Tax Adjustment | (\$3 M) | (\$2 M) |

| Economic Case | 2041 Secondary Plan Land Use Scenario (Compared to Respective BAU) | 2041 Market Land Use Scenario (Compared to Respective BAU) |
|---|---|---|
| Auto Maintenance Cost Tax Adjustment | (\$0 M) | (\$0 M) |
| Benefit-Cost Ratio (BCR) | 0.99 | 0.37 |
| Net Present Value (2022 \$ Millions, Present Value) | (\$2 M) | (\$112 M) |
| <ul style="list-style-type: none"> • Metrolinx's Business Case Manual Volume 2: Guidance indicates that investments with a BCR greater than or equal to 1 and an NPV greater than 0 are economically viable or beneficial, respectively. • Under such guidance, the 2041 Secondary Plan Land Use Scenario would produce results that just meet the threshold of economic viability. Such results demonstrate the importance of realizing high density targets around the proposed station and encouraging integration with TOC opportunities. | | |

Table E4. Financial Case Summary (Year of Expenditure (YOE) undiscounted)

| Financial Case | 2041 Secondary Plan Land Use Scenario | 2041 Market Land Use Scenario |
|---|--|--------------------------------------|
| Total Revenue Impacts | \$469 M | \$404 M |
| Total Capital Costs borne by Metrolinx (\$ Millions,) | \$49 M | \$49 M |
| Total Operating and Maintenance Costs | \$181 M | \$181 M |
| Land Acquisition Residual Value | (\$527 M) | (\$527 M) |
| Net Revenue (\$ Millions, YOE undiscounted) | \$239 M | \$174 M |
| Operating Cost Recovery Ratio (R/C Ratio) * | 2.54 | 2.19 |
| Total Cost Recovery Ratio* | 2.15 | 1.85 |

*Based on discounted values

Table E5. Delivery and Operations Case Summary

Project Delivery

Metrolinx would be required to coordinate with the City of Vaughan to build the proposed station to ensure it aligns with the municipal land use approvals, future developments, and the Secondary Plan. Additional key stakeholders include York Region, TRCA, landowners and developers, and MTO. Duty to Consult requirements for Indigenous Nations would need to be followed. Information and consultation opportunities would be required throughout all project stages.

Implementation of the proposed station would need to be coordinated with the planned development and infrastructure works around the assumed station site.

Impacts to the Barrie Corridor as a result of the construction of the two side platforms would need to be assessed with consideration for mitigation through night-time and weekend work.

There may be a need to provide enhanced protection for the Barrie Corridor due to the station site being in a flood plain which would need to be coordinated with the Barrie GO Expansion program. Additional mitigation measures to address flood protection and risk will be required, pending flood evaluation.

The proposed station site is located in a flood plain and close to natural heritage features such as the West Don River Valley and Bartley Smith Greenway.

The TRCA would need to be consulted and a permit would be required for the proposed station as the study area is within a TRCA regulated area.

Any additional potential environmental impacts would need to be confirmed and assessed through carrying out an Environmental Assessment under the Transit Project Assessment Process (TPAP).

The proposed station would be constructed on land designated for high-rise mixed-use development. The disturbance caused by the construction of the station may negatively impact residents and businesses due to noise, dust and traffic detours.

Until the proposed road network in the Secondary Plan is built out, all construction equipment and materials would need to be transported through Highway 7 which would cause disturbance to local traffic. Specific construction and mitigation strategies will be developed as the project advances

Operations and Maintenance Considerations

The proposed station would increase the incremental GO Train operational and maintenance costs along the corridor due to increased stop/start conditions, resulting in increased end-to-end runtimes on the Barrie Line.

Project Dependencies

The key driver for the proposed station is to serve as a catalyst for future development with the Secondary Plan area. The station also supports the GO Bus strategy by enabling east-

west connections to key destination within York Region, such as Richmond Hill Centre, Vaughan Metropolitan Centre and employment areas on Hwy 7.

1

Introduction



Background

Metrolinx has developed an Initial Business Case (IBC) for a proposed new GO station in the City of Vaughan (the City) on the Barrie Corridor near Highway 7, notionally referred to as the 'Highway 7/Concord GO Rail Station' (the proposed station). An IBC for the proposed station was completed previously in 2016 and updated in 2018 for the station site assumed to be south of Highway 7. The results demonstrated a positive Strategic Case but negative financial and economic performance. In 2021, however, an updated sensitivity test was conducted, incorporating enhanced GO Bus service and updated ridership forecasting and modelling which identified potential positive benefits. The current IBC is being conducted as a result of updated land use plans, new plans for the GO Regional Express Network, updated modelling tools and rail network assumptions, as well as in response to enhanced Transit-Oriented Communities (TOC) opportunities.

This IBC evaluates a station site that is proposed to be located north of Highway 7 and east of the Barrie Corridor. The study area for the proposed station is bounded by Rivermede Road to the north, the hydro corridor to the east and south, and the Barrie Corridor and Bowes Road to the West. The station would serve the Barrie Corridor with Rutherford GO approximately 3.75 km to the north, Downsview Park GO approximately 5.75 km to the south and the Vaughan Metropolitan Centre (VMC) located to the west of the site. The Barrie Corridor is part of the GO Expansion program which would provide two-way all-day service with up to 15-minute headways, seven days a week¹. The increased service levels as part of the GO Expansion program would help to connect the proposed station to the Greater Toronto and Hamilton Area (GTHA) and beyond. Figure 1 shows an approximate location of the proposed station. The study area is within a Major Transit Station Area (MTSA) as it contains the Barrie Corridor, the VIVA Bus Rapid Transit (BRT) line and the potential future 407 Transitway; with the area planned to be developed to achieve multi-modal access.

The proposed station would be located in the Concord GO Centre Secondary Plan (the Secondary Plan) area, which is planned for mixed-use, higher density development and inter-urban transit supportive land use. The Secondary Plan was first published in 2015 to guide development in the area through establishing land use planning and urban design policies. Due to a portion of the lands in the Secondary Plan area receiving a deferral in 2015 by York Region and the issuance of a Minister's Zoning Order (O.Reg 170-21) in 2021, the Secondary Plan has been updated and is awaiting Council approval. As a result, the land use designations and vision for the Secondary Plan had to be updated which acted as a driver to reassess the station and provide guidance for future intensification and redevelopment in the Secondary Plan area.

Concurrent with this IBC, the City is currently conducting various transportation studies for the Secondary Plan area including a Mobility Hub Study, Transportation Master Plan and the Schedule C Environmental Assessment Study for a proposed North-South Collector Road from Rivermede Road to Highway 7. The overall objective of these studies is to establish land uses, design guidelines and policy framework to support a potential GO station near Highway 7 and Bowes Road.

¹ Metrolinx (2022). Barrie Line GO Expansion. Online.
<https://www.metrolinx.com/en/greaterregion/projects/barrie-go-expansion.aspx>

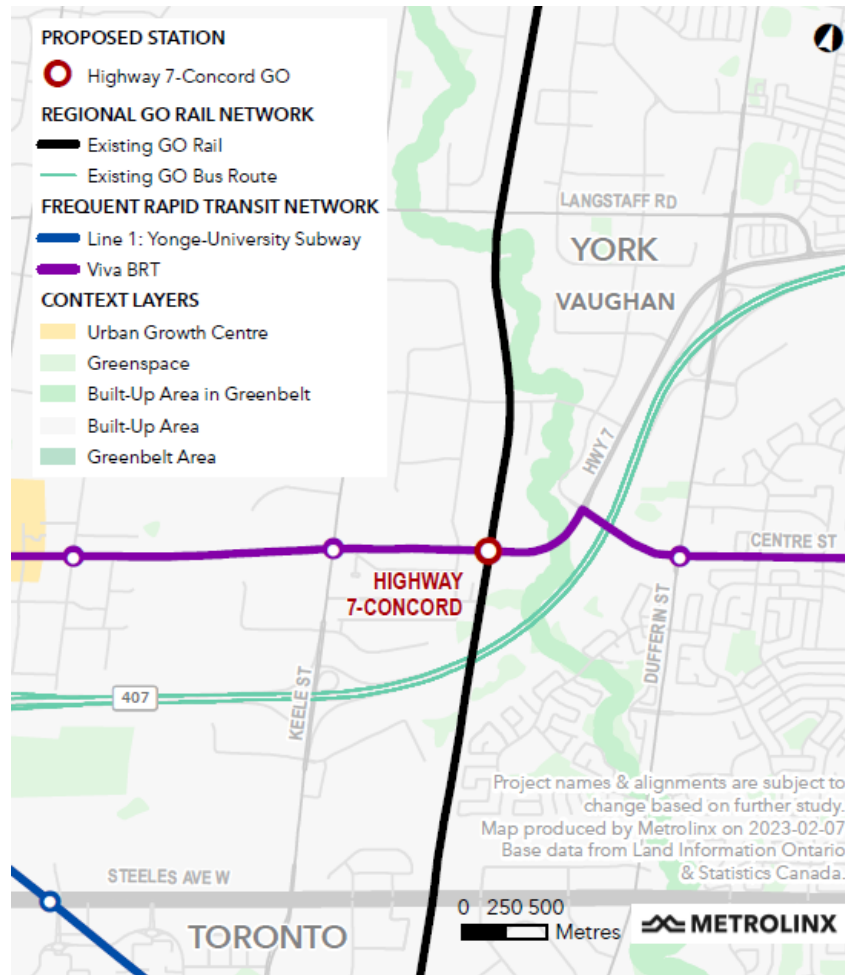


Figure 1 Approximate Location of the Proposed Station

Business Case Overview

The purpose of this IBC is to analyze if the proposed station would meet Metrolinx's broader policy, goals and strategic objectives, and provide greater financial and societal benefits using updated assumptions. In addition, the IBC highlights the infrastructure and policy measures that may support the delivery of the station while identifying potential barriers or risks that may impact its implementation.

Assumptions and Scenarios for Analysis

This IBC uses updated assumptions relative to past IBC iterations for the proposed station. For example, a new site for the station is being explored due to a TOC development opportunity. Other changes included as part of this updated IBC are listed below:

- Updated land use plans from York Region and the City, including the Secondary Plan update, Transportation Master Plan, Mobility Hub Study and the Environmental Assessment Study;
- New plans for the future GO Regional Express Network, including enhanced service along the east-west Highway 407 corridor as part of the GO Bus Strategy;
- Reduced parking requirements and facility footprint; and
- Updated modelling tools and rail network assumptions.

Two land use scenarios are adopted to assess the proposed station, each of which is compared against a Business as Usual (BAU) Scenario with the respective land use scenario. The land use scenarios incorporate 2041 population and employment forecasts to assess their ability to support the proposed station.

The analysis in this business case reflects the best assumptions and modeling capabilities available as of September 2022 and are appropriate to this high-level initial analysis. Further preliminary design work and consultation is required to fully understand project benefits and feasibility. The assumptions in this business case are subject to change as the project and its associated planning context continue to evolve. The business case results are particularly sensitive to changes in assumptions about future land use in the Concord area as well as the details of the future GO Rail Service pattern. This includes changes as a result of Metrolinx's OnCorr Development Phase, responsible for delivering the GO Rail Expansion Program. A benefits management process will be used to ensure that the benefits identified in this business case can be maintained should the underlying assumptions change.

Business Case Structure

This IBC is based on Metrolinx Business Case Guidance which evaluates four distinct cases:

- **The Strategic Case (Page 24):** Reviews strategic benefits and provides an overview of meeting regional and local policy objectives;
- **The Economic Case (Page 49):** Reviews the economic performance;
- **The Financial Case (Page 60):** Reviews the financial performance; and
- **The Deliverability and Operations Case (Page 64):** Reviews technical considerations, implementation requirements, and risks.

2



The Case for Change



Introduction

This section defines the opportunity statement for the Highway 7/Concord GO Rail Station and highlights the strategic outcomes and benefits that guide the evaluation of this IBC assessment. Furthermore, it shows how the proposed station aligns with provincial, regional, and local policies and plans.

Opportunity Statement

York Region is one of the largest regional municipalities and the third largest business centre in Ontario². It is ranked as the province's fastest growing municipality and is anticipated to experience significant population and employment growth over the next 25 years. Between 2021 and 2051, the population is forecast to increase substantially from approximately 1.2 million to 2 million residents (↑67% increase); and employment is forecast to increase from approximately 643,000 to 991,000 jobs (↑54% increase)³.

The City of Vaughan, being one of the major municipalities in the region, has placed significant emphasis on intensification within built-up areas in order to maximize the efficiency of existing infrastructure, transit, and human services. Between 2021 and 2051, the population is forecasted to increase significantly from approximately 341,600 to 570,400 residents (↑67% increase); and employment is forecasted to increase from approximately 240,100 to 351,500 jobs (↑46% increase)⁴.

Located within the City, the Concord area is supported by the Concord GO Centre Secondary Plan which envisions growth through a mix of land uses that would be developed around a multi-modal transportation network. The Secondary Plan area is estimated to accommodate up to 19,500 people to 2051 and beyond, and approximately 3,000 jobs at full build-out⁵. In addition, there are a number of Minister's Zoning Order (MZO) areas located near the Secondary Plan area which would support further growth and density.

The Secondary Plan area falls within a Major Transit Station Area (MTSA) and includes three major transit corridors: the Barrie Corridor, the VIVA BRT line, and the future 407 Transitway. In addition, existing 407 Regional Express GO Bus Services provide orbital service across the Greater Toronto and Hamilton Area (GTHA), from Hamilton to Oshawa, and has planned to offer increased service levels and frequency as part of the 10-year GO Bus Service Strategy. The east-west transportation connections would enhance connectivity to key locations across the GTHA, such as provincially significant employment zones located along Highway 407 lands and surrounding Toronto Pearson International Airport.

As a result of the substantial forecast growth for York Region, the City of Vaughan, and the Concord area, along with adjacent major transportation corridors, there is an opportunity to further invest in transit improvements to sustain and accommodate for the anticipated population and employment growth. The Concord area presents a unique opportunity to

² York Region (2022-2023). Regional Official Plan. Webpage. Retrieved from <https://www.york.ca/york-region/regional-official-plan>

³ York Region (2022). 2021 Growth and Development Review. 34 pages. Online. Retrieved from <https://www.york.ca/media/108081/download?attachment>

⁴ City of Vaughan (2022). Shaping the Future of Vaughan. Webpage. Retrieved from <https://www.vaughan.ca/news/Pages/Shaping-the-future-of-Vaughan-.aspx#:~:text=Vaughan's%20communities%20are%20constantly%20growing,expected%20population%20to%20570%2C400%20people.>

⁵ City of Vaughan (2022). Draft Concord GO Centre Secondary Plan. 53 pages. PDF.

consider investment into the existing north-south rail connection which would complement the existing and future east-west transit connections planned within the area. The proximity of the existing Barrie Corridor running through the Concord area provides an opportunity to implement direct transfers between rail and bus services through a GO Rail station, with synergies afforded through enhancements envisioned as part of the 10-year GO Bus Service Strategy. The direct connection between rail and bus services at the proposed station may also improve access to other large employment and growth centres including Vaughan Metropolitan Centre (VMC) and Richmond Hill Centre (RMC). TOC opportunities could also be leveraged with ongoing and planned developments directly adjacent to the site. This affords an opportunity to deliver the proposed station through integration with TOC which would ensure a more complete community while support connectivity using sustainable modes.

Opportunity Key Drivers

Table 1 outlines the main internal and external drivers for the proposed station and summarizes how these drivers may influence the case for the new station.

Table 1 Key Driver Analysis

| | Driver | How does this Driver influence the opportunity? | What is the impact of not addressing the opportunity? |
|----------|---|--|---|
| Internal | Travel Behaviour | The population and employment forecasts based on the 2041 Secondary Plan Land Use Scenario would influence the need for higher-order transit within the Concord area. | If GO rail service is not provided to the population living and working in the Concord area, it may result in increased automobile dependency within the area leading to increased congestion, longer commute times, and reduced air quality. |
| | Transport Service Provision | The proposed station provides the opportunity to create a mobility hub through the integration of VIVA BRT, the Barrie Corridor, and the future 407 Transitway. It would offer increased transfer opportunities and new connections between pedestrians, cyclists, transit users, and automobiles. | If the station is not implemented, it could result in reduced north-south rapid transit coverage which would limit access to economic, cultural, and social opportunities within the Concord area as well as its surroundings. In addition, it has the potential to lower ridership that would otherwise be incurred on the GO Express Network. |
| | Transport Infrastructure and Technology | The implementation of the proposed station would depend on the proposed expansion plan to provide two-way all-day service on the Barrie Corridor and updates to existing infrastructure along the line. | Without the implementation of the station, users in the Concord area would have to travel further to access transit. This could reduce customer satisfaction and increase trip duration and reliance on personal automobiles. |
| External | Government Policy and Planning | The Secondary Plan envisions a high-density mixed-use community that supports multiple modes of transportation. The land use plan for the Concord area identifies a potential GO station location and integrates it into the surroundings. | Without the station, the community would not be built out to its highest potential since the Secondary Plan assumes a GO station in the study area. This would reduce the emphasis on creating a multi-modal community. |

| Driver | How does this Driver influence the opportunity? | What is the impact of not addressing the opportunity? |
|---|--|--|
| Economic Activity, Land Use, and Demographics | The proposed station would support the intensification planned for the Concord area which would result in increased economic value capture and attractiveness of employment opportunities. Consequently, the proposed station would support the increased travel demand to the Concord area. | Economic activity within the community would be reduced if it was not able to be built out to its fullest potential, thus reducing the number of jobs that could be created. |
| Stakeholder Input | The City of Vaughan supports the implementation of a station within the Concord area and sets out policies in the Secondary Plan accordingly. In addition, density requirements for MTSA outlined in the Secondary Plan are drawn from the Provincial A Place to Grow Growth Plan. | The absence of the proposed station would alter transit connection opportunities and may influence developments proposed for the area. |

Vision Statement

The Highway7/Concord GO Rail station would support the vision defined in Metrolinx’s 2041 Regional Transportation Plan (RTP)⁶. It would play a role in developing a sustainable transportation system across the GTHA that efficiently integrates land use to create a complete community, which would provide convenient and reliable connections as well as support a high quality of life.

Outcomes and Benefits

The proposed station should support the realization of the Metrolinx 2041 RTP goals which forms the basis of defining the strategic outcomes of this study and includes the following:

1. Strong Connections;
2. Complete Travel Experiences; and,
3. Sustainable and Healthy Communities.

The benefits for each strategic outcome are assessed and are outlined as followed:

Strong Connections | The proposed station would improve transit coverage and provide users with additional transportation options to the Concord area as well as the broader GTHA. It would provide rapid transit access to more east-west communities, including those situated along the Viva BRT corridor and the future 407 Transitway. In addition, the proximity of the proposed station to Highway 407 would also enhance network connectivity and support existing GO Bus routes providing orbital service across the GTHA, which are slated to be enhanced in terms of service levels and frequency as part of the 10-year GO Bus Service Strategy. The TOC opportunities envisioned for the area would also support the forecast

⁶ Metrolinx (2018). 2041 Regional Transportation Plan. 204 pages. Online. <https://www.metrolinx.com/en/regionalplanning/rtp/Metrolinx%20-%202041%20Regional%20Transportation%20Plan%20%E2%80%93%20Final.pdf>

population and employment growth for the Concord area and would influence overall growth within the City and Region. Thus, the proposed station would contribute to serving the increased travel demand of residents.

Underlying benefits:

- Increase access to key destinations such as employment, commercial, and residential areas within the community including VMC and Richmond Hill Centre;
- Attract new riders to the transit network through enhanced transfer opportunities and mobility between rail and bus services; and;
- Improve access to opportunities beyond Downtown Toronto and into York Region. This would enhance regional connections within the GTHA, making more communities accessible.

Complete Travel Experiences | As a result of the proposed station, users would be able to access key destinations faster and more conveniently through the provision of multiple transportation options through the GO Rail and Bus networks. It would enhance the travel experience of users by providing efficient, safe, and comfortable transportation choices.

Underlying benefits:

- Strengthen the regional transportation network and build network resiliency through expanding transit accessibility to the local population;
- Increase the safety of the road network from reduced automobile use and reduced Green House Gas (GHG) emissions; and
- Reduce travel times for transit users and increase the reliability of transit.

Sustainable and Healthy Communities | The area around the proposed station location supports land-use intensification through the Secondary Plan and MZO provisions. It is envisioned to be a complete community that is transit supportive. Furthermore, it promotes development patterns that utilize mixed land uses and multiple modes of transportation, reducing automobile dependency. Decreasing the dependency on automobile travel would attract a wider range of people to live and work in the Concord area, supporting its growth and offering the potential for a community of increased diversity.

Underlying benefits:

- Support infill development and the province's intensification policies to accommodate for future growth within the community;
- Promote compact, complete communities that support sustainable modes of transportation; and
- Support a synergistic relationship between transit and various land uses.

Alignment with Broader Plans and Policy

Table 2 provides a summary of how the proposed station in the Concord area aligns with provincial, regional, and municipal plans and policies.

Table 2 Stakeholder Review

| Stakeholder | Organization Strategy, Policy or Plan | Link to Opportunity |
|-------------|--|---|
| Metrolinx | 2041 Regional Transportation Plan (2018) | <p>The 2041 Regional Transportation Plan (RTP) aims to build an integrated and sustainable transportation system that is aligned with land use and supports the creation of healthy and complete communities. The proposed station would aid in achieving the following strategies set out in the Transportation Plan:</p> <ul style="list-style-type: none"> • Strategy 1: Complete the delivery of current regional transit projects – the proposed station is on the Barrie Corridor which is planned to have two-way all-day service which would offer frequent and convenient access to transit. • Strategy 2: Connect more of the region with frequent rapid transit – the proposed station would provide transit connections to a growth area not well served by transit currently and would connect it to the GTHA and beyond. • Strategy 3: Optimize the transportation system – the proposed station would provide the opportunity to create a mobility hub by connecting the Barrie Corridor with the VIVA BRT and the future 407 Transitway. This would enable access to more areas within the region with ease due to new north-south and east-west connections. • Strategy 4: Integrate transportation and land use – the proposed station would provide the opportunity for densified, mixed-use development around a multi-modal transportation network which would support the creation of a compact and complete community that would be highly dependent on transit. • Strategy 5: Prepare for an uncertain future – with climate change being a major concern worldwide, it is beneficial to create communities with strong transit connectivity to aid in reducing automobile dependency which in turn would reduce GHG emissions. |
| | 10-Year GO Bus Strategy | <p>Metrolinx’s GO Bus Strategy aims to increase east-west GO Bus service on Highway 407 in order to serve the growing interregional suburb to suburb travel market. The proposed station would act as an ideal point for passengers to transfer between north-south rail service and east-west bus service. Thus, the proposed station could offer operational efficiencies for GO bus service by removing the need for redundant north-south bus routes.</p> |
| | Transit-Oriented Communities (TOC) Program | <p>As part of their TOC program, Metrolinx works with third-party partners to implement higher density, mixed-use development adjacent to new and existing transit stations and stops. The development implemented at part of this program aims to:</p> <ul style="list-style-type: none"> • Increase transit ridership, as well as housing and jobs close to transit; • Reduce traffic congestion; • Encourage the development of complete communities; and • Maximize investment in transit, offering positive value capture for the Province. <p>The proposed station is assumed to be delivered through Metrolinx’s TOC program.</p> |

| Stakeholder | Organization Strategy, Policy or Plan | Link to Opportunity |
|---|---|---|
| Ontario Ministry of Municipal Affairs and Housing | Provincial Policy Statement (2020) | <p>The Provincial Policy Statement (PPS) provides direction for land use planning in Ontario and works with other land use planning systems to support the government’s long-term goals.</p> <p>In Section 1.1.1, the PPS states that healthy, liveable and safe communities are sustained by “promoting the integration of land use planning, growth management, transit-supportive development, intensification and infrastructure planning to achieve cost-effective development patterns...” Transit-supportive development is defined in the PPS as “development that makes transit viable, optimizes investments in transit infrastructure, and improves the quality of the experience of using transit. It refers to compact, mixed-use development that has high level of employment and residential densities...”</p> <p>Furthermore, Section 1.6.7 notes that transportation systems should be safe, energy efficient and address projected needs of the population; they should be part of a multimodal transportation system wherein connectivity within and among transportation systems is maintained and, where feasible, improved. ; they should promote a high-density and mix of uses to minimize auto-mobile dependency and support the use of transit and active transportation.</p> <p>Section 1.6.8 outlines Transportation and Infrastructure Corridors and states that new development proposed adjacent to existing or planned corridors and transportation facilities should be compatible with and supportive of the long-term purposes of the corridor (1.6.8.3). The proposed station in Concord would align with many of the policies outlined above as it is envisioned to be a complete community with densified, mixed-use development that supports walkable and bikeable environments.</p> |
| | A Place to Grow (Office Consolidation August 2020) | <p>A Place to Grow: Growth Plan for the Greater Golden Horseshoe provides guidance regarding government investments and land use planning policies towards 2051 that support economic prosperity, protect the environment and help communities achieve a higher quality of life.</p> <p>Section 2.2.4 of the plan mentions that all MTSAs will be planned and designed to be transit supportive and to achieve multi-modal access to stations and connections to major nearby trip generators. It also states that MTSAs will support transit service integration through connections to local and regional transit services and will provide sufficient infrastructure for active transportation as well as pick-up and drop-off areas. Furthermore, it notes that MTSAs will support planning for a diverse mix of uses and has set a minimum density target of 150 resident and jobs combined per hectare for transit corridors served by the GO Transit rail network.</p> <p>Schedule 5 of a Place to Grow shows the Concord area as a “Priority Transit Corridor” and the York Region Transportation Master Plan identifies it as an MTSA which is envisioned to have mixed-use high-density development that will be supported by transit.</p> |
| Ontario Ministry of Transportation | Connecting the GGH: A Transportation Plan for the Greater Golden Horseshoe (2022) | <p>Connecting the GGH: A Transportation Plan for the Greater Golden Horseshoe sets out a 30-year vision for the transportation system in the region that is sustainable and resilient while providing safe, efficient, and convenient travel options for people and businesses.</p> <p>The proposed station would meet the following goals outlined in the plan:</p> <ul style="list-style-type: none"> • Improve Transit Connectivity: Section 4.2 outlines the vision of getting people moving on a connected transit system with an expansive network that will allow people to travel across the region using transit |

| Stakeholder | Organization Strategy, Policy or Plan | Link to Opportunity |
|-------------|---------------------------------------|--|
| York Region | York Region Official Plan (2010) | <p>quickly and easily with new routes and more frequent services. The proposed station supports this goal as it could provide the opportunity for the creation of a mobility hub due to the presence of the Barrie Corridor, the VIVA BRT and the future 407 Transitway. Furthermore, Metrolinx’s plan to bring two-way all-day service on the Barrie Corridor would also provide more frequent service to the area. Map 5 of the plan identifies the Concord area as an area with frequent local transit service that would have a headway of 10-minutes at a minimum.</p> <ul style="list-style-type: none"> • Give Users More Choice: The proposed station would provide users with various transit options including buses and trains which would make travel by transit more convenient and accessible. Section 4.2 mentions the future 407 Transitway, which would pass through the Concord area, as being a higher order transit connection across the periphery of Toronto that would get users where they need to be without going through the downtown core. • Safe and Inclusive Transportation System: Section 5.5 states that active transportation infrastructure should be expanded and integrated along existing and planned BRT and surface-LRT corridors to improve the safety of users. The proposed station would support the creation of a healthy community as it would improve mobility options and active transportation infrastructure in the area. There are plans to enhance pedestrian and cycling connections to the proposed station outlined in the Concord GO Centre Secondary Plan. • Be Future Ready: Section 4.3 states that new infrastructure and services should provide more sustainable choices to people. Furthermore, it states that compact, walkable and transit-oriented communities should be created to reduce the distances travelled for daily needs and decrease individual emissions. Therefore, the proposed station would aid in reducing automobile dependency which would in turn reduce GHG emissions and create a more resilient and sustainable transportation system. • Connections Beyond the GGH: The proposed station is in close proximity to Highway 407 and has multiple transit options which can potentially connect the Concord area beyond the Greater Golden Horseshoe making more communities accessible. <p>Additionally, MTO has also identified a new concept for an east-west higher order transit connection across the north of Toronto that would connect existing and planned GO Rail, LRTs, and subways between Burlington and Oshawa (# 29 on the transit network map). Between Durham and Vaughan, the East-West Rapid Transit line would follow a similar overall route as the 407 Transitway. The East-West Rapid Transit line is planned for 2051 as the ultimate state with the potential service/technology higher than an LRT.</p> |
| | | <p>The York Region Official Plan provides direction and policies to accommodate future growth and development in York Region while meeting the needs of existing residents and businesses. Section 5.3 <i>Intensification</i> notes that intensification areas would provide a diverse and compatible mix of land uses to support vibrant neighborhoods. It further mentions that intensification areas would provide well-designed public open spaces that create attractive and</p> |

| Stakeholder | Organization Strategy, Policy or Plan | Link to Opportunity |
|-------------|--|--|
| | | <p>vibrant places; support walking, cycling, and transit for everyday activities.</p> <p>Map 1 <i>Regional Structure</i> identifies Highway 7 as a Regional Corridor and Section 5.4 <i>Regional Centres and Corridors</i> notes that Regional Corridors should be diverse places that support a range and mix of activities that meet the needs of the community located along the corridor. This section of the Official Plan identifies various policies including:</p> <ul style="list-style-type: none"> • 5.4.28 Regional corridors should function as urban main streets that have compact, mixed-use, well-designed, pedestrian-friendly, and transit-oriented built form. • 5.4.31 Most intensive and widest range of uses should be directed to specific intensification areas which shall include b) major transit station areas immediately adjacent to transit stations and terminals, including GO Transit. <p>Section 5.6 <i>Building Complete, Vibrant Communities</i> notes that new communities will offer a variety of housing, employment, and mobility choices that will prioritize people, sustainability and liveability. Policy 5.6.12 specifically notes that mobility plans should be completed for communities to ensure that:</p> <ul style="list-style-type: none"> • a) they are designed to have interconnected and accessible mobility systems, with a priority on pedestrian movement, and on transit use and access; • b) they are designed to include systems of pedestrian and bicycle paths linking the community internally and externally to other areas, and providing access to the transit system; • c) a transit plan is completed that identifies transit routes and corridors and ensures early integration of transit into the community. <p>In conclusion, the policies noted above show how York Region is supportive of creating complete communities that are supported by transit and highlights the importance of Metrolinx in doing so. The proposed station would help in achieving the goals set out in the Official Plan and contribute to developing the transportation network in York Region.</p> <p>It is noted that the York Region Official Plan was updated in 2022. In the update, “Concord Station BRT Station” is identified as Protected MTSAs (PMTSAs) 55 with a proposed minimum density target of 160 peoples and jobs per hectare.</p> |
| | <p>York Region Transportation Master Plan (2022)</p> | <p>The York Region Transportation Master Plan (TMP) is a long-term vision for the region’s transportation network and looks ahead 30 years. It considers the transportation infrastructure needs of the Region to support growth and the changing needs of travellers in order to support healthy communities. The TMP aims to encourage all types of travel in the Region and provide resilient and adaptable transportation network to accommodate all modes of travel and adapt to changing environmental conditions. It notes the importance of creating an integrated transportation network where travellers have several transportation choices and can easily transfer between one to another. Furthermore, it states that transportation planning must integrate land use planning and set minimum density targets for MTSAs around subway, bus rapid transit, and GO rail stations to create high density complete communities. It also acknowledges the importance of reducing car travel to manage congestion and improve air quality.</p> |

| Stakeholder | Organization Strategy, Policy or Plan | Link to Opportunity |
|-----------------|---|--|
| City of Vaughan | Vaughan Official Plan (2010) | <p>The proposed station provides the opportunity for the creation of a mobility hub with mixed use development surrounding it which supports the vision of the TMP.</p> |
| | | <p>The City of Vaughan Official Plan provides direction for effective, sustainable and successful city-building while managing growth to 2031. It was adopted by the City in September 2010 and modified by City Council in April 2012. In terms of transportation, Section 4 of the Official Plan sets out policies with regards to creating a sustainable transportation network and accommodating all modes of travel in an integrated and linked fashion. It acknowledges the importance of the Metrolinx RTP in providing a framework for Vaughan’s future transportation network. There are various policies that promote transit in the City which include:</p> <ul style="list-style-type: none"> • 4.1.1.2 Public transit shall be the primary focus for expanding Vaughan’s transportation network capacity to 2031 with an overall transit modal split of 30% for the City during peak periods and 50% for Regional Intensification Corridors by 2031; and, • 4.1.1.3 Integrate land use and transportation in planning decisions that support a full range of transportation options and prioritize walking, cycling and transit. <p>Furthermore, the Official Plan mentions policies specific to supporting a comprehensive transit system in section 4.2.2 which include:</p> <ul style="list-style-type: none"> • 4.2.2.1 Facilitating the planning of a comprehensive transit system for the City in consultation with YRT/Viva and Metrolinx; • 4.2.2.4 Support and encourage the implementation of transit facilities and secure lands for a) transit stations including intermodal terminals, mobility hubs, bus and light rail stations and passenger drop-off and commuter parking areas; • 4.2.2.10 Encourage Metrolinx to increase the frequency of GO train and bus service, implement additional GO service routes and stations, improve cycling and pedestrian connections, and improve co-ordination of local transit services with GO Transit; and, • 4.2.2.12 Plan areas surrounding GO station for higher density development and a mix of uses. <p>The proposed station in the Concord area would be able to support the key policies of the Official Plan such as facilitating a comprehensive transit system, integration of land use and transportation, and providing more frequent GO train service.</p> |
| | Vaughan Transportation Master Plan (2012) | <p>The 2012 Transportation Master Plan (TMP) for the City of Vaughan identifies key transportation issues and provides strategic direction through 2031 to address growth in a sustainable manner. It highlights the need for a substantial change in travel behaviour to manage future growth and congestion. The main goal of the TMP is to reduce automobile dependency and move the City closer to achieving the goal of a more livable, sustainable community through a “transit first” approach. Therefore, the implementation of the proposed station would help in achieving this goal as it would make transit more accessible and increase the use of GO services which would result in a reduced use of automobiles. Exhibit 3.3 <i>York region 2031 Transit Network (within the City of Vaughan)</i> of the TMP shows a potential GO Rail station in the Concord area at the intersection of the future 407 Transitway and the Barrie Corridor.</p> |

| Stakeholder | Organization Strategy, Policy or Plan | Link to Opportunity |
|---|--|---------------------|
| Vaughan Pedestrian and Bicycle Master Plan (2020) | <p>Vaughan’s Pedestrian and Bicycle Master Plan (PBMP) provides direction for creating a more walkable and bikeable community. One of the objectives of the PBMP is to implement walking and cycling facilities on local corridors for first and last mile connections. The implementation of the proposed station can help achieve this as it would aid in the creation of active transportation connections to and from the station and increase the number of transportation options to users who live and/or work in the area.</p> | |
| Concord GO Centre Secondary Plan (2015) | <p>The Concord GO Centre Secondary Plan was published in 2015. It is has been updated and is awaiting Council approval. It envisions the community as a high-density mixed-use development centered around a multi-modal transportation network. It supports the creation of a mobility hub through integrating the VIVA BRT, GO Rail line, and the future 407 Transitway and intensifying areas around the potential transit hub. The Secondary Plan mentions the preferred location for the GO Rail station north of Highway 7 with a bus loop, a passenger pick-up and drop-off, a commuter parking lot, and associated stormwater management pond as the components of the station facility.</p> | |

3



Investment Scenarios



Introduction

This section describes the context of the Highway 7/Concord GO Rail Station site as well as the land use scenarios, each of which are compared against their own Business As Usual (BAU) scenario for this IBC.

Study Area

The study area falls within the Concord GO Centre Secondary Plan, published in 2015. The Secondary Plan has been updated and is awaiting Council approval. Figure 2 shows the most recent Land Use plan for the study area within the MTSA boundary. The map also indicates the station location, which is assumed to be north of Highway 7, east of the Barrie Corridor. The Secondary Plan area is bounded by Rivermede Road to the north, the hydro-corridor to the east and south, and the Barrie Corridor and Bowes Road to the west. It encompasses approximately 162 hectares of land, including 44 hectares of developable area and 28 hectares of land identified for natural heritage, parks, open space, and stormwater management.

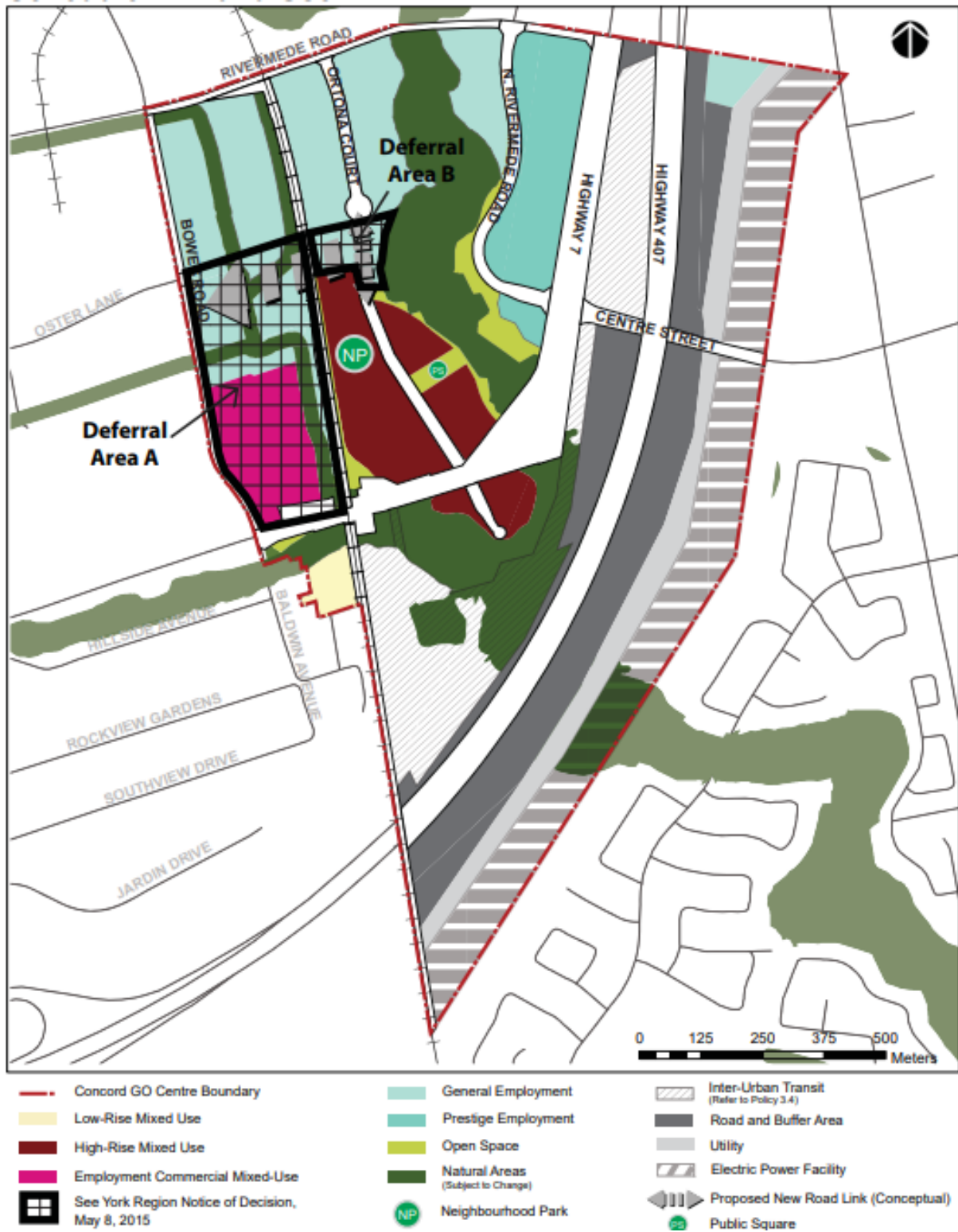
The Concord GO Centre area is designated as a Local Centre and is part of a Regional Intensification Corridor as per Schedule 1 *Urban Structure* of the City of Vaughan's Official Plan. A Local Centre is described as a community with the potential for mixed-use development supported by public transit and the Regional Intensification Corridor focuses on intensifying lands adjacent to major transit routes to support higher-order transit.

As shown in Figure 2, the lands towards the north and east, surrounding the proposed station, are designated for high-rise mixed-use development. Open spaces and natural areas are identified towards the south and employment commercial mixed-use as well as general employment uses are indicated towards the west. The Land Use plan also shows a dedicated area for inter-urban transit south of the assumed station site and immediately north of Highway 407, which is intended for transit infrastructure and facilities related to the potential future 407 Transitway. It should be noted that the areas highlighted as 'Deferral Areas A and B' west and north of the station site are subject to the MZO (O.Reg 170-21) that permits additional land uses on those areas.

The study area has a well-established road network that provides good access within and across communities. Highway 7 is a regional arterial that can potentially provide direct access to the assumed station site as well as connect the Concord GO Centre to the GTHA and beyond. There are also additional roadway connections planned as depicted in Figure 2, which would further increase connectivity within the community. In addition, there are active transportation connections planned for the study area which would connect the proposed station to surrounding developments and create a more walkable and bikeable environment.

Natural heritage features such as the West Don River Valley and Bartley Smith Greenway are in close proximity to the assumed station site as per Schedule F *Parks and Open Space Network* of the Secondary Plan. There is also a known flood hazard around the proposed station site identified in Schedule H *Flood Hazard* of the Secondary Plan which has the potential to cause flooding and spill between the Barrie Corridor and Bowes Road as well as Highway 7.

Figure 2 Land Use Plan for the Concord GO Centre Secondary Plan Area⁷



⁷ City of Vaughan, 2015. Concord GO Centre Secondary Plan. PDF.

Scenario Definition

The IBC explores the feasibility of the proposed station under two alternative land use scenarios: Market Land Use and Secondary Plan Land Use. All other assumptions including service levels and the station infrastructure were kept constant between the two land use scenarios (see Table 5). Both land use scenarios were also compared against their own BAU scenarios, in which the same population and employment forecasts would remain the same, but the proposed station would not be implemented.

1. **2041 Market Land Use Scenario:** This scenario was based on future land use projections by Metrolinx through their Greater Golden Horseshoe Model Version 4 (GGHMv4) regional travel demand model, which are based on approved plans filed with the Ministry of Municipal Affairs and Housing. This is a standard land use scenario tested in Metrolinx Business Cases.
2. **2041 Secondary Plan Land Use Scenario:** This scenario was developed based on the City of Vaughan's 2041 population and employment forecasts for the Secondary Plan area and surrounding MTSA area, along with assumed uplift from adjacent MZO provisions;
 - i. A sensitivity test was also conducted as part of this scenario where all conditions remained constant, except parking was not provided within the proposed station site. The objective of this sensitivity test was to assess the ridership at the proposed station with and without parking.

Table 3 outlines the population and employment forecast for each scenario. It should be noted that the modelling results for this IBC are based on the 2041 horizon year as per Metrolinx's GGHMv4 and used the best available assumptions at the time of this IBC. The Secondary Plan outlines planned growth to 2051 along with the population and employment forecasts, cited as 19,500 people to 2051 and beyond, and approximately 3,000 jobs at full build-out⁵. For the purpose of this IBC, updated 2041 population and employment forecasts are used for the Secondary Plan Land Use Scenario that included MZO uplift within the MTSA along Highway 7 between Bowes Road and Keele Street. Thus, the updated 2041 forecasts, developed for this IBC analysis, are higher than the 2051 forecasts identified in the Secondary Plan as they capture additional density that would be realized from the MZO provisions, not factored into the Secondary Plan estimates.

Table 3 Concord Land Use Scenarios - Population and Employment Forecasts*

| Land Use Scenario | Population Forecast (2041) | Population Density (2041)** | Employment Forecast (2041) | Employment Density (2041)** |
|-------------------|----------------------------|-----------------------------|----------------------------|-----------------------------|
| Market-based | 1,774 | 11 residents per hectare | 7,246 | 45 jobs per hectare |
| Secondary Plan | 27,670 | 171 residents per hectare | 10,191 | 62 jobs per hectare |

*2041 forecasts are used for the modelling work undertaken as part of the IBC.

**Based on the Concord GO Centre Secondary Plan Area being 162 hectares in size.

The following subsections outline the differences and similarities between the BAU and the respective land use scenarios including track and platform arrangement, service levels, and station sizing parameters, amongst others.

Business as Usual (BAU) Scenarios

There are two BAU scenarios, one for each of the two land use scenarios considered. Under the BAU scenario, no new station was assumed, and therefore, people living and working in the Concord area have the option to drive to their destination, take Rutherford GO (located approximately 3.74 km north), Downsview Park GO (located approximately 5.78 km south), or the subway at Downsview Park. Furthermore, the VIVA BRT and GO Bus services, in the BAU scenarios, would not be rerouted to the Concord area as there is no station present.

Land Use Scenarios

A concept plan has been developed based on a standard GO station configuration to assess the feasibility of delivering the proposed station and support the cost estimates used in this IBC. The same station concept plan applies to both the 2041 Secondary Plan Land Use Scenario and the 2041 Market Land Use Scenario.

Track Arrangement

The land use scenarios follow a two-track configuration with no protection for a third track in the middle. Two side platforms would service the station with one on the east and one on the west side of the tracks. This configuration is consistent with the newly upgraded side platforms at Rutherford GO and an additional side platform (on the west side of the track) planned at Downsview Park GO.

Proposed Service Levels

Under both scenarios, the proposed service levels are the same as the BAU scenarios for the proposed station with all trains assumed to be stopping at the proposed station. It is assumed that there would be approximately 6.6 trains/hour serving the station during the 2-hour AM Peak period. The proposed service levels are subject to change in response to the development of the GO Expansion Program.

Station Sizing Requirements and Location

The station sizing parameters are estimated based on expected travel demand and mode share, considering the facilities provided at nearby stations. Table 4 outlines the assumed sizing requirements for station amenities. Such sizing requirements are assumed for the purpose of the IBC analysis only and are subject to change.

Table 4 Sizing Requirements for Station Access Modes

| Facility | Number of Spaces by Category |
|-------------------------|-------------------------------------|
| Transit | 5 GO Bus bays and 1 GO layover |
| Cycling | 112 covered bicycle parking |
| Pick-Up/Drop-Off (PUDO) | 24 wait and 9 load |

| Facility | Number of Spaces by Category |
|----------------|--|
| Drive-and-Park | 405 standard parking spaces and 10 barrier-free parking spaces |

Station Concept Plan

The assumed location for the station is north of Highway 7, east of the Barrie Corridor. There is a planned mixed-use development, east of the Barrie Corridor and next to the proposed station location. Therefore, the concept plan presented in Figure 3 has been developed considering the planned future community and how it could be integrated with this TOC development opportunity.

Overall, the concept plan of the proposed station prioritizes modes according to the GO Rail Station hierarchy of access in the following order: walking, transit, cycling, PUDO, carpool passengers, and drive-and-park⁸. The station elements have been organized in a linear format parallel to the Barrie rail corridor to maximize access opportunities to the rail platform, as well as to optimize the use of space. Starting from the south end of the site and moving north, a multi-use path (MUP) is proposed to link pedestrians and cyclists directly to the station platform and provides opportunities for future active transportation connections in the area, such as linking to trails proposed south of Highway 7 as outlined in the Concord Secondary Plan.

North of the MUP is the bus loop serving the station site, sized for five saw-tooth GO Bus bays and one linear GO Bus layover. The bus facility provides turn-around capacity at either end of the loop to enable efficient operations. There is the potential for transit priority infrastructure and signals on the future local street leading to the station site as well as at the Highway 7 intersection to facilitate efficient GO Bus movements. On-street bus bays for municipal service providers, such as York Region Transit, would be located on Highway 7 and connected to the station site using pedestrian crossings. The VIVA bus stop would also be relocated closer to the proposed station and modifications to Highway 7 may be required to build a median stop and pedestrian connections.

The PUDO facility is located centrally on the site and is situated directly in front of the station building. It includes separate access and egress points for efficient vehicular movement. Further north is the drive-and-park facility for the station site, located to enable close connections to the station building and walk-on access to the near side platform. The drive-and-park facility is complimentary to the future local street by positioning the access and egress points to be in line with the waiting area. Pedestrian circulation paths are provided throughout the lot to enable safe and efficient connections. Lastly, a north-south MUP is provided parallel to the rail corridor to link pedestrians and cyclists with the station platform, with the potential to be linked to future east-west connections. Covered bicycle parking is provided at the terminus of this MUP as well as on the south side of the station building. Passengers are able to access the rail platforms through direct-walk on access from the east as well as barrier-free vertical circulation linking the east and west platforms together.

⁸ Metrolinx. 2016. GO Rail Station Access Plan. 294 pages. Online. https://www.metrolinx.com/en/regionalplanning/projectevaluation/studies/GO_Rail_Station_Access_Plan_EN.pdf

Platform access infrastructure including tunnels, stairs, and elevators would be required to support access to the two side platforms. Passengers are assumed to reach the side platforms at the proposed station through a barrier-free tunnel (note that even though two tunnels are shown in the concept site plan; only a single tunnel is considered as part of the IBC analysis as the second tunnel would be subject to future review through pedestrian flow analysis and surrounding site plan context). The east side platform also allows for direct walk-on access throughout the station site.

The station is located in an area primed for significant growth and development; it is important to acknowledge opportunities for the station site to evolve over time. The concept plan makes provision for additional potential parking, should demand warrant it. However, such land could also be utilized for TOC opportunities.

There is the potential for additional parking spaces to be implemented in the future development lots located to the east of the future local street, offering opportunities for expansion and integration with TOC development opportunities.

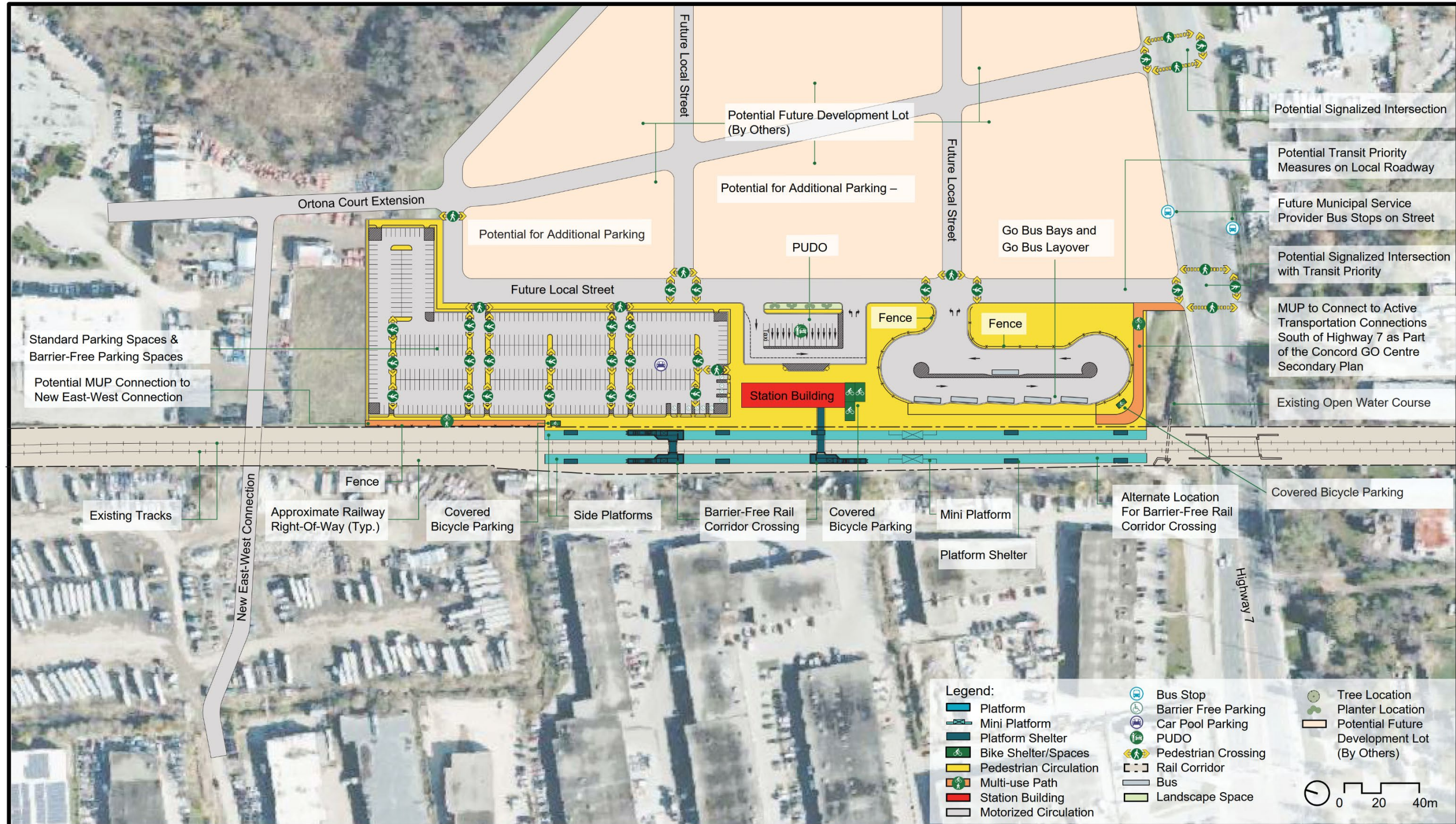
Summary of Assumptions

Table 5 summarizes the over-arching assumptions used throughout the IBC analysis.

Table 5: Summary of Assumptions

| Category | Assumptions |
|--|---|
| Primary Planning Frameworks | <ul style="list-style-type: none"> Province of Ontario, York Region, and City of Vaughan Policies and Plans Concord GO Centre Secondary Plan |
| Scenarios; Forecasted 2041 Population and Employment | <ul style="list-style-type: none"> 2041 Secondary Plan Land Use Scenario - Population: 27,670; Employment: 10,191 (with a sensitivity test evaluating the absence of on-site public parking) 2041 Market Land Use Scenario - Population: 1,774; Employment: 7,246 |
| Station Location | <ul style="list-style-type: none"> North of Highway 7 and east of the Barrie Corridor |
| GO Rail Network; Service Levels | <ul style="list-style-type: none"> Proposed station located on Barrie Corridor between Downsview Park GO and Rutherford GO. Reference Concept Design Service Pattern (RCD) assumed 6.6 trains per hour in the AM peak and is subject to change as the GO Expansion Program is progressed (Assumption were made in September 2022) 2 trains per hour skip Rutherford GO and Downsview GO during the AM peak as a result of the skip-stop service on the Barrie Line |
| GO Bus Network | <ul style="list-style-type: none"> GO Buses rerouted to serve the proposed station (2 GO Buses) No buses rerouted under the respective BAU scenarios. |
| Other Transit Networks | <ul style="list-style-type: none"> A new VIVA BRT is assumed to stop on Highway 7/Concord Area to directly serve the proposed station. 2 YRT and 2 TTC local buses were also re-rerouted to serve the proposed station |
| Road Network | <ul style="list-style-type: none"> Proposed road network consistent with the Concord GO Centre Secondary including a new connection across the CN rail yard |
| Model | <ul style="list-style-type: none"> Metrolinx's Greater Golden Horseshoe Model v4 (GGHMv4) |

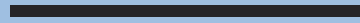
Figure 3: Representative Concept Plan for the Proposed Station



CONCORD-STATION CONCEPT
OCT 2022



4



Strategic Case



Introduction

The Strategic Case evaluates the performance of both of the land use scenarios for the Highway 7/Concord GO Rail Station against the strategic outcomes and benefits defined in the Case for Change chapter. It analyzes quantitative measures such as ridership forecasts and travel time savings assessed through modelling using the Metrolinx GGHMv4, as well as qualitative benefits such as increased transit connections, enhanced user experience and the integration of the proposed station into the overall vision for the Secondary Plan area. Moreover, it also details an equity analysis conducted based on the income and journey to work metric to identify existing needs around the proposed station and develop strategies to proactively address concerns.

Strategic Outcome 1: Strong Connections

The proposed station would provide an attractive transportation option that can grow alongside the development of the community and would support strong connections for users who live and work in the Secondary Plan area. It would attract new users to the transit network and increase regional connectivity to key destinations including employment areas, the downtown core, and other connections on the rest of the transit network. Furthermore, proposed TOC opportunities in the study area would help to support ridership growth.

This section analyzes the following benefits against the proposed station for Strategic Outcome 1:

- Increasing access to key destinations such as residential, commercial and employment areas within the community;
- Attracting new riders to the transit network; and
- Improve access to opportunities beyond Downtown Toronto (into and across York Region).

Benefit 1: Increasing access to residential and employment areas within the community

2041 Market Land Use Scenario

In 2041, 600 and 2,200 people, respectively, are forecasted to live and work within a 10-minute walk of the proposed station. This influences the 3,780 daily riders that are anticipated to access the proposed station during the 2041 2-hour AM peak, consisting of 2,660 boardings and 1,120 alightings. These results show that the lower population and employment densities of the Market Land Use Scenario yield a lower number of boardings and alightings at the proposed station when compared to the Secondary Plan Land Use Scenario.

2041 Secondary Plan Land Use Scenario

The proposed station would support the efficient movement of people who live and work within the Concord area as 8,200 people are anticipated to live within a 10-minute walk of the proposed station and 3,000 people would work within a 10-minute walk of the station by 2041. These employment and population densities are based on the assumed full build-out of the Secondary Plan and would be achieved through integration with TOC opportunities.

Under the Secondary Plan Land Use Scenario in 2041, 4,730 riders are anticipated to access the proposed station during the 2-hour AM peak, consisting of 3,440 boardings and 1,290 alightings. It should be noted that because of the current service assumptions in this IBC,

Concord GO is a more attractive station as compared to the surrounding GO stations (See Table 5 for all Service Assumptions).

Around 35% of the riders at the proposed station would be existing GO train users who switch from Rutherford GO station in the BAU scenario to the proposed station in the Secondary Plan Land Use Scenario. These riders represent the residents of the community who would be able to access the GO train network closer to their home and may have made the switch for increased convenience or travel time savings. The proposed station draws more ridership from Rutherford GO station as opposed to the adjacent downstream Downsview Park GO station which could be due to more frequent service at the proposed station during the 2-hour peak.

Under the No Parking sensitivity test in 2041, the proposed station is anticipated to have 3,740 total riders during the 2-hour AM peak. Overall, these results show a lower number of boardings and alightings at the proposed station when no public parking is provided. While the absence of parking lowers the 2-hour AM peak ridership by around 21%, the sensitivity test demonstrates that the station is not fully dependent on drive-and-parking facilities. The trade-off for lower ridership presents a number of benefits under the sensitivity test:

- The absence of drive-and-park facilities would reduce the size of the station site required, offering increased TOC development opportunities; and
- Access modes would shift to more sustainable travel options including walking, cycling, bus, and PUDO (see Benefit 8: Promote Compact, Complete Communities that Support Sustainable Modes of Transportation).

Table 6 and Table 7 provide a summary of the boardings and alightings in the 2041 2-hour AM peak which compares the ridership forecasts for the proposed station with the surrounding stations of Downsview Park GO and Rutherford GO.

Table 6 2041 2-Hour AM Peak Boardings at GO Stations near Concord Area

| GO Station | 2041 Secondary Plan Land Use | | | 2041 Market Land Use | |
|-------------------------------|--------------------------------|-----------------------|---|--------------------------------|-----------------------|
| | Without Proposed Station (BAU) | With Proposed Station | With Proposed Station (Sensitivity Test - No Parking) | Without Proposed Station (BAU) | With Proposed Station |
| Downsview Park GO | 980 | 830 | 860 | 900 | 800 |
| Proposed Station (Concord GO) | 0 | 3,440 | 2,470 | 0 | 2,660 |
| Rutherford GO | 2,750 | 1,610 | 1,960 | 2,550 | 1,740 |

Table 7: 2041 2-Hour AM Peak Alightings at GO Stations near Concord Area

| GO Station | 2041 Secondary Plan Land Use Scenario | | | 2041 Market Land Use Scenario | |
|-------------------------------|---------------------------------------|-----------------------|---|--------------------------------|-----------------------|
| | Without Proposed Station (BAU) | With Proposed Station | With Proposed Station (Sensitivity Test - No Parking) | Without Proposed Station (BAU) | With Proposed Station |
| Downsview Park GO | 3,830 | 4,280 | 4,120 | 3,550 | 3,850 |
| Proposed Station (Concord GO) | 0 | 1,290 | 1,270 | 0 | 1,120 |
| Rutherford GO | 510 | 360 | 380 | 430 | 310 |

Benefit 2: Attracting new riders to the transit network

2041 Market Land Use Scenario

Of the 1,320 net riders added to the Barrie Corridor during the 2041 2-hour AM peak as a result of the proposed station, 200 riders are anticipated to be new transit users (15% of people). These net new user numbers are inclusive of those who choose to leave transit as a result of the additional travel time imposed by the addition of a new stop on the Barrie Line. When scaled to the 7-hour peak (6-9 AM & 3-7 PM), this would result in 550 net new riders being added to the network as a result of the proposed station. While the forecasts are lower than the 2041 Secondary Plan Land Use Scenario due to lower density resulting in lower ridership, the proposed station would still attract new transit users to the network and contribute to a shift to more sustainable modes.

As shown, the proposed station would represent a new node within the network, improving access to the GO network for those within the Concord area and strengthening east-west connections. Strengthening such connections would attract and connect users from a range of origins and destinations, which may not necessarily be directly surrounding the station.

2041 Secondary Plan Land Use Scenario

In 2041, during the 2-hour AM peak period, the proposed station would add 1,600 riders to the Barrie Corridor, of which 275 people are anticipated to be new transit users (17% of net riders). When considering the overall 7-hour peak (which encompasses the 6-9 AM and the 3-7 PM time periods), 790 net new transit users would be added to the network. As the Barrie line is expected to be near capacity in 2041 in the BAU scenario, the addition of the net new riders at Concorde GO generates \$8M in crowding disbenefits. Further service improvements in the coming years or enhancements to fleet may alleviate this concern should it be realized.

In general, the attraction and retention of new riders is especially important for transit agencies as it represents a shift from one mode, or service, to another. If the new riders are able to be attracted to transit early on before other travel patterns are established, they would be more likely to continue using the service. This is particularly important to attract riders beginning a new job or moving into a new home, to encourage the use of transit before another mode is

utilized for their commuting route. If a new rider came from using automobile travel for the entirety of their journey, this could result in benefits associated with shifting to more sustainable mode share and travel time savings, particularly related to perceived shorter trips compared to sitting in congested traffic.

Under the sensitivity test where no parking is provided at the proposed station, users have no option but to complete their first and last mile connections using modes other than driving and parking their automobile. Compared to where parking is provided as part of the Secondary Plan Land Use Scenario, this would reduce the number of net riders to 1,170 passengers on the Barrie Corridor as a result of the proposed station.

Benefit 3: Improve access to opportunities beyond Downtown Toronto (into York Region)

2041 Market Land Use Scenario

The 2041 Market Land Use Scenario had similar qualitative results to the 2041 Secondary Plan Land Use Scenario in that the proposed station would represent an important connection to key destinations across York Region.

As presented in Table 9, 35% of riders transferring from Barrie Corridor to GO Bus and 25% of transfers (riders transferring from GO Bus to Barrie Corridor) would be captured between GO Rail and GO Bus services. While the percentage of riders transferring between GO Rail and GO Bus services is higher under the 2041 Market Land Use Scenario compared to the 2041 Secondary Plan Land Use Scenario, the overall number of transfers would be lower due to lower density forecasts for the Concord area under the 2041 Market Land Use Scenario.

Refer to Table 10 for the breakdown of boardings across GO Bus routes which pass near the proposed station site. The results show a 1% increase in GO Bus ridership across specific routes when compared to the respective BAU Scenario.

2041 Secondary Plan Land Use Scenario

The proposed station is identified as a critical interchange to support delivery of the 10-Year GO Bus Strategy and associated Regional Express Bus (REB) service along the Highway 407 corridor. As part of REB service, routes primarily operate on highways and connect significant destinations such as urban centres, transportation hubs, and large institutions that are separated by longer distances than conventional transit routes. Accordingly, the operating speeds can be significantly higher than conventional transit, with limited stops or wider stop spacing (typically two to eight kilometres). The REB network was identified in the 2041 RTP and is intended to connect with and complement GO Expansion rail services. The REB network would form an east-west corridor to connect radial GO rail lines, and the proposed station would enable this rail-bus connection in the Concord area (Figure 4 and Figure 5). In addition to REB service, other important east-west transportation corridors include the future 407 Transitway, the Viva BRT, and local transit services.

There are several key destinations situated in York Region that can be accessed through east-west transportation corridors, including VMC, Richmond Hill Centre, and provincially significant employment zones situated along Highway 407. With the proposed station, users would have a direct connection through the GO Rail network to transfer between north-south and east-west corridors. Those who live or work in TOCs adjacent to the proposed station would achieve additional benefits due to their proximity.

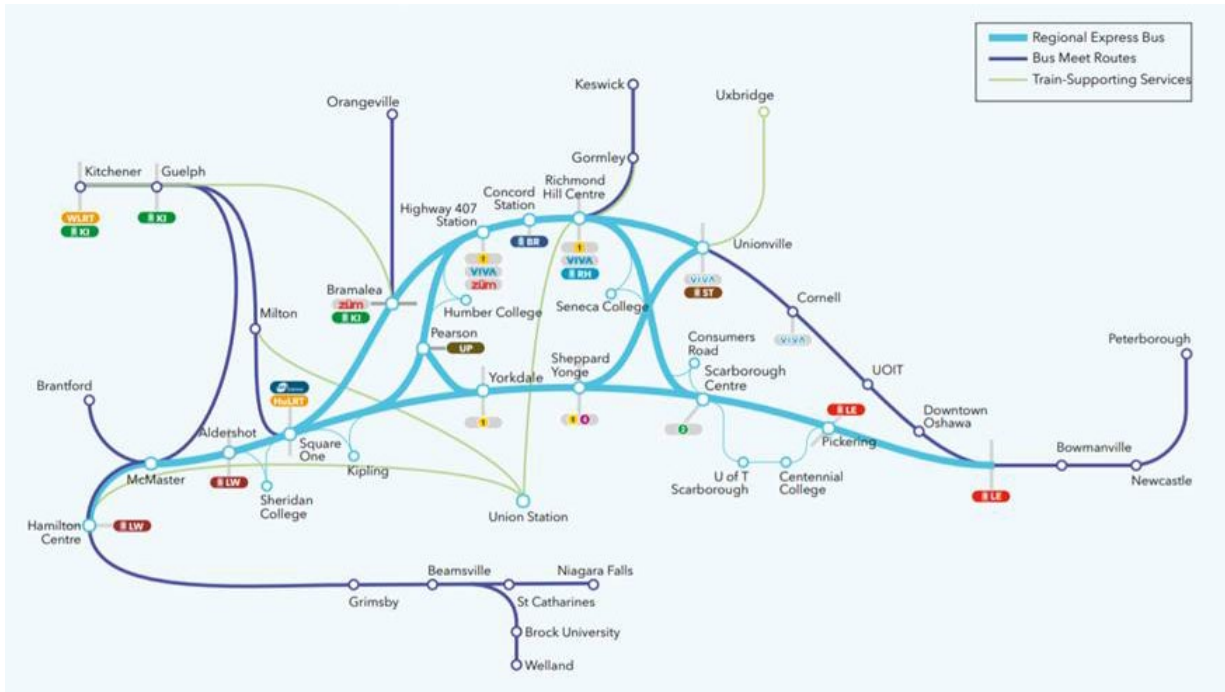
The proposed site for Concord GO represents an ideal transfer point for north-south Barrie rail service to east-west 407 bus service. As a result of adding the proposed station, increased operating efficiencies on the GO Bus network could be realized with the potential to reduce or remove redundant GO Bus services that run parallel to the Barrie Rail corridor. Existing users would instead be drawn to taking the train and still have the option to transfer to east-west GO Bus services. In this strategic location, the proposed station would also:

- Enhance network resiliency through accessing Highway 7 and strengthening east-west connections; and
- Elevate the convenience of journeys to key destinations, attracting more people to complete east-west trips, enhancing the comfort of riders, and providing travel time savings to Barrie Corridor riders (refer to Benefit 6: Reduce Travel Times for Transit Users and Increase the Reliability of Transit).

Table 8 and Table 9 provides a breakdown of all the GO bus ridership and transfers. As presented, during the 2-hour AM peak, approximately 24% of GO Bus boardings at the proposed station would be riders transferring from the Barrie Corridor. Likewise, 22% of people alighting from GO Bus services at the proposed station would transfer to the Barrie Corridor. This demonstrates that the proposed station would serve as an important transfer point between not only GO Rail and GO Bus services, but other transportation services and modes as well.

In addition, the proposed station would influence boardings across the GO Bus Network. As shown in Table 10, GO Bus boardings across routes passing near the proposed station would increase by approximately 6% (7% if no parking were provided at the station), compared to the respective BAU Scenario. This results in boardings equivalent to the second busiest terminal in the GO network, achieving more riders than the existing Highway 407 Terminal. Such a result demonstrates the proposed station as a key transit interchange and would support delivery of the 10-Year GO Bus Strategy.

Figure 4 Future GO Bus Network Concept Vision to Regional Express Bus*



*Note: The “Concord Station” indicated on the figure is proposed and would be implemented through TOC opportunities.

Table 8 GO Bus Ridership at Proposed Highway 7/Concord GO Rail Station - 2041 2-Hour AM Peak

| Ridership 2-Hour AM Peak | 2041 Secondary Plan Land Use Scenario | 2041 Market Land Use Scenario |
|--------------------------|--|----------------------------------|
| Boarding | 825 | 500 |
| Alighting | 450 | 400 |

Table 9 Breakdown of the Transfer Data at the Proposed Highway 7/Concord GO Rail Station

| Transfers 2-Hour AM Peak | 2041 Secondary Plan Land Use Scenario | | 2041 Market Land Use Scenario | |
|---|--|----------------------|----------------------------------|------------------|
| | Transfer Ridership | Percent of Ridership | Transfer Ridership | Percent of Total |
| From Barrie Corridor to GO Bus | 200 | 200 / 825 = 24% | 175 | 175 / 500 = 35% |
| From GO Bus to Barrie Corridor | 100 | 100 / 450 = 22% | 100 | 100 / 400 = 25% |

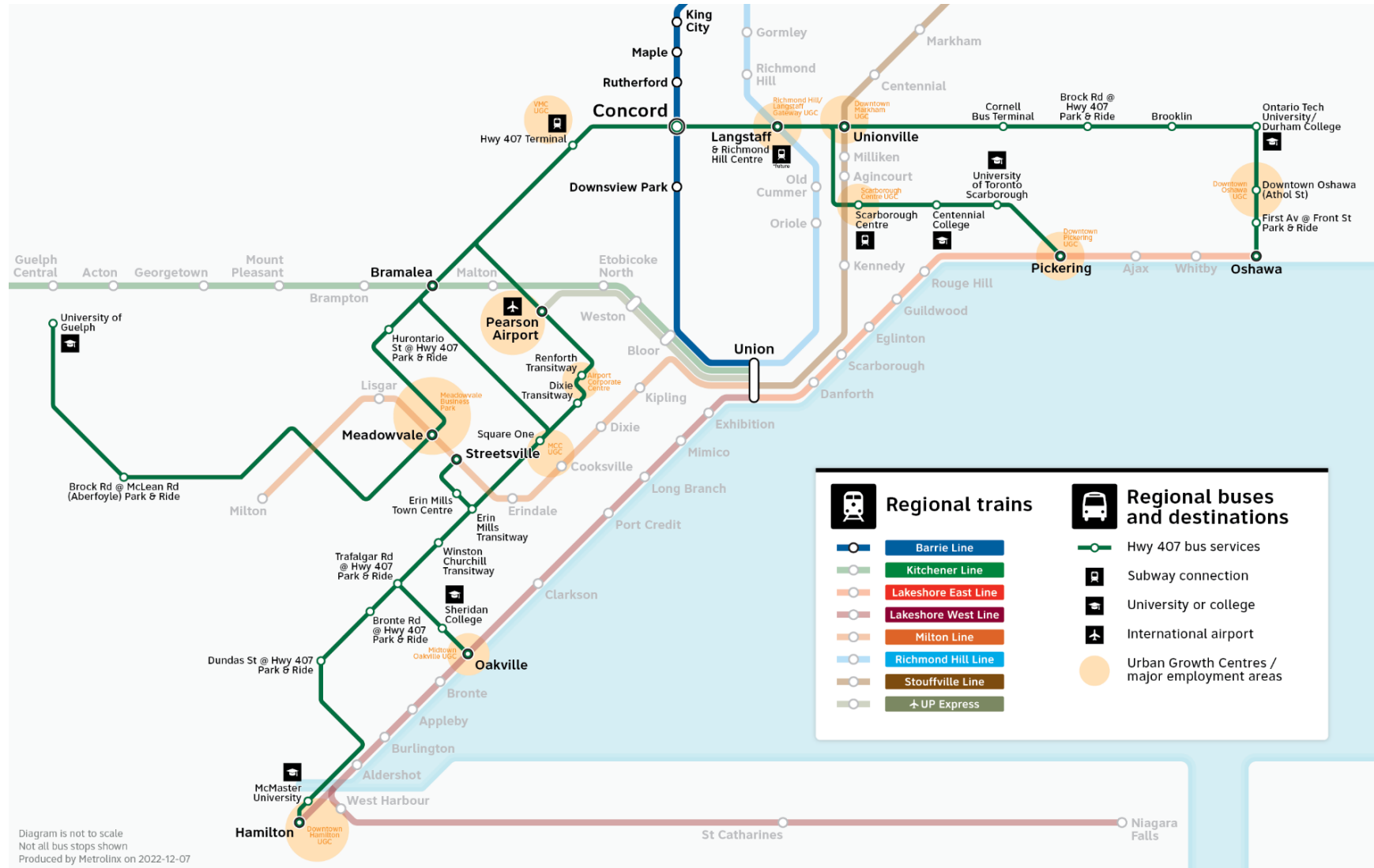
Table 10 Boardings on GO Bus Routes Passing Proposed Highway 7/Concord GO Rail Station - 2041 2-Hour AM Peak

| Scenario | 2041 Secondary Plan Land Use Scenario | 2041 Secondary Plan Land Use Scenario (Sensitivity Test – No Parking) | 2041 Market Land Use Scenario |
|----------------------------|---|--|----------------------------------|
| BAU* | 12,520 | 12,520 | 12,810 |
| With Proposed Station** | 13,310 | 13,390 | 12,990 |
| Change | +790 | +870 | +180 |
| % Change | 6% | 7% | 1% |

*None of the six passing GO Bus routes would stop at the proposed station site, as there would be no station.

**Of the six passing GO Bus routes, two would stop directly at the proposed station.

Figure 5 Transit Connectivity for the GO Rail and GO Bus Service with the Implementation of the Proposed Station



*Note: The “Concord” Station indicated on the figure is proposed and would be implemented through TOC opportunities.

Strategic Outcome 2: Complete Travel Experiences

The provision of efficient, safe, and comfortable travel experiences with faster access to destinations through the support of transit options is critical to attracting and retaining riders to the GO network. If the proposed station serves as an attractive transportation choice, it would support sustainable travel practices and would result in reduced automobile use around the Concord area and surrounding GTHA.

The following benefits are assessed as part of Strategic Outcome 2:

- Complete the regional transportation network and build network resiliency through expanding transit accessibility to the local population;
- Increase the safety of the transportation network from reduced automobile use and reduced emissions; and
- Reduce travel times for transit users and increase the reliability of transit.

Benefit 4: Complete the Regional Transportation Network and Build Network Resiliency through Expanding Transit Accessibility to the Local Population

The proposed station would play a role in building out the regional transit network through the additional connectivity and resiliency it provides to Barrie Corridor customers across the densely populated southern strip of York Region. It would present users with more options to get to their destinations, particularly due to its proximity to key east-west destinations served by connecting transit services including Richmond Hill Centre to the east and VMC to the west. This improved mobility is afforded by the capacity to make new transfers at the proposed station. While the ability to transfer to new transit connections is an important benefit, it must be acknowledged that transfers may incur additional travel time for patrons (disbenefits). As a result, it is important to understand the implications of transfer travel times and recognize how they can be mitigated and/or resolved to improve the overall customer experience.

2041 Market Land Use Scenario

For the Market Land Use Scenario, the proposed station would also result in transfer time disbenefits in the form of 2,730 perceived person minutes during the 7-hour peak in 2041 as compared to its BAU scenario. This is due to similar reasons as outlined above regarding increased number of transfers and transit schedule alignments.

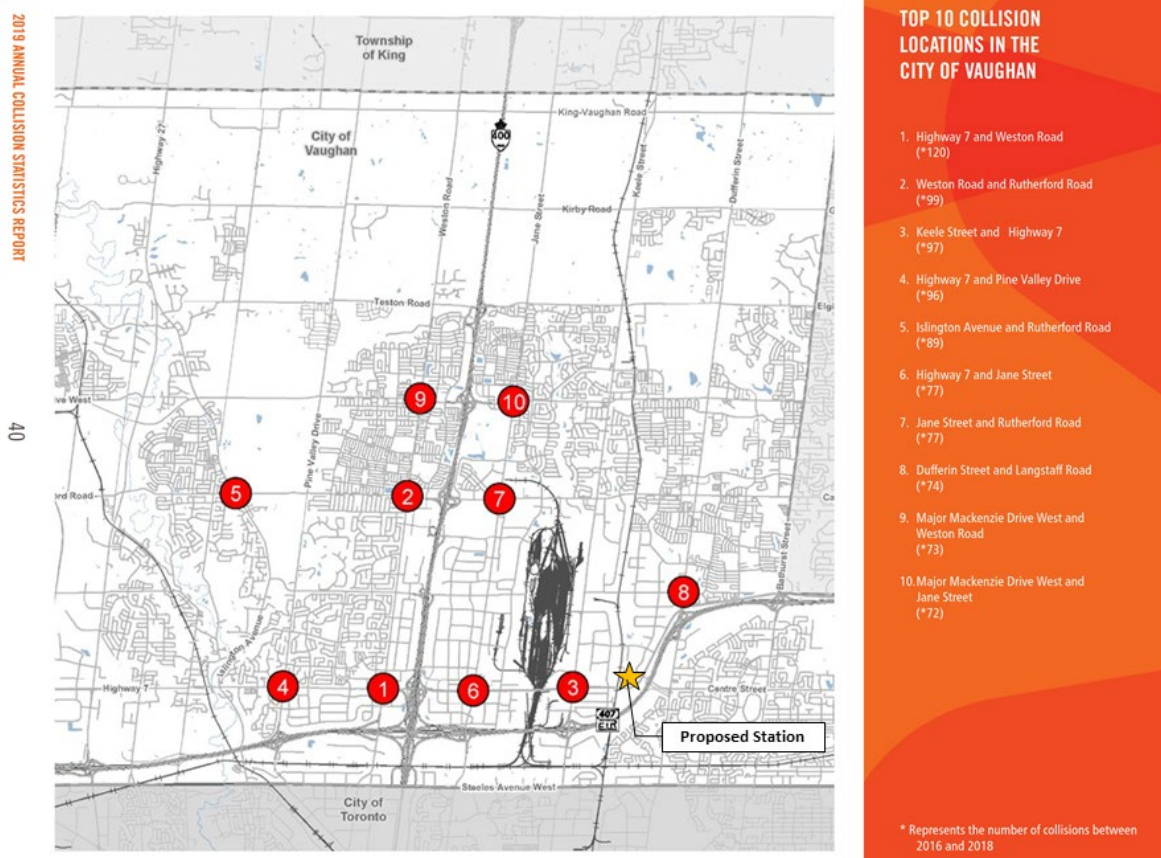
2041 Secondary Plan Land Use Scenario

For the 2041 Secondary Plan Land Use, the proposed station would produce transfer time disbenefits in the form of 4,020 perceived person minutes during the 7-hour peak in 2041 as compared to the BAU scenario. Perceived person minutes represent the minutes spent on a transfer, as perceived by the user. The perceived person minutes increasing as compared to the BAU scenario is partially the result of increased transfers occurring due to the proposed station serving as a new node in the network, facilitating east-west transfer connections that are not previously realized. In addition, it may be due to scheduling alignment differences between transit services, which would increase waiting time for passengers. Such differences could be resolved through increased schedule alignment between operators, as well as ensuring transfers are as smooth and efficient as possible.

Benefit 5: Increase the Safety of the Road Network from Reduced Automobile Use and Reduced Emissions

Improving the safety of the road network is a critical element in providing healthy and sustainable communities across the GTHA and beyond. Figure 6 shows collision hot spots near the proposed station, including the intersection of Keele Street and Highway 7 that is less than one kilometre from the proposed station site⁹.

Figure 6: Vaughan Collision Top Locations



2041 Market Land Use Scenario

Overall, the estimates for reduced automobile VKTs, automobile trips and GHG emissions that could be realized are lower for the Market Land Use Scenario than the Secondary Plan Land Use Scenario. Refer to Table 11 for the comparison of both scenarios. In addition, it is important to note that while the proposed station would provide automobile VKT savings under both scenarios, transit VKTs would increase due to the re-routing of buses from Highway 407 to Highway 7.

2041 Secondary Plan Land Use Scenario

As outlined in Table 11, the proposed station would support a safer road network by reducing the number of vehicle kilometres travelled (VKTs) by 8,290 kilometres within the 2041 7-hour peak period under the Secondary Plan Scenario compared to the BAU scenario. Eliminating

⁹ York Region (2019). 2019 Annual Collision Statistics Report. 42 pages. Online. <https://www.york.ca/media/51166/download>

the need for automobile trips, or reducing their length, demonstrates the proposed station's influence on riders utilizing alternative modes of transport to reach their destinations. This would result in a safer road network due to reduced potential for collisions and fatalities¹⁰.

By 2041, the proposed station would also aid in reducing 780 automobile trips during the 7-hour peak period. Combined with the reduction in automobile VKTs, this would result in reduced GHG emissions with an annual reduction of 430 tonnes. Therefore, the reduction in pollution and air particulates associated with reduced automobile trips and VKTs also contributes to a more walkable and sustainable community.

Table 11: Automobile VKT Savings, Reduced Automobile Trips, and GHG Emission Reductions

| | 2041 Secondary Plan Land Use Scenario | 2041 Market Land Use Scenario |
|---|---------------------------------------|-------------------------------|
| Automobile VKT Savings (7-hour peak) | 8,290 kilometres | 5,750 kilometres |
| Reduced Automobile Trips (7-hour peak) | 780 trips | 540 trips |
| GHG Emission Reductions (Annual) | 430 Tonnes | 300 Tonnes |

Benefit 6: Reduce Travel Times for Transit Users and Increase the Reliability of Transit

The locations illustrated in Figure 7, Figure 8 and Figure 9 below have been chosen to show the travel time savings on the east-west connections where passengers would be able to transfer to other transit services such as Viva and the GO Bus network. These connections emphasize the importance that the proposed station would have in contributing to a passenger's full journey, even if the Concord area is not the final destination.

2041 Market Land Use Scenario

Under the Market Land Use Scenario, 14,650 minutes of travel time savings would be realized for transit users during the 7-hour peak period in 2041. This forecasted travel time savings is lower than the Secondary Plan Land Use Scenario (52,250 perceived person minutes) due to lower ridership. However, the impact of the travel time savings at the trip level shown in Figure 7, Figure 8, and Figure 9 would also apply to the Market Land Use Scenario (under the assumption that road and active transportation networks are similar to those proposed in the Secondary Plan land Use Scenario are implemented).

2041 Secondary Plan Land Use Scenario

Under the Secondary Plan Land Use Scenario in 2041, 52,250 minutes of travel time savings would be realized for transit users during the 7-hour peak period as a result of switching their primary travel mode from auto to transit.

The impact of these savings at the trip level have been illustrated in Figure 7, Figure 8 and Figure 9. Under these three examples, the Secondary Plan Land Use Scenario provides travel time savings in the form of 16 minutes from Union Station to Bathurst Street/Centre Street via

¹⁰ Victoria Transport Policy Institute (2022). A New Traffic Safety Paradigm. Online. <https://www.vtpi.org/ntsp.pdf>

Concord GO, 27 minutes from Aurora GO to Leslie Street/Highway 7 via Concord GO and 32 minutes from Newmarket GO to Square One via Concord GO. The travel time savings are most prevalent in the first segment of the journeys where passengers transfer from their starting locations to Concord GO, and then onward to their final destinations.

Figure 7 Example Travel Times Between the BAU and Secondary Plan Land Use Scenario - Union Station to Bathurst Street/Centre Street

Travel Time: Union to Bathurst St. / Centre St.

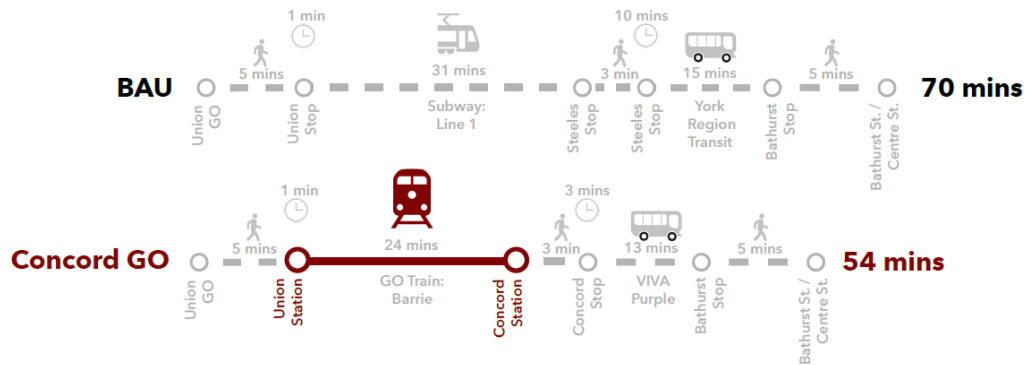


Figure 8 Example Travel Times Between the BAU and Secondary Plan Land Use Scenario - Aurora Station to Leslie Street/Highway 7

Travel Time: Aurora GO to Leslie St. / Hwy 7

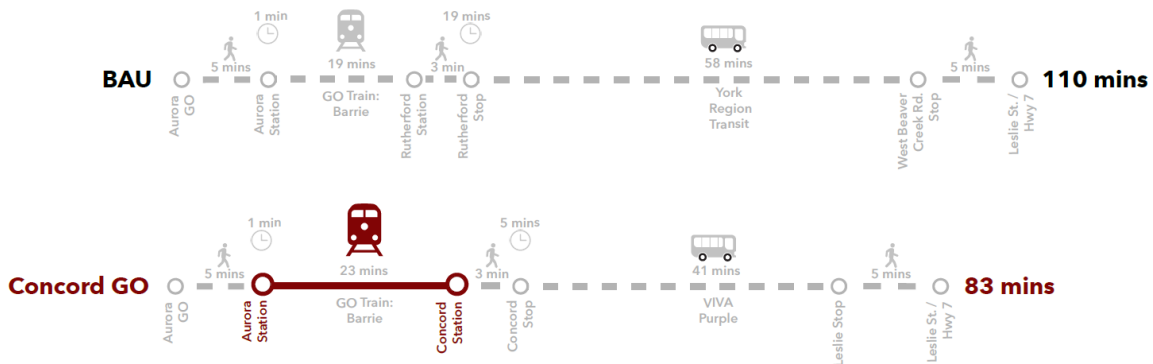
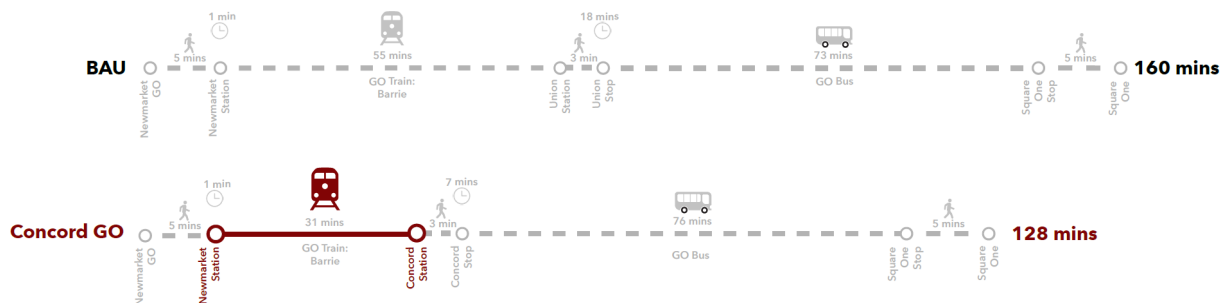


Figure 9 Example Travel Times Between the BAU and Secondary Plan Land Use Scenario - Newmarket Station to Square One

Travel Time: Newmarket GO to Square One



Strategic Outcome 3: Sustainable and Healthy Communities

The Secondary Plan's vision of a compact, high-density, mixed-use community developed around a multi-modal transportation network is supported by the proposed station; reducing automobile dependency and improving air quality. Therefore, this would contribute to a sustainable and healthy community for the population living in Concord.

This section assesses the following benefits for the proposed station as part of Strategic Outcome 3:

- Support infill development and the province's intensification policies to accommodate for future growth within the community;
- Promote compact, complete communities that support sustainable modes of transportation; and,
- Support a synergistic relationship between transit and land uses.

Benefit 7: Support Infill Development and Province's Intensification Policies to Accommodate for Future Growth within the Community

The study area is identified as an MTSA and "Priority Transit Corridor" in A Place to Grow: Growth Plan for the Greater Golden Horseshoe. The Growth Plan notes that MTSAs support planning for a diverse mix of uses, setting the minimum density target of 150 residents and jobs combined per hectare for transit corridors served by the GO Transit rail network. Implementation of the proposed station can attract increased population and employment opportunities, thus supporting intensification in the area.

The study area is part of a Regional Intensification Corridor under Schedule 1 *Urban Structure* of the City of Vaughan Official Plan (2010). As per the Official Plan, the main focus of a Regional Intensification Corridor is to intensify lands adjacent to major transit routes in a form that would support adjacent higher-order transit. Furthermore, part of the study area is also identified as a Local Centre under the same schedule. A Local Centre is an intensification area which would consist of a mixed-use community and would be a focal point for residential, commercial, human services, and office activities which have the potential for intensive and mixed-use development supported by public transit services.

2041 Market Land Use Scenario

The Market Land Use Scenario assumes a lower population and employment forecast compared to the Secondary Plan Land Use Scenario. Therefore, it is anticipated that the build-out of the area would not be as dense, contributing to an urban form that is less compact. This land use scenario would also not conform with the regional and municipal policies to support the desired intensification and higher order transit.

2041 Secondary Plan Land Use Scenario

The Secondary Plan envisions the community as a high-density mixed-use development centered around a multi-modal transportation network. 9% of the lands within the Secondary Plan area are subject to the MZO and those areas surround the station site. The MZO permits a range of employment and residential uses on lands within the Secondary Plan area. Thus, the implementation of the proposed station in this land use scenario would support development opportunities around the proposed station, resulting in a high-density mixed-use community that is well-served by transit.

Benefit 8: Promote Compact, Complete Communities that Support Sustainable Modes of Transportation

At its core, the Concord area is envisioned to have high-density mixed-use developments centered around a multi-modal transportation network. The proposed station has the potential to act as an interchange for transit services as it can provide connections to the GO transit network as well as the local transit services. Policy 4.1.1.2 of the City of Vaughan Official Plan (2010) states that public transit should be the primary focus for expanding Vaughan's transportation network capacity with an overall transit modal split of 30% for the City and 50% for Regional Intensification Corridors by 2031. Furthermore, the main goal of the Vaughan Transportation Master Plan (2012) is to reduce automobile dependency and move the City closer to achieving the goal of a more liveable, sustainable community through a "transit first" approach. The implementation of the proposed station can help in achieving this goal as it would promote sustainable modes of transportation through making GO services more accessible, which would result in reduced automobile use and provide more options for users to get to their destinations.

The 2-hour AM peak modal splits were evaluated for both Secondary Plan and Market Land Use Scenarios as shown in Table 12.

2041 Market Land Use Scenario

By 2041, a majority of the users would access the proposed station by bus (28%), followed by 52% accessing the station through drive-and-park, 8% through walking and biking and 12% through PUDO daily in the Market Land Use Scenario. A majority of the users would leave the proposed station via bus (90%), followed by 7% by drive-and-park, 3% by walking and biking and 1% by PUDO daily. For both access and egress, it is forecasted that sustainable modes would account for 36% to 93% of trips overall respectively. This scenario has the lowest sustainable mode share, indicating that the shift to sustainable modes is positively correlated with higher densities, mixed-use development, and TOC integration.

2041 Secondary Plan Land Use Scenario

By 2041 under the Secondary Plan Land Use Scenario, a majority of the users would access the proposed station by bus (26%), followed by 41% accessing the station through drive-and-park, 23% through walking and biking and 10% through PUDO daily. A majority of the users would leave the proposed station via bus (85%), followed by 6% by drive-and-park, 8% by walking and biking and 1% by PUDO, daily. For both access and egress, it is forecasted that sustainable modes which include walking, biking and transit would account for 49% to 93% of trips overall respectively.

Under the sensitivity test with no parking within the proposed station, a majority of the users would access the proposed station by bus (42%), followed by walking and biking (38%) and 20% by PUDO, daily. A majority of users would leave the proposed station by bus (90%), followed by walking and biking (9%) and 1% by PUDO daily seen in Table 12.

For both access and egress, it is forecasted that sustainable modes would account for 90% of trips overall where the sensitivity test is applied. This supports a reduction of the total automobile VKT and consequently the GHG emissions. This scenario sees the largest increase of trips made by sustainable modes, supporting a walkable and sustainable community with the greatest potential for a more compact TOC, improved road safety and reduced GHGs. The results indicate that if parking is not provided at the station, majority of the Concord users would shift to alternate modes to access the GO Rail network. However, some users may choose to drive to a different station or may choose to leave transit altogether. Overall, these results support the attractiveness of the proposed station under the 2041 Secondary Plan Land Use Scenario.

Table 12: Concord Station 2-hour AM Peak Modal Split Percentages

| 2-hour AM Peak | Access Mode Shares | | | | Egress Mode Shares | | | |
|---|--------------------|------|----------------|-------------|--------------------|------|----------------|-------------|
| | Bus | PUDO | Drive-and-Park | Walk & Bike | Bus | PUDO | Drive-and-Park | Walk & Bike |
| Market Land Use | 28% | 12% | 52% | 8% | 90% | 1% | 7% | 3% |
| Secondary Plan Land Use | 26% | 10% | 41% | 23% | 85% | 1% | 6% | 8% |
| Secondary Plan Land Use (Sensitivity Test - No Parking) | 42% | 20% | 0% | 38% | 90% | 1% | 0% | 9% |

Note: totals may not sum to 100% due to rounding

Benefit 9: Support a Synergistic Relationship between Transit and Land Uses

The policies for the Secondary Plan Land Use Scenario and Market Land Use Scenario would remain the same as the planning legislation referenced is already in place. The proposed station supports Strategy 4 'Integration of transportation and land use,' of the Metrolinx 2041 RTP as it would provide the opportunity for the creation of a densified, mixed-use development around a multi-modal transportation network. As mentioned previously, the study area is identified as an MTSA and Section 2.2.4 of A Place to Grow notes that all MTSA's will be planned and designed to be transit supportive and to achieve multi-modal access to stations and connections to major nearby trip generators.

The York Region Official Plan (2010) notes in Section 5.6 - Building Complete, Vibrant Communities that new communities will offer a variety of housing, employment and mobility choices that will prioritize people, sustainability, and livability. Moreover, the City of Vaughan Official Plan's (2010) policy 4.1.1.3 states the importance of the integration of land use and transportation in planning decisions in order to support a full range of transportation options and prioritize walking, cycling, and transit. Furthermore, part of the study area falls within the Official Plan Amendment 660 (OPA 660), of the City of Vaughan Official Plan (2010) that applies to lands adjacent to Highway 7 and seeks to create a multi-purpose, vibrant community along Highway 7 that supports higher-order transit. The Secondary Plan also supports the creation of a mobility hub through the integration of the VIVA BRT and the GO Rail line with the intensification of areas around the potential transit hub. Therefore, the proposed station would aid in building a strong relationship between transit and land use as it would provide people with more transportation options which would in turn attract more development to the area.

Equity Analysis

An equity analysis was completed to measure equity implications of the proposed station, identify existing needs, and develop strategies to proactively address related concerns. The equity metrics selected for this analysis are summarized in Table 13.

Table 13: Equity Metrics

| Metric | Sub-Metric | Source of Data |
|-----------------|--|---------------------------------------|
| Income | Low-Income Measure (LIM) Prevalence | 2021 York Region Census ¹¹ |
| | Low-Income Cut-Offs (LICO) Prevalence | |
| Journey to Work | Commuting Duration +45 Minutes Prevalence | 2016 York Region Census ¹² |

¹¹ York Region (2021). Profile of Total Income by Census Dissemination Area 2021 Census. Online <https://insights-york.opendata.arcgis.com/datasets/york::profile-of-total-income-by-census-dissemination-area-2021-census/explore?location=43.804582%2C-79.500638%2C13.44>

¹² York Region (2016). Profile of Profile of Journey to Work by Dissemination Area 2016 Census. Online. <https://insights-york.opendata.arcgis.com/datasets/york::profile-of-journey-to-work-by-dissemination-area-2016-census/explore?location=43.790490%2C-79.533169%2C12.96>

For the purpose of this assessment, existing York Region census data was used to assess baseline conditions at the proposed station site. It is acknowledged that conditions at the station would continue to evolve towards the horizon year of 2041, in response to projected population and employment growth and the development vision as per the Secondary Plan.

It must be acknowledged that the dissemination area the station is located in contains predominantly industrial land uses and encompasses a relatively large area. Furthermore, as the proposed station site is at the edge of the dissemination area, it is important to take into account the conditions of the surrounding dissemination areas to get a fulsome understanding of equity opportunities and challenges.

Income

Two income-based metrics were used to assess income from an equity perspective:

- **Low-Income Measure (LIM):** defined as a fixed percentage (50%) of median adjusted after-tax income of private households.¹³
- **Low-Income Cut-Offs (LICO):** refers to economic families or persons not in economic families would likely have devoted a larger share of their after-tax income than average to the necessities of food, shelter, and clothing.¹⁴

Figure 10 and Figure 11 illustrate the current conditions of the dissemination area of the proposed station site against the LIM and LICO metrics, respectively. The results can be summarized as follows:

LIM Prevalence:

Prevalence of low income based on the Low-income measure, after tax (LIM-AT) (%).

- The proposed station dissemination area, nearby VMC, and adjacent Thornhill community has some of the highest LIM Prevalence (14-23%) in the City. Thornhill and VMC would be directly connected to the proposed station via the VIVA BRT.
- **Key Opportunity:** The proposed station improves access to areas with some of the highest LIM Prevalence in the City.

LICO Prevalence:

Prevalence of low income based on the Low-Income Cut-Offs, after tax (LICO-AT) (%).

- Similarly, to the LIM Prevalence metric, the proposed station dissemination area and nearby Thornhill community have some of the highest LICO prevalence (9-13%) in the City. The VMC has slightly lower LICO prevalence (6-8%). Thornhill and VMC would be directly connected to the proposed station via the VIVA BRT.
- **Key Opportunity:** The proposed station improves access to areas with some of the highest LICO Prevalence in The City.

¹³ Statistics Canada (2021). Dictionary, Census of Population. Online. <https://www12.statcan.gc.ca/census-recensement/2021/ref/dict/az/definition-eng.cfm?ID=fam021>

¹⁴ Statistics Canada (2021). Dictionary, Census of Population. Online. <https://www12.statcan.gc.ca/census-recensement/2021/ref/dict/az/definition-eng.cfm?ID=fam019>

Journey to Work

One Journey to Work metric was used to assess the commuting travel times from an equity perspective:

- **>45 Minute Commuting Duration:** defined as commuting duration greater than 45 minutes for the employed labour force, aged 15 years and over in private households with a usual place of work or no fixed workplace address.⁹ The 2018 Metrolinx “Transit Access and Social Equity in the GTHA¹⁵” Background Paper to the 2041 Regional Transportation Plan uses 45 minutes as a proxy metric for employment opportunities, which is important for low-income people who are dependent on transit.

Figure 12 illustrates the current conditions of the dissemination area of the proposed station site against the Journey to Work commute duration metric. The results can be summarized as follows:

Commuting Prevalence:

- This metric is calculated by taking Commuting Duration over 45 minutes divided by the total Commuting Duration per dissemination area.
- The proposed station dissemination area has a 4.6% Commuting Prevalence over 45 minutes. Dissemination areas with some of the highest Commuting Prevalence in the City (25-38%) are located in the adjacent Thornhill community. Other dissemination areas with high Commuting Prevalence over 45 minutes are located to the north near the Rutherford GO and Maple GO stations.
- **Key Opportunity:** The proposed station improves access to areas with some of the highest >45 minute Commuting Prevalence in the City. This implies greater mobility afforded by the station for low-income people who are dependent on transit.

Equity Analysis - Results Summary

Overall, the results demonstrate the proposed station improves access to areas with some of the highest LIM, LICO and Commuting Prevalence over 45 minutes in the city. The Secondary Plan envisions the area evolving into a diverse mixed-use area that would accommodate a broad range of land uses. This includes low to high-rise mixed use and community/commercial land uses, dramatically changing the current predominantly employment-based industrial zoning.

As it is hard to predict the employment and commuting patterns by 2041, it would be difficult to surmise how the Commuting Prevalence would change. However, the proposed station would offer increased mobility options for those who live or work in the Concord area, enabling a greater level of flexibility and choice.

¹⁵ Metrolinx (2018). Transit Access and Social Equity in the Greater Toronto and Hamilton Area. 32 pages. Online. https://assets.metrolinx.com/image/upload/v1663240133/Documents/Metrolinx/Transit_Access_and_Equity_2018.pdf

Figure 10: LIM Prevalence Measure for the Area around the Proposed Station Compared to the Rest of the City of Vaughan

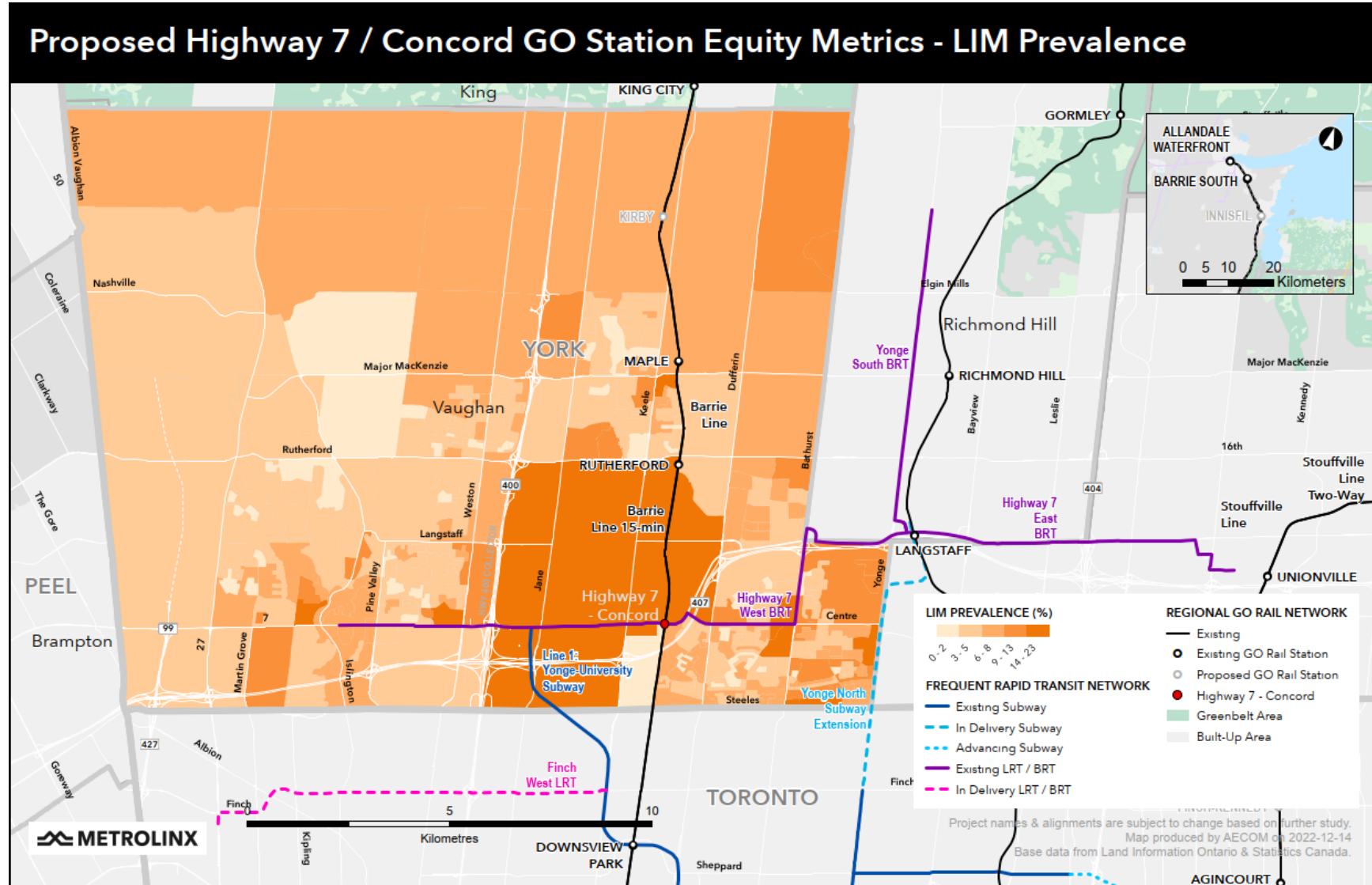


Figure 11: LICO Prevalence Measure for the Area around the Proposed Station Compared to the Rest of the City of Vaughan

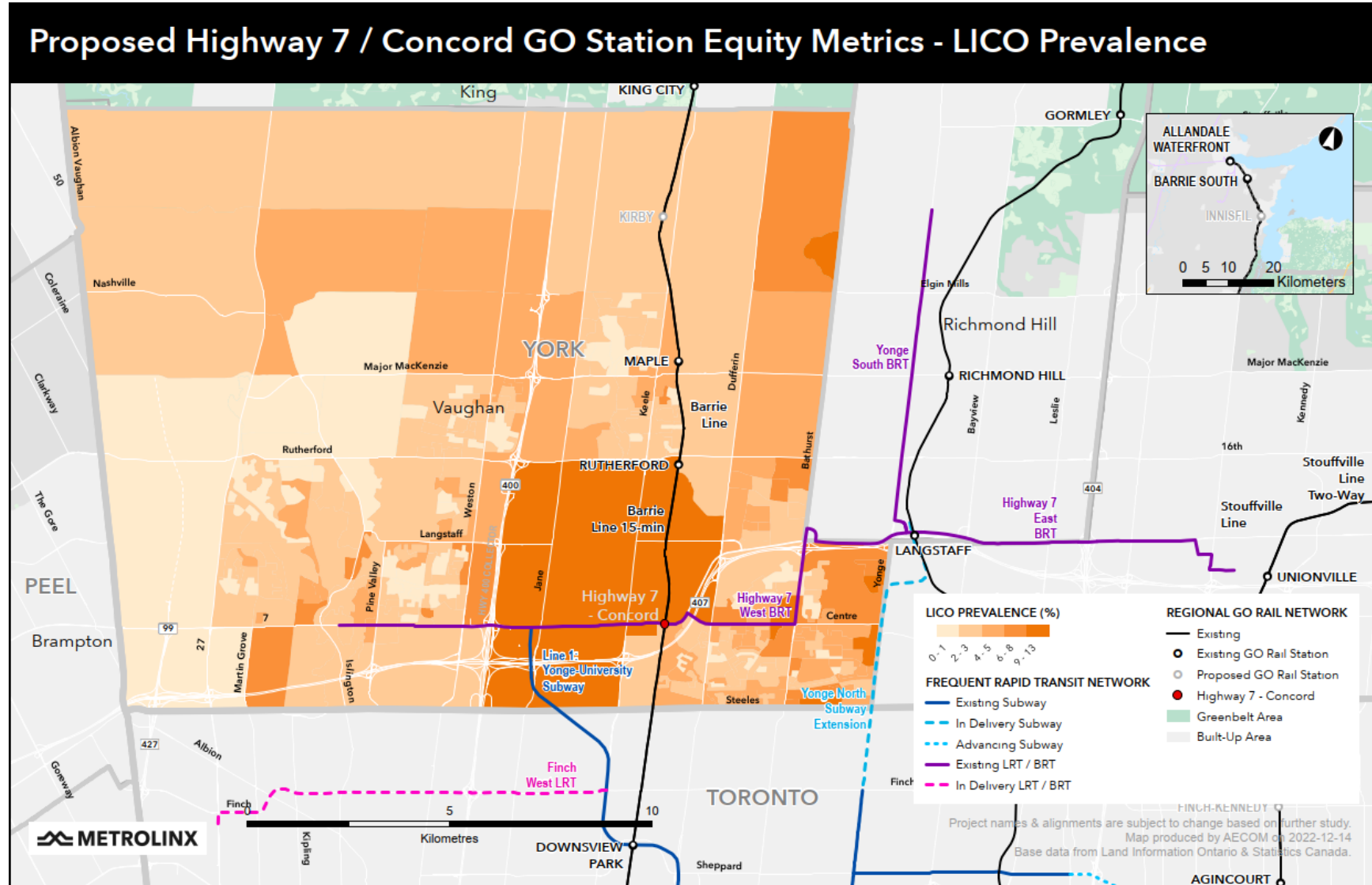
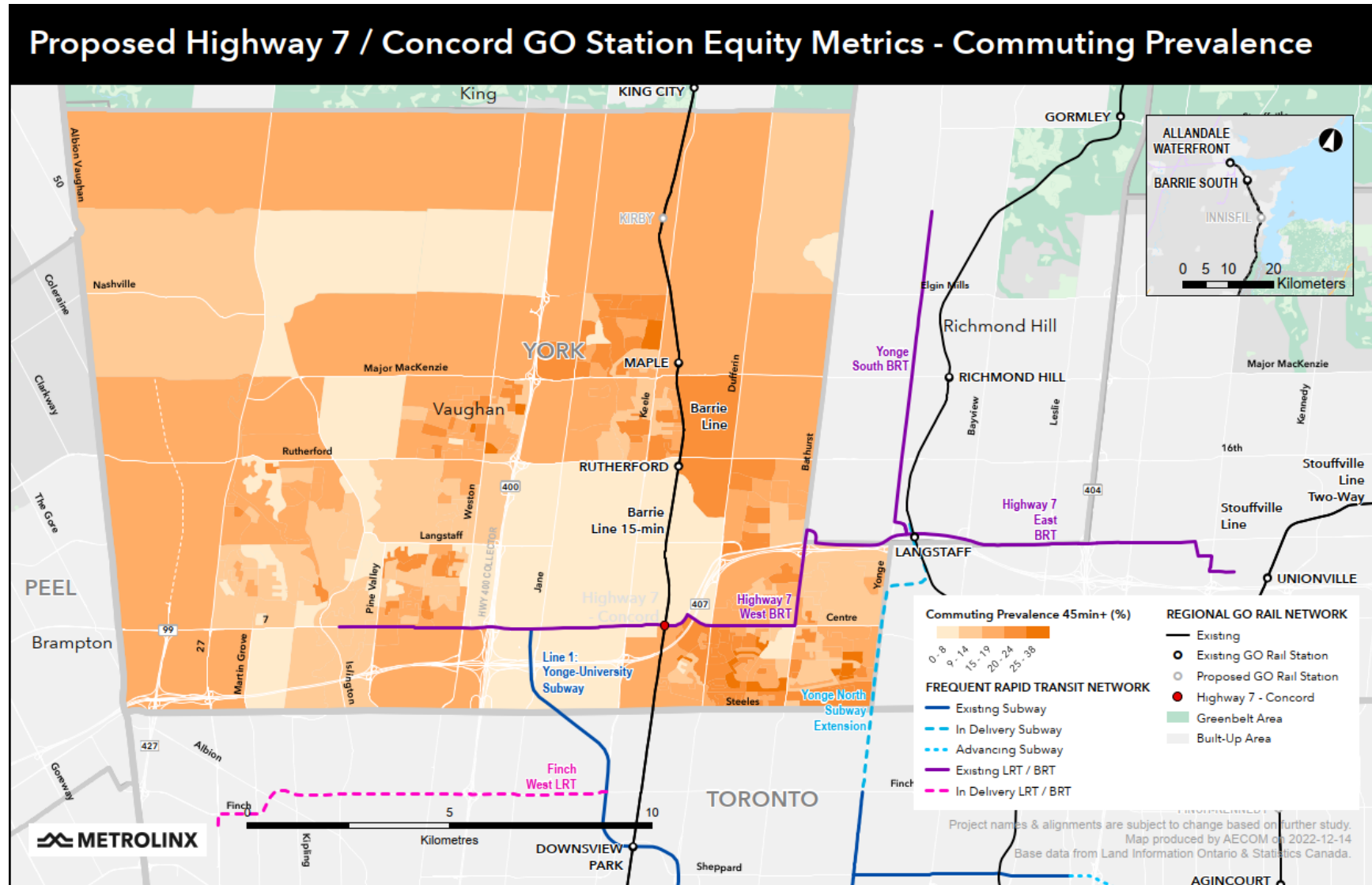


Figure 12 Commuting Duration Prevalence >45 Minutes Measure for the Area around the Proposed Station Compared to the Rest of the City of Vaughan



Strategic Case Summary

The proposed station in the Concord area under the Secondary Plan Land Use Scenario would support a high-density mixed-use community centered around a multi-modal transportation network. One of the primary benefits of the proposed station would be to enhance north-south connections along the Barrie Corridor as well as east-west connections along Highway 7. This would result in increased access to opportunities within as well as outside the community. Furthermore, the proposed station would encourage the use of public transit and promote sustainable modes of travel including walking and biking through the creation of a compact, complete community. In doing so, it would reduce VKT's and GHG emissions which would result in a more sustainable community.

The Market Land Use Scenario produced lower ridership, daily travel time savings, and VKT savings when compared to the Secondary Plan Land Use Scenario. These findings were consistent with the population and employment forecasts for the Market Land Use Scenario which were significantly lower than the forecasts assumed for the Secondary Plan Land Use Scenario.

The summary results of the Strategic Case are outlined in Table 14 and Table 15.

Table 14: Summarizing the Strategic Case

| 2041 RTP Goal | Benefit | 2041 Secondary Plan Land Use Scenario | 2041 Market Land Use Scenario |
|--------------------|--|--|---|
| Strong Connections | Increasing access to residential and employment areas within the community | <ul style="list-style-type: none"> In 2041, 4,730 riders are anticipated to access the proposed station in the 2-hour AM peak. Of the 4,730 riders, 3,440 would board at the proposed station and 1,290 would alight during the 2-hour AM peak. Sensitivity Test: In 2041, 3,740 riders are anticipated to access the proposed station during the 2-hour AM peak. Sensitivity Test: Of the 3,740 riders, 2,470 would board at the proposed station and 1,270 would alight during the 2-hour AM peak. | <ul style="list-style-type: none"> In 2041, 3,780 riders are anticipated to access the proposed station in the 2-hour AM peak. Of the 3,780 riders, 2,660 would board at the proposed station and 1,120 would alight during the 2-hour AM peak. |
| | Attracting new riders to the transit network | <ul style="list-style-type: none"> 275 and 790 net new transit users would be added in the 2041 2-hour AM and 7-hour peaks, respectively. | <ul style="list-style-type: none"> 200 and 550 net new transit users would be added in the 2041 2-hour AM and 7-hour peaks, respectively. |
| | Improve transit access to opportunities beyond Downtown | <ul style="list-style-type: none"> During the 2-hour AM peak in 2041, 24% and 22% of GO Bus riders boarding and alighting at the proposed station would transfer between GO Bus service. | <ul style="list-style-type: none"> During the 2-hour AM peak in 2041, 35% and 25% of GO Bus riders boarding and alighting at the proposed station would transfer between GO Bus service. |

| 2041 RTP Goal | Benefit | 2041 Secondary Plan Land Use Scenario | 2041 Market Land Use Scenario |
|-------------------------------------|---|---|--|
| | Toronto (into York Region) | <ul style="list-style-type: none"> The proposed station would provide connectivity between the Barrie Corridor (with its regional north-south connection and fast travel time to Union Station) and the east-west local and express services through the Viva Rapid-way and REB services, respectively. | |
| Complete Travel Experiences | Network Resiliency (Customer Perspective) | <ul style="list-style-type: none"> In 2041, the proposed station would produce transfer saving disbenefits in the form of 4,020 perceived person minutes during the 7-hour peak. | <ul style="list-style-type: none"> In 2041, the proposed station would produce transfer saving disbenefits in the form of 2,730 perceived person minutes during the 7-hour peak. |
| | Increasing the safety of the road network from reduced automobile use and reduced emissions | <ul style="list-style-type: none"> During the 7-hour peak in 2041, the proposed station would reduce the number of VKT's by 8,290 kilometres. In 2041, the proposed station would contribute to the reduction of 430 tonnes of GHG emissions annually. | <ul style="list-style-type: none"> During the 7-hour peak in 2041, the proposed station would reduce the number of VKT's by 5,750 kilometres. In 2041, the proposed station would contribute to the reduction of 300 tonnes of GHG emissions annually. |
| | Reduced travel times for transit users | <ul style="list-style-type: none"> In 2041, 52,250 minutes of daily travel time savings would be realized for transit users during the 7-hour peak. | <ul style="list-style-type: none"> In 2041, 14,650 minutes of travel time savings would be realized for transit users during the 7-hour peak. |
| Sustainable and Healthy Communities | Support intensification in the area | <ul style="list-style-type: none"> The study area is identified as an MTSA and is also part of a Regional Intensification Corridor, focusing on intensifying the lands to support adjacent higher-order transit. 9% of the lands within the Secondary Plan area are subject to the MZO and those surround the proposed station site. | |
| | Support sustainable modes of transportation (mode share) | <ul style="list-style-type: none"> Each day in 2041, majority of the users would access and egress the proposed station by bus (49% and 53%, respectively). No Parking Sensitivity Test: Each day in 2041, majority of the users would access and egress the proposed station by bus (69% and 71%, respectively). | <ul style="list-style-type: none"> Each day in 2041, majority of the users would access and egress the proposed station by bus (52% and 56%, respectively). |
| | Support a synergistic relationship between transit and land uses | <ul style="list-style-type: none"> The Secondary Plan (2022) envisions the community as a high-density mixed-use development centered around a multi-modal transportation network. The study area is identified as an MTSA and section 2.2.4 of A Place to Grow notes that MTSA's should be planned and designed to be transit supportive and to achieve multi-modal access to stations. The proposed station aligns with the York Region Official Plan which states to offer a variety of housing, employment, and mobility choices within communities. The study area also applies to the City's Official Plan Amendment 660, which seeks to create a multi-purpose, vibrant community along Highway 7 that supports higher-order transit. The Secondary Plan (2022) supports the creation of a mobility hub through integrating the VIVA BRT and GO Rail line through intensification. | |

Table 15 Summary of Equity Analysis

| Metric | Sub-Metric | Findings |
|------------------------|--|--|
| Income | Low-Income Measure (LIM) Prevalence (2021) | <ul style="list-style-type: none"> The proposed station dissemination area, nearby Vaughan Metropolitan Centre (VMC), and Thornhill community has some of the highest LIM Prevalence (14-23%) in the City. Thornhill and VMC would be directly connected to the proposed station via the VIVA BRT. It was observed that the proposed station would potentially improve access to areas with some of the highest LIM Prevalence in the City. |
| | Low-Income Cut-Offs (LICO) Prevalence (2021) | <ul style="list-style-type: none"> Proposed station dissemination area, and nearby Thornhill community have some of the highest LICO prevalence (9-13%) in the City. The VMC has slightly lower LICO prevalence (6-8%). Thornhill and VMC would be directly connected to the proposed station via the VIVA BRT. It was observed that the proposed station would potentially improve access to areas with some of the highest LICO Prevalence in the City. |
| Journey to Work | Commuting Duration +45 Minutes Prevalence (2016) | <ul style="list-style-type: none"> The proposed station dissemination area has 4.6% Commuting Prevalence over 45 minutes. Dissemination areas with some of the highest Commuting Prevalence over 45 minutes (25-38%) are located in the adjacent Thornhill community. Other dissemination areas with high Commuting Prevalence are located to the north near the Rutherford GO and Maple GO stations. It was observed that the proposed station would potentially improve access to areas with some of the highest commuting prevalence over 45 minutes in the City. |

5

Economic Case



Introduction and Assumptions

The Economic Case analyzes the benefits of the Highway 7/Concord GO Rail Station through economic appraisal methods. The analysis assesses each land use scenario against their own BAU scenario. It provides a rationale for pursuing the investment in the proposed station from a societal perspective. The Economic Case evaluation consists of a cost-benefit analysis to assess if there is a clear basis for proceeding with the funding and implementation of the new station. The analysis compares the additional costs arising from the project against the incremental benefits, that can be monetized and included in the analysis. The costs include capital expenditure and any additional operation and maintenance costs for the station. The benefits include impacts to transportation users (i.e. travel time savings, reduced vehicle operating costs and safety impacts) and the indirect benefits consisting of environmental and health outcomes resulting from changes in travel behaviour.

The analysis considers the Net Present Value (NPV) measure that provides the value of benefits net of all costs throughout the investment's evaluation period and the Benefit-Cost Ratio (BCR) measure that offers an indication of the economic return per dollar of investment. The use of these metrics is based on the ability to quantify benefits in terms of monetary values and comparing them to the project costs. The assumptions for the Economic Case, as provided within Metrolinx's Business Case Manual Volume 2: Guidance¹⁶, and key parameters from the Strategic Case are outlined in Table 16.

Table 16 Economic Case Assumptions and Key Parameters

| Input | Impact Type |
|-------------------------------------|--|
| Assumptions | |
| Analysis Approach | All costs and benefits are expressed in 2022\$ |
| Evaluation Period | Construction + 60-years of operations |
| Economic Discount Rate (real) | 3.5% |
| Real Inflation (costs) | 1% |
| Real Inflation (benefits) | 0% |
| Risk Free Bond Rate (real) | 0.82 % |
| Opportunity Cost Growth Rate (real) | 2.8% |
| Ridership Growth Rate | 1% |
| Value of Time (VoT) (2022\$) | \$18.79 / hour |
| VoT Growth Rate | 0% |
| Auto Occupancy | 1.077 |

¹⁶ Metrolinx (2021). Business Case Manual Volume 2: Guidance. 222 Pages. Online.

<https://www.metrolinx.com/en/regionalplanning/projectevaluation/benefitscases/Metrolinx-Business-Case-Guidance-Volume-2.pdf>

| Input | Impact Type | |
|---|---|------------------------------------|
| Unperceived Auto Operating Cost Savings (2022\$) | \$0.10 / km | |
| Walking Health Improvements (2022\$) | \$4.08 / KM | |
| Safety Improvements (Accident Reduction) (2022\$) | \$0.09 / KM (Note: reduces at a rate of 5.3% per year) | |
| GHG Reduction Value (2022\$) | \$0.01 / KM | |
| Air Quality (CAC Reduction Value) (2022\$) | \$0.002 / KM | |
| Key Parameters (2041) | 2041 secondary Plan Land Use Scenario | 2041 Market Land Use Scenario |
| 2-Hour AM Peak Riders | 4,730 | 3,780 |
| 7-Hour AM and PM Peak Transit Travel Time Savings | 52,250 perceived person minutes | 14,650 perceived person minutes |
| 7-Hour AM and PM Peak Auto Trips Saved | 790 | 550 |

Costs

The cost figures presented are incremental to the BAU scenario and include three main components: capital costs, operating and maintenance costs, and land value opportunity cost. The concept plan developed for the purpose of this IBC, as presented in Figure 3, served as the basis for this costing exercise under both land use scenarios.

Capital Costs

The capital costs were derived internally by the cost estimation team and is based on the representative conceptual plan for the station site, outlined in Figure 3, and is subject to change. For the purpose of the IBC, it is assumed that the capital costs:

- Does not include any flood mitigation measures specific to the station site or the Barrie Corridor as a flood mitigation plan for the area has not been undertaken,
- The station infrastructure assumptions were kept constant between the two land use scenarios

The capital costs to implement the proposed station are estimated at \$140 million in present value under both scenarios. This value is comprised of various sub-categories, mainly consisting of \$129 million for infrastructure as well as \$13.6 million for rehabilitation and -\$2 million for terminal value. Fleets and network fleets both had costs of \$0 million identified.

It is important to note that an optimism bias adjustment was included within the capital cost estimates for the land use scenarios. As per Metrolinx's Business Case Manual Volume 2: Guidance, capital costs are adjusted for optimism bias to demonstrate that actual costs are typically higher than planned costs. This adjustment is only completed on the capital costs presented under the Economic Case.

While the cost estimates used for the purposes of this IBC were prepared by Metrolinx, the capital costs would be funded by a third party. Accordingly, it is anticipated that the cost estimate of delivering the proposed station is likely to differ if prepared by a third party.

Operating and Maintenance Costs

Over the 60-year evaluation period, the cost to operate and maintain the proposed station would be \$28 million in present value terms for both scenarios. This value consists of \$5 million for day-to-day operations of the station as well as \$23 million for incremental GO train operating costs.

Land Value Opportunity Cost

The land value opportunity cost is based on the total property cost and represents all lands used for the proposed station as well as the opportunity cost of using the proposed station land for uses other than providing a transit network connection. Under both scenarios, the land value opportunity cost is \$10 million in present value terms over the 60-year evaluation period. This value was estimated using a risk-free bond rate of 0.82% and opportunity cost growth rate of 2.80%.

Refer to Table 17 for a summary of the economic costs.

Table 17: Summarizing Economic Costs (2022 \$ Millions, Present Value)

| Cost Category | 2041 Secondary Plan Land Use Scenario & 2041 Market Land Use Scenario (Compared to Respective BAU Scenarios) |
|--|--|
| Capital Costs | \$140 M |
| Infrastructure ¹⁷ | \$129 M |
| Fleet | \$ 0 M |
| Rehab | \$13.6 M |
| Terminal Value | (\$2 M) |
| Network Fleet | \$ 0 M |
| Operating and Maintenance Costs | \$ 28 M |
| Project Operating Cost | \$ 5 M |
| GO Train Incremental O&M | \$ 23 M |
| Land Value Opportunity Cost | \$ 10 M |
| Total Present Value of Costs | \$ 178 M |

¹⁷ Does not include train operations Infrastructure

User Impacts

The perceived costs of a journey for an individual, considering all modes of travel, are captured under user impacts. Impacts related to travel, crowding, and congestion are assessed, as well as the cost of operating an automobile.

Travel Time Impacts

All elements of a user's trip are considered when determining the impact of changes to travel time, including travelling to, accessing, and waiting at the proposed station. During the 7-hour peak in 2041, transit users would experience 52,250 minutes and 14,650 minutes in travel time savings under the 2041 Secondary Plan Land Use and 2041 Market Land Use Scenarios, respectively. When monetized at a Value of Time (VoT) of \$18.79/hour, this results in \$108 million and \$27 million in present value terms over the 60-year evaluation period, under the 2041 Secondary Plan Land Use Scenarios and 2041 Market Land Use respectively, in travel time benefits.

While the time saving for most transit users is positive, some users will experience a worse travel time due to this project. The large difference in results between the two scenarios (when compared against the respective BAU scenarios) is potentially due to the lower population and employment forecasts in the 2041 Market Land Use Scenario. With fewer people accessing the station, this results in lower ridership. Those who access the station, but do not live close, would need to travel a further distance to reach the station. Travelling further results in less travel time savings overall, contributing to a lower monetized value in economic terms.

Crowding Impacts

Crowding impacts represents how users perceive travel time depending on the crowding levels of transit services. The more crowded the service, the higher the perceived travel time (even if the journey takes the same amount of actual time on a less-crowded service). The reliability of an entire journey, based on travel time, is also included within this assessment. Both scenarios resulted in disbenefits associated with crowding, with -\$8 million and -\$22 million in present value terms realized under the 2041 Secondary Plan Land Use and 2041 Market Land Use Scenarios, respectively.

The 2041 Secondary Plan Land Use Scenario had a lower crowding disbenefit than the 2041 Market Land Use Scenario when compared against the respective BAU. This is because while a higher population and employment forecast is assumed, there is a lower share of riders using bus services to access the proposed station (26% and 85%, respectively). Instead, more riders may access the proposed station by walking and cycling, consisting of 23% and 8% of the mode share, respectively, due the higher densities. This results in a higher relative concentration of riders taking bus services in the 2041 Market Land Use Scenario compared to the respective BAU scenario, thus resulting in higher crowding disbenefits due to increased perceived travel time.

Congestion Reduction

Congestion impacts capture the impact to users who remain of the road network when the proposed station is in place. It is represented by the change in average travel time on the road network when using an automobile and is based on a VoT of \$18.79/hour. Due to rounding, both scenarios resulted in a marginal congestion impact of -\$1 million.

Auto Operating Cost

Monetized at a value of \$0.10/km, auto operating costs represent the costs associated with owning and operating a vehicle. This impact captures trips which use reduced auto travel or alternate modes all together. It reflects that users do not consider such costs when deciding their mode of travel and are made for alternate reasons instead. The 2041 Secondary Plan Land Use scenario realized \$6 million in savings and the 2041 Market Land Use Scenario realized \$4 million in savings in present value terms over the 60-year evaluation period.

Refer to Table 18 for a summary of the user impacts.

Table 18: Summarizing User Impacts (2022 \$ Millions, Present Value)

| Impact Type | 2041 Secondary Plan Land Use Scenario (Compared to Respective BAU) | 2041 Market Land Use Scenario (Compared to Respective BAU) |
|--|---|---|
| Travel Time | \$ 108 M | \$ 27 M |
| Crowding | (\$ 8 M) | (\$ 22 M) |
| Congestion Reduction | (\$ 1 M) | (\$ 1 M) |
| Auto Operating Costs | \$ 6 M | \$ 4 M |
| Total Present Value of User Impacts | \$ 106 M | \$ 8 M |

External Impacts

The broader societal benefits of the proposed station to society are captured under external impacts, categorized through values representing wellbeing (health and safety) and the environment.

Wellbeing (Health)

Both scenarios result in health benefits to society. Monetized at a walking health improvement value of \$4.08/km, the 2041 Secondary Plan Land Use and Market Land Use Scenarios would realize \$8 million and \$4 million in present value terms, respectively, over the course of the 60-year evaluation period.

Wellbeing (Safety)

Monetized at a value of \$0.09/km, both the 2041 Secondary Plan Land Use and Market Land Use Scenarios would result in safety benefits to society in the form of accident reduction, identified as \$2 million and \$1 million in present value terms, respectively.

Environment

The scenarios would both result in \$1 million in present value benefits to society through the reduction of Greenhouse Gas (GHG) and Criteria Air Contaminants (CAC), monetized at a value of \$0.01/km and \$0.002/km, respectively.

Refer to Table 19 for a summary of the external impacts.

Table 19: Summarizing External Impacts (2022 \$ Millions, Present Value)

| Impact Type | Impact | 2041 Secondary Plan Land Use Scenario (Compared to Respective BAU) | 2041 Market Land Use Scenario (Compared to Respective BAU) |
|--|---|---|---|
| Wellbeing | Health: Active Travel Benefit | \$ 8 M | \$ 4 M |
| | Safety: Accident Reduction | \$ 2 M | \$ 1 M |
| Environment | Greenhouse gases: GHG & CAC Reductions (Carbon Cost Method) | \$ 1 M | \$ 1 M |
| Total Present Value of External Impacts | | \$ 11 M | \$ 6 M |

Adjustments

A series of adjustments were applied, summarized as follows:

- **Fare Revenue Adjustment:** Converts user costs to societal costs through a post-impact estimation. As a financial cost, transit fares influence the modes selected by users and ultimately impacts overall transit ridership. As a user cost, it is seen as only a transfer between the user and the service provider. The fare revenue adjustment is realized as \$63 million and \$54 million in present value terms for the 2041 Secondary Plan Land Use and 2041 Market Land Use Scenarios, respectively.
- **Fuel Tax Adjustment:** Captures impacts to fuel tax revenue as a result of VKT changes. The 2041 Secondary Plan Land Use and 2041 Market Land Use Scenarios would realize -\$3 million and -\$2 million in present value terms, respectively, for the fuel tax adjustment.
- **Auto Maintenance Cost Tax Adjustment:** Captures impacts to vehicle maintenance HST tax revenue as a result of VKT changes. The scenarios would both realize \$0 million in present value terms.

In addition, travel time benefits, crowding benefits, congestion reduction, and the fare revenue adjustment are adjusted under Ontario's HST rate of 13%. The adjusted values are already included within the Economic Case as a post user impact estimation adjustment to capture the indirect impact on government fuel tax revenue as a result of changes in fuel consumption brought on by a transportation intervention.

Economic Case Summary

The 2041 Secondary Plan Land Use Scenario experiences benefits associated with travel time savings, reduced auto operating costs, and wellbeing and environmental impacts. Estimated at \$108 million, the travel time savings impacts are the highest benefit experienced through this scenario. This value contributes heavily to the total economic benefit, estimated to be \$176 million in present value terms under the 60-year evaluation period. When applied against the costs of \$178 million to implement the proposed station, this results in a negative NPV of \$2 million.

Consequently, the BCR is 0.99 under the 2041 Secondary Plan Land Use Scenario, calculated by dividing the total discounted benefits by the total discounted costs. For every dollar

invested in the project, the proposed station creates \$0.99 net benefits and \$0.01 in net costs to society.

While the 2041 Market Land Use Scenario still results in societal benefits through reduced auto operating costs, wellbeing impacts, and environmental impacts, the travel time savings benefits are lower than the 2041 Secondary Plan Land Use Scenario when referenced against the applicable BAU scenarios, identified as \$27 million versus \$108 million, respectively. This results in a lower relative total economic benefit experienced by the 2041 Market Land Use Scenario, estimated to be \$66 million in present value terms over the 60-year evaluation period. Such benefits are not enough to outweigh the costs of \$178 million to implement and operate the proposed station, resulting in a negative NPV of \$112 million in present value terms over the 60-year evaluation period.

Accordingly, the BCR is 0.37; calculated by dividing the total discounted benefits by the total discounted costs. For every dollar invested in the project, the proposed station creates \$0.37 net benefits and \$0.63 in net costs to society.

The results of the Economic Case can be interpreted as follows:

- The anticipated density around the station site as a result of population and employment forecasts plays a significant role in its performance. Due to the higher travel time savings as a result of a greater number of people living and working adjacent to the proposed station, the 2041 Secondary Plan Land Use Scenario is able to offset the costs of implementing the investment. Thus, the importance of integrating the proposed station with TOC opportunities is emphasized in order to achieve the needed density targets.
- Metrolinx's Business Case Manual Volume 2: Guidance¹⁶ indicates that investments with a BCR greater than or equal to 1 and an NPV greater than 0 are economically viable or beneficial, respectively. Under such guidance, the 2041 Secondary Plan Land Use Scenario would produce results that just meet the threshold of economic viability. Such results demonstrate the importance of realizing high density targets around the proposed station and encouraging integration with TOC opportunities, as they hold a significant bearing on the overall results. Lower density targets would negatively impact the economic performance of the proposed station, as shown through the results of the 2041 Market Land Use Scenario when compared to the respective BAU scenario.

Refer to Table 20 for a summary of the economic case results.

Table 20: Summarizing the Economic Case (2022 \$ Millions, Present Value)

| Impact Type | 2041 Secondary Plan Land Use Scenario (Compared to Respective BAU) | 2041 Market Land Use Scenario (Compared to Respective BAU) |
|---|--|---|
| Total Costs (Present Year \$) | \$ 178 M | \$ 178 M |
| Capital Costs | \$ 140 M | \$140 M |
| Operating and Maintenance Costs | \$ 28 M | \$ 28 M |
| Land Value Opportunity Cost | \$ 10 M | \$ 10 M |
| Total Impacts (Present Year \$) | \$ 176 M | \$ 66 M |
| User Impacts | \$ 105 M | \$ 8 M |
| External Impacts | \$ 11 M | \$ 6 M |
| Fare Revenue Adjustment | \$ 63 M | \$ 54 M |
| Fuel Tax Adjustment | (\$ 3 M) | (\$ 2 M) |
| Auto Maintenance Cost Tax Adjustment | (\$ 0 M) | (\$ 0 M) |
| BCR | 0.99 | 0.37 |
| NPV (Present Year \$) | (\$ 2 M) | (\$ 112 M) |

Wider Economic Impacts

Overall, the proposed station would have a positive impact on mobility for society as a whole since it would increase access to personal and professional opportunities for the local population. Users would be able to access opportunities north-south along the Barrie Corridor as well as east-west throughout York Region. The study area also has a high prevalence of low-income households (based on 2021 Census data as outlined in the Income and Journey to Work Equity Analysis section of this IBC); therefore, the proposed station would provide users with increased mobility to meet their needs.

Furthermore, the investment would attract more businesses to the area and aide in creating a high-density mixed-use community around the station site which can trigger new economic activity through providing improved access to work opportunities, leisure, customers, and suppliers. According to 2016 Census Data¹⁸, 14.2% of the residents living in the proposed station's dissemination area used public transit as their main mode of commuting, 0.9% used cycling and 4.1% used walking as their main mode of commuting. In comparison, 12.7% of the population in the City used public transit as their main mode of commuting, 0.2% used cycling and 1.8% of the population used walking as their main mode of commuting. Therefore, the

¹⁸ Census Profile, 2016 Census. Online. <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=DA&Code1=35190261&Geo2=CSD&Code2=3519028&SearchText=35190261&SearchType=Begins&SearchPR=01&B1=Journey%20to%20work&TABID=3&type=1>

data shows that more people around the proposed station already utilize public transit, cycling, and walking as their main mode of commuting as compared to the City as a whole and the proposed station has the potential to increase the mode share for sustainable transportation modes further.

6



Financial Case



Introduction

The Financial Case presents the financial impact of delivering the Highway 7/Concord GO Rail Station, estimating the costs and revenue impacts to assess the NPV and operating cost recovery ratio (R/C Ratio). This section analyzes the financial viability of the new station from the perspective of Metrolinx and outlines all costs that the organization would incur.

The dollar values for the 60-year evaluation period, based on potential construction start and end dates, are in nominal dollars (the dollar amount expected to be paid or received and expressed in the year of payment). According to Metrolinx's Business Case Manual Volume 2: Guidance¹⁶, nominal dollars are calculated assuming an inflation rate of 2%.

Costs

The cost figures presented are incremental to the BAU scenario and include two main components: capital costs and operating and maintenance costs. The concept plan developed for the purpose of this IBC, as presented in Figure 3, served as the basis for this costing exercise under both the scenarios.

Capital Costs

For the purpose of the IBC, it is assumed that the capital costs do not include any flood mitigation measures specific to the station site or the Barrie Corridor. A flood mitigation plan for the station site would need to be assessed by Metrolinx.

In addition, the proposed station is assumed to be delivered through Metrolinx's TOC Program, with the majority of capital cost assumed to be borne by the potential site developer. The TOC Program is market-driven and involves partnerships between Metrolinx and third-parties. As a result, developer contributions to the capital costs including infrastructure, terminal value, and rehabilitation costs are removed from the analysis.

Thus, over the course of the 60-year evaluation period, both scenarios would incur \$49 million (YOE, undiscounted) in capital costs for Metrolinx. Under each scenario, this total value consists of \$13 million for Metrolinx cost, \$84 million for rehab, -\$48 million for terminal value, and \$0 million for both fleet and network fleet costs, all the costs are presented in undiscounted year of expenditure dollars.

See Table 21 for undiscounted for YOE and see Table 22 for discounted values in YOE.

Operating and Maintenance Costs

Over the 60-year evaluation period, the cost incurred by Metrolinx to operate and maintain the proposed station would be \$181 million (YOE, undiscounted) for both of the scenarios, due to rounding. This value consists of \$33 million (YOE, undiscounted) for station operations as well as \$148 million (YOE, undiscounted) for incremental GO train operating costs.

In nominal terms over the course of the 60-year evaluation period, the annual costs would range between \$0.2 million to \$1 million for station operations and between \$1.1 million to \$4.4 million for incremental GO train operations. Combined, this would result in operating and maintenance costs of between \$1.3 million and \$5.4 million per year.

Land Acquisition Residual Value

The land acquisition residual value captures the value of the land at the end of the evaluation period for the project. Under both scenarios, this value would \$527 million (YOE, undiscounted).

Revenue Impacts

Fares paid by passengers to utilize GO train services are assumed to generate revenue from the proposed station. Under the 2041 Market Land Use Scenario, \$404 million (YOE, undiscounted) terms would be realized from incremental project revenue over the course of the project lifecycle. Annually, \$1.7 million to \$12 million in nominal terms would be generated through fare revenue from the proposed station.

Under the 2041 Secondary Plan Land Use, \$469 million (YOE, undiscounted) incremental project revenue is realized under the 2041 Secondary Plan Land Use Scenario throughout the course of the project lifecycle. Annually, \$2 million to \$14 million in nominal terms would be generated from fare revenue through the proposed station.

Financial Case Summary

Under the 2041 Market Land Use Scenario, \$404 million (YOE, undiscounted) in revenue impacts in present value terms would be realized. This results in a lower revenue of \$174 million when compared to the 2041 Secondary Plan Land Use Scenario. The operating cost recovery ratio and total cost recovery ratio would be 2.19 and 1.85, respectively.

The 2041 Secondary Plan Land Use Scenario would realize \$469 million (YOE) in revenue impacts. After removing the land acquisition residual value and including the capital costs of \$49 million and operating and maintenance costs of \$181 million, this results in a revenue of \$239 million. The resulting operating cost recovery ratio and total cost recovery ratio would be 2.54 and 2.15, respectively.

Refer to Table 21 and Table 22 for a summary of the financial case results, noting that all values have been rounded.

Table 21: Financial Case Summary (\$ Millions, Year of Expenditure undiscounted)

| Financial Case Metric | 2041 Secondary Plan Land Use Scenario | 2041 Market Land Use Scenario |
|--|--|--------------------------------------|
| Total Revenue Impacts | \$ 469 M | \$ 404 M |
| Total Capital Costs (Flagging/I&IT Services/Staff & Professional Services of MX) | \$ 49 M | \$ 49 M |
| Total Operating and Maintenance Costs | \$ 181 M | \$ 181 M |
| Land Acquisition Residual Value | (\$ 527 M) | (\$ 527 M) |
| Net Revenue | \$ 239 M | \$ 174 M |

Table 22: Financial Case Summary (2022 \$ Millions, Year of Expenditure discounted)

| Financial Case Metric | 2041 Secondary Plan Land Use Scenario | 2041 Market Land Use Scenario |
|--|--|--|
| Total Revenue Impacts | \$ 73 M | \$ 62 M |
| Total Capital Costs (Flagging/I&IT Services/Staff & Professional Services of MX) | \$ 34 M | \$ 34 M |
| Total Operating and Maintenance Costs | \$ 29M | \$ 29 M |
| Land Acquisition Residual Value | (\$ 16 M) | (\$ 16 M) |
| Net Revenue | \$ 39 M | \$ 29 M |
| Operating Cost Recovery Ratio (R/C Ratio) | 2.54 | 2.19 |
| Total Cost Recovery Ratio | 2.15 | 1.85 |

7



Deliverability and Operations Case



Introduction

The Deliverability and Operations Case evaluates the considerations for implementation and operation of the Highway 7/Concord GO Rail Station. These include project governance and sponsors, major project components, environmental considerations, and construction impacts. Operations and maintenance considerations are also discussed together with key drivers and project dependencies.

Project Delivery

This section covers the delivery aspect of the proposed station for both scenarios including identifying project sponsors and governance arrangements as well as the complexity, risk, and impacts associated with construction.

Project Sponsors and Governance Arrangements

The Barrie Rail Corridor is owned by Metrolinx, but the land around it is privately owned. Therefore, Metrolinx is not required to seek permission or negotiate with any external stakeholders to operate on the rail corridor.

Aside from Metrolinx, additional parties and their respective interests/responsibilities are outlined in Table 23.

Table 23 Additional Parties and their Respective Interests/Responsibilities

| Stakeholder | Respective Interests/Responsibilities |
|--|---|
| City of Vaughan | The Concord area is located in the City of Vaughan and, therefore, it would have to be ensured that the development of the proposed station complies with municipal land use approvals and the Secondary Plan. |
| York Region | The City of Vaughan is located within York Region and thus it would have to be ensured that the development of the proposed station conforms with municipal land use approvals at the upper-tier level. |
| Toronto and Region Conservation Authority (TRCA) | The proposed station is surrounded by lands designated as Natural Areas which are part of the Natural Heritage Network as per Schedule B of the Secondary Plan. Furthermore, there are lands identified for Flood Hazard around the proposed station as per Schedule H of the Secondary Plan which are regulated by TRCA. Therefore, consultation with the TRCA would be required in order to get the necessary approvals for the proposed station. |
| Landowners and Developers | Local landowners and developers within the Secondary Plan area would have an interest in the proposed station due to the impacts it could have on their properties and projects. |
| Ministry of Transportation of Ontario (MTO) | The involvement of MTO is required to coordinate the development of the proposed station with the future 407 Transitway. |
| Indigenous Nations | Duty to Consult requirements for Indigenous Nations would need to be followed. Indigenous Nations would need to be engaged early in the Transit Project Assessment Process (TPAP) process and may have an interest if the station is located within |

| Stakeholder | Respective Interests/Responsibilities |
|-------------|--|
| | the natural heritage system, particularly as the site is adjacent to the west branch of the Don River. The Indigenous Nations would continue to be engaged throughout all project stages for information and consultation opportunities. |

Major Project Components

This section discusses the constructability complexities and risks associated with the major components of the proposed station concept.

Station Site

For the purpose of this IBC, the proposed station is assumed to be north of Highway 7, east of the Barrie Corridor. This location is designated for high-rise mixed-use development under the Secondary Plan and currently there are no structures on the land. However, there is a planned development east of the proposed station site which is a master-planned community consisting of new condominium units, retail, offices and parkland. Furthermore, there are a number of road connections proposed around the station site as per the Secondary Plan.

Implementation of the proposed station would need to be coordinated closely with the planned development and infrastructure works around the assumed station site. This is especially important should additional parking spaces be potentially warranted, as this would need to be coordinated closely with development plans and TOC integration.

Moreover, the proposed TOC development, including the station site, will trigger the need for flood mitigation measures as it is located within a 25-year flood zone. Therefore, a comprehensive flood assessment would need to be assessed by Metrolinx to determine mitigation requirements and as such no mitigation measures have been included in the capital cost.

Station Facilities

As shown in Figure 3, The concept plan for the proposed station location follows a standard Metrolinx station configuration and has been developed to support the cost estimate for this IBC. It should be noted that if the concept design of the proposed station is changed from that of a standard Metrolinx station configuration, such as to an integrated facility, it could result in additional construction complexities and risks. In addition, the ability for the safe egress and ingress of emergency vehicles would need to be maintained at all times during construction and when operations would begin.

Track Infrastructure

The impact to the Barrie Corridor due to the construction of the two side platforms would need to be assessed. However, to reduce risk to rail operations and minimize impacts during this time, new infrastructure can be constructed when the trains are not operational. Furthermore, any potential construction impacts between the proposed station and the Barrie GO Expansion

program¹⁹ would need to be coordinated since it is anticipated to be completed by 2030, and not scheduled for electrification until 2032.

Any impacts to the Barrie Corridor caused by flood mitigation measures necessary for implementation of the proposed station or any TOC projects would need to be coordinated with the deliverability of the Barrie GO Expansion program.

Construction Impacts

The proposed station is assumed to be constructed on land identified for high-rise mixed-use development. The level of construction impact depends on when the proposed station is constructed in relation to the planned development on the east of the station site. Traffic detours, noise and dust may negatively impact the local community. In addition, air quality and vibration impact on existing land uses surrounding the assumed station site, including existing businesses to the west and south, would need to be assessed. This would include the identification of any sensitive receptors within the vicinity.

Furthermore, as of now the only access to the station site is from Highway 7 until the road network proposed in the Secondary Plan is built out. Therefore, all the materials and construction equipment would need to be transported to the station site through Highway 7 which may cause disturbance to local vehicular movement, as it is a major arterial within the area.

Environmental Considerations

Environmental Assessment

There is a streamlined environmental assessment process that Metrolinx utilizes for large transit projects following the Ontario Regulation 231/08: Transit Projects and Environmental Undertakings (also referred to as the Transit Project Assessment Process (TPAP)), as granted under the Environmental Assessment Act. It would include an assessment of the environmental impacts, implication of mitigation measurements and monitoring requirements to minimize impacts, and public stakeholder as well as Indigenous engagement requirements. Therefore, it should be noted that completion of a TPAP and any necessary environmental due diligence investigations would be required.

Potential Environmental Impacts

A few natural heritage features such as the West Don River Valley and Bartley Smith Greenway are in proximity to the proposed station site as per Schedule F *Parks and Open Space Network* of the Secondary Plan. There is also presence of a known flood hazard around the proposed station site identified in Schedule H *Flood Hazard* of the Secondary Plan which can cause significant flooding and spill between the Barrie Corridor and Bowes Road as well as Highway 7. This creates significant constraints that would need to be assessed and/or mitigated during the detailed design stage, prior to any future development and would require a written approval from the TRCA beforehand.

The open watercourse conveyance parallel to Highway 7 would require some reconfiguration of the station layout to ensure that no additional fill is placed in the flood plain and the open watercourse remains in place. In addition, safe ingress and egress would have to be identified,

¹⁹ Barrie GO Expansion program. Online. <https://www.metrolinx.com/en/greaterregion/projects/barrie-go-expansion.aspx>

as the main access route to the future development would flood during a 25-year storm. Therefore, comprehensive flood plain evaluation with potential need of hydraulic modelling would be required prior to any development. The TRCA would need to be involved as it regulates the West Don River and any development within and adjacent to the TRCA regulated areas is subject to their requirements. The Ministry of Natural Resources and Forestry and Ministry of Environment, Conservation and Parks would also need to be engaged and the Natural Hazards provisions of the Provincial Policy Statement, in accordance with the guidelines included in the Natural Heritage Technical Guide prepared by the Ministry of Natural Resources and Forestry, would also need to be followed.

It should be noted, however, that all the potential environmental impacts resulting from the proposed station would be subject to further detailed assessment and consultation with the appropriate agencies (TRCA and the Ministry of Natural Resources and Forestry) during the TPAP phase of the project and would be confirmed once the environmental due diligence investigations are completed.

Project Management Plan

A high-level time frame has been assumed for the purpose of implementing and assessing the proposed station for this IBC, which includes the following:

- Construction assumed to start in 2024; and
- An opening year of 2028.

Additionally, the following timeframes should be considered apart from the assumed implementation timeframes specific to the proposed station:

- The Barrie GO Expansion program is anticipated to be completed by 2030, and not scheduled for electrification until 2032; and
- The build-out of the Concord GO Centre Secondary Plan is planned to accommodate growth until 2051 and beyond.

However, it should be noted that the above-mentioned timeframes are subject to change and should be monitored regularly in the context of the proposed station's implementation.

Operations and Maintenance Plan

This section examines the technical and commercial feasibility of the operations for the proposed station.

Operating Impacts and Risks

Passengers at downstream stations during peak-direction service could be impacted due to the increased demand for GO Train services. Downsview Park GO would see an increase in ridership as people would also access the proposed station to transfer to the TTC network at Downsview Park GO. It is anticipated that there would be an additional 425 transfers at Downsview Park GO between the Barrie Corridor and the TTC network for the Secondary Plan Land Use scenario and 350 additional transfers for the Market Land Use Scenario during the 2-hour AM peak. Therefore, spare capacity may be reduced from the addition of riders at the proposed station in Concord, impacting stations along the Barrie Corridor. This may have a negative impact on the overall passenger experience if trains were to become overcrowded. Furthermore, the proposed station would increase the incremental GO Train operational and

maintenance cost along the corridor due to the increased stop/start conditions with the proposed station.

Maintenance and Storage Facility Impacts

The implementation of the proposed station at Concord is not expected to impact maintenance and storage requirements.

Project Dependencies

One of the major drivers of this initiative is the construction of a station site to act as a catalyst for future development through the Concord GO Centre Secondary Plan. According to the Secondary Plan, the station site would be surrounded by high-density mixed-use developments that cater to residential, commercial, employment and institutional uses. Without the implementation of the proposed station, the build-out and resulting population and employment forecasts may not be fully realized. Correspondingly, to realize the benefits identified in the Secondary Plan Land Use scenario, it requires significant levels of development planned for the area.

The proposed station is also identified as a critical interchange to support the delivery of the 10-year GO Bus strategy and the associated REB service along the Highway 407 corridor. Without the station, the future GO Bus network vision would not be achieved. Furthermore, the proposed station would build network resiliency through expanding transit accessibility to the local population. It represents an ideal transfer point for the north-south Barrie rail service to east-west transit services and it is assumed that the VIVA BRT stop would be moved closer to the proposed station for a seamless transfer between the GO rail service and the bus services running east-west. However, without the proposed station, that may not be realized, reducing the transit options available for users and hindering their access to key destinations east-west along Highway 7.

Deliverability and Operations Case Summary

Table 24 summarizes the findings of the Deliverability and Operations Case.

Table 22: Summarizing the Deliverability and Operations Case

| Assessment Topics | Sub-Assessment Topics | 2041 Secondary Plan Land Use Scenario and 2041 Market Land Use Scenario |
|-------------------|--|--|
| Project Delivery | Project Sponsors and Governance Arrangements | Metrolinx would be required to coordinate with the City of Vaughan to build the proposed station to ensure it aligns with the municipal land use approvals, future developments, and the Secondary Plan. Additional key stakeholders include York Region, TRCA, landowners and developers, and MTO. |
| | Duty to Consult | Duty to Consult requirements for Indigenous Nations would need to be followed. Information and consultation opportunities would be required throughout all project stages. |
| | Major Project Components | Implementation of the proposed station would need to be coordinated with the planned development and infrastructure works around the assumed station site. |

| Assessment Topics | Sub-Assessment Topics | 2041 Secondary Plan Land Use Scenario and 2041 Market Land Use Scenario |
|-------------------|--|--|
| | | <p>Impacts to the Barrie Corridor as a result of the construction of the two side platforms would need to be assessed with consideration for mitigation through night-time and weekend work.</p> <p>There may be a need to provide enhanced protection for the Barrie Corridor due to the station site being in a flood plain which would need to be coordinated with the Barrie GO Expansion program.</p> |
| | Environmental Considerations | <p>The proposed station site is located in a flood plain and close to natural heritage features such as the West Don River Valley and Bartley Smith Greenway.</p> <p>The TRCA would need to be consulted and permits would be required for any development impacts within and adjacent to West Don River and TRCA regulated areas as they are in close proximity to the study area.</p> <p>Any additional potential environmental impacts would need to be confirmed and assessed through carrying out an Environmental Assessment (TPAP).</p> |
| | Construction Impacts | <p>The proposed station would be constructed on land designated for high-rise mixed-use development. As the community grows, the disturbance caused by construction impacts would be greater on residents and businesses due to noise, dust and traffic detours.</p> <p>Until the proposed road network in the Secondary Plan is built out, all construction equipment and materials would need to be transported through Highway 7 which would cause disturbance to local traffic.</p> |
| | Operation and Maintenance Considerations | <p>The proposed station would increase the incremental GO Train operational and maintenance cost along the corridor due to increased stop/start conditions with the proposed station.</p> |
| | Project Dependencies | <p>The key driver for the proposed station is to serve as a catalyst for future development with the Secondary Plan area. Without the implementation of the proposed station, the build-out and resulting population and employment forecasts may not be fully realized.</p> |

8



Business Case Summary



Introduction

The Concord area is envisioned to be a high-density mixed-use community developed around a multi-modal transportation network that would support the greater growth of the City and the GTHA. Implementing the Highway 7/Concord GO Rail Station within Concord would encourage residents to use alternative transportation modes including walking, cycling, and taking transit which would result in decreased automobile dependency and would further support sustainable growth. Therefore, this would give rise to a community that aligns with the broader goals and objectives of Provincial and municipal plans.

It should also be noted that the potential TOC site requires footprint within a 25-year flood zone and any changes to the overall site will trigger the need for flood mitigation measures. Therefore, a comprehensive flood assessment would be required to determine mitigation requirement. Any impacts of the flood mitigations to the Barrie Corridor would have to be coordinated with the Barrie GO Expansion program. As a result, the mitigation costs and station design would have to be refined during subsequent phases of planning and design once a comprehensive flood mitigation plan is prepared by the City of Vaughan and the TRCA.

The high-level analysis presented in this business case reflects the best assumptions and modeling capabilities available as of September 2022. Further preliminary design work and consultation is required to fully understand project benefits and feasibility. The assumptions in this business case are subject to change as the project and its associated planning context continue to evolve. The business case results are particularly sensitive to changes in assumptions about future land use in the Concord area, the addition of costs for flood mitigation measures, as well as the details of the future GO Rail Service pattern, such as through the OnCorr Development Phase. A benefits management process would be used to ensure that the benefits identified in this business case can be maintained should the underlying assumptions change.

Scenario Review

2041 Market Land Use Scenario

The results of the Market Land Use Scenario show that the station would attract fewer riders as the population and employment forecast for that scenario are significantly lower than those included in the City's Secondary Plan, which shows the importance of realizing the expected development levels in order for the station to drive positive benefits. This scenario results in lower ridership forecasts, reduced travel time savings and VKTs than the Secondary Plan Land Use Scenario when compared to the respective BAU scenarios. Moreover, the Economic Case results in a BCR of 0.37 and a negative NPV of \$112 million, falling below the threshold for economic viability as per Metrolinx's Business Case Manual Volume 2: Guidance. However, the Financial Case results in \$404 million in revenue that could be realized by Metrolinx. Lastly, in terms of deliverability considerations for the proposed station, the Market Land Use Scenario and Secondary Plan Land Use Scenario would share majority of the same considerations with the major consideration being the dependency associated with planned development and infrastructure works under the Concord GO Centre Secondary Plan.

2041 Secondary Plan Land Use Scenario

Considering the strategic perspective, the proposed station would attract new and existing GO train riders as users who used to access the GO train network upstream from Rutherford GO or

downstream from Downsview Park GO would now be able to make shorter trips to access the network from within their community. This would result in travel time savings, reduced VKT's, and automobile related emissions as well as improve connectivity north-south on the Barrie Corridor and east-west along Highway 7 into other areas of York Region. The proposed station would also support the realization of the broader objectives of the Concord area as outlined in the Secondary Plan by encouraging the integration of transit and land use and supporting a high-density mixed-use development pattern that encourages the use of sustainable transportation modes.

Once these societal benefits are quantified and monetized, they may be able to offset the capital and operating costs necessary to build and operate the proposed station over the valuation period. The Economic Case for the Secondary Plan Land Use Scenario results in a BCR of 0.99 and a negative NPV of approximately \$2 million in present value terms, meaning the proposed station just meets the thresholds of economic viability as per Metrolinx's Business Case Manual Volume 2: Guidance. As per the Financial Case, the additional farebox revenue attributed to the proposed station has the potential to outweigh the capital and operating costs that would be incurred by Metrolinx, resulting in \$469 million in revenue.

Realization of the Secondary Plan's density targets is necessary to realize the forecasted benefits in the Secondary Plan investment scenario. The station is assumed to have a balanced modal access split with a moderately sized parking facility. The design of the station will be carefully reviewed to ensure direct connections to key high-capacity bus services. Although net new transit ridership is low, the station benefits from local bus access including the VIVA BRT on Highway 7.

In terms of deliverability considerations for the proposed station, the greatest consideration would be the dependency associated with the planned development and infrastructure works under the Concord GO Centre Secondary Plan, the Barrie GO Expansion program and the potential environmental impacts that would need to be assessed prior to any development within and adjacent to West Don River and the TRCA regulated areas.

Overall, the IBC results under the Secondary Plan Land Use Scenario indicate that Metrolinx would experience a marginal new revenue gain as a result of including the proposed station within the GO network. Furthermore, the proposed station also offers strategic benefits through its attraction of new riders, travel time savings, and support for the vision of the Concord area.

Recommendations and Next Steps

Should it be decided to deliver the proposed station, co-ordination with the appropriate stakeholders outlined in Table 22 is essential, since there are various planned developments, infrastructure updates and transit projects. Therefore, co-ordination is required to integrate the proposed station well with the other planned infrastructure projects and surrounding development to ensure a compact and complete community. As the station is in a flood plain, further analysis would be recommended, whether alone or as part of the broader TOC development through a flood plain evaluation. An environmental impact assessment would also need to be conducted to understand the potential impacts. Furthermore, since the proposed station site is in proximity to natural heritage features and TRCA regulated areas, the additional potential environmental impacts need to be assessed early on in order to avoid any delays later due to major environmental concerns.

Glossary

| Term | Definition |
|---|--|
| Benefit-Cost Ratio (BCR) | Present value of benefits divided by present value of costs, which is used to indicate benefits realized per dollar spent. |
| Business Case (BC) | A generic term for a collection of evidence which, when assembled in a logical and coherent way, explains the contribution of a proposed investment to organizational objectives. It supports a decision-making process to sift scenarios, select a preferred scenario and optimize the preferred scenario. |
| Business as Usual (BAU) | The baseline against which scenarios are compared where the intervention has not occurred and existing business practices, committed plans and general trends continue. In this case, the BAU represents the proposed station not being built. |
| City of Vaughan (the City) | The city who is planning for the development of the Concord GO Centre community which is located in the southwest corner of the municipality. |
| Concord GO Centre Secondary Plan (the Secondary Plan) | The Secondary Plan was adopted in 2015 and is currently undergoing an update which is planned to be completed by 2022. The draft version of the update was provided to Metrolinx by the City on July 28, 2022 and is referenced as part of this IBC. |
| Greater Golden Horseshoe (GGH) | The area defined by A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020) plan, consisting of the GTHA along with the Cities of Barrie, Brantford, Guelph, Kawartha Lakes, Orillia, and Peterborough; the Counties of Brant, Dufferin, Haldimand, Northumberland, Peterborough, Simcoe, and Wellington; and, the Regions of Niagara and Waterloo. |
| Greater Golden Horseshoe (GGHMv4) | Metrolinx's model for forecasting population, employment, and ridership around the GGHA. |
| Greater Toronto and Hamilton Area (GTHA) | The combined area of the Cities of Hamilton and Toronto; and, the Regions of Durham, Halton, Peel, and York. |
| Greenhouse Gas (GHG) | Greenhouse gas (GHG) emissions, such as carbon dioxide, are the main contributor to global warming, and regarded as a major challenge for the global community. |

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| Initial Business Case (IBC) | The first Business Case in the Business Case process that compares investment scenarios and selects a preferred scenario for further refinement and design. This Business Case is typically used to secure funding from the Province for planning and preliminary design. |
| Ministry of Transportation (MTO) | Provincial ministry in Ontario responsible for transportation policy, vehicle licensing, and constructing transportation infrastructure. |
| Net Present Value (NPV) | Present value of benefits minus present value of costs, which is used to indicate total net benefits to the region. |
| Operating Cost Recovery Ratio (R/C Ratio) | The annual revenues realized compared to the annual operating costs for a project, in percent. |
| Perceived Person Minutes | The minutes spent on a journey or transfer as perceived by the user. Journeys which are reliable with minimal crowding may be perceived to take a shorter amount of time compared to journeys which have unreliable trips or are crowded. |
| Toronto and Region Conservation Authority (TRCA) | Conservation Authority in Southern Ontario created to safeguard and enhance the health and well-being of watershed communities through the protection and restoration of the natural environment and the ecological services the environment provides. |
| Vehicle-Kilometres Travelled (VKT) | A measure of roadway use, commonly used in estimating congestion, that reflects the distance that an individual drives, or, the cumulative distance driven by all vehicles in an urban region during a specified period of time. Vehicle kilometres travelled can reflect the link between land use and transportation, such as through land uses that are further away from each other result in longer trip lengths, and the fact that the more traffic on roadways means the more vehicle kilometres travelled. |

