

# Technical Memo

Date: January 23, 2023

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Subject: **Transportation Study – Metrolinx's Guelph Subdivision Existing Level Crossings – Background Technical Memorandum**

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## Overview

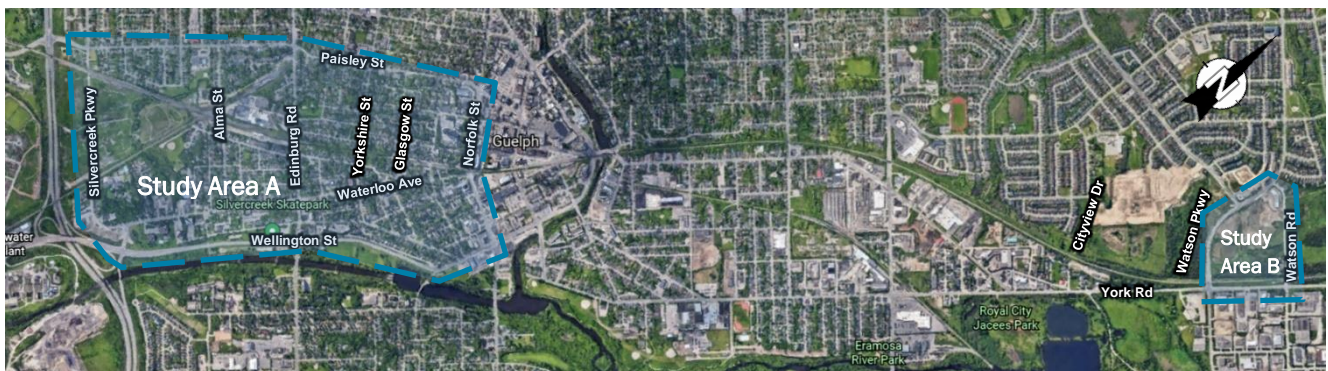
Parsons has been retained by the City of Guelph to determine the transportation infrastructure needs to support the planned GO Regional Express Rail (RER) service, which may be needed due to Metrolinx's ongoing review of potential changes to five (5) level crossings at Alma Street, Edinburgh Road, Yorkshire Street, Glasgow Street and Watson Road. A feasibility of an active transportation connection across the rail track at Cityview Drive will also be conducted.

Two (2) separate study areas have been established as shown in **Figure 1**. Study Area A is bounded by Paisley Road/Street to the north, Norfolk Street to the east, Wellington Street to the south and Silvercreek Parkway to the west. Study Area B is bounded by Watson Road to the east, Watson Parkway to the west and north, and York Road to the south.

This memo presents the summary of findings from the review of the existing policies and studies. The findings will inform the traffic analyses of various infrastructure alternatives and selection of a preferred solution.

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FIGURE 1: STUDY AREAS



## Review of Background Studies

### Guelph Future Ready – City's Strategic Plan

The City of Guelph's Strategic Plan for 2019 to 2023 was developed to build and achieve its vision outlined in the Community Plan. Priorities outlined in the plan are intended to improve economic and environmental sustainability, develop safe and connected transportation network, and investing in the community well-being. The plan supports local transportation improvements and integration with the regional transit and rail service while improving transportation connectivity and safety within the City limits.

### Metrolinx – 2041 Regional Transportation Plan

The 2041 Regional Transportation Plan (the RTP) for the Greater Toronto and Hamilton Area (GTHA) was adopted by Metrolinx in 2018. It outlines the policies, strategies, and goals for developing an integrated multimodal regional transportation system which provides safe, convenient, and reliable connections for residents, businesses, and institutions. The RTP builds on municipal transportation master plans and official plans and integrates them into a region wide coherent plan.

Building on foundations of The Big Move (2008), the first regional transportation master plan for the GTHA, the RTP reflects the significant advancements in rapid transit which have occurred along with increased investment in this travel mode. The primary focus of The Big Move implementation was planning and construction of rapid transit projects which included, among others, the GO Regional Express Rail (RER) project. GO RER program is envisioned to be the backbone of an integrated regional rapid transit network connecting subways, light rail transit and bus rapid transit across the Region. The RTP strategizes the completion of GO RER program by 2025.

GO RER program highlights shown in **Figure 2** will enable service improvements to all seven GO train corridors with five corridors seeing every 15 minutes or better service in both directions. Infrastructure expansion includes new tracks, bridges, signals, and new fleet.

The Kitchener GO line currently has only peak time directional service. Typically, Metrolinx operated a total of eight (8) trains daily for the route between Kitchener GO Station and Union GO Station: four (4) trains from Kitchener towards Union Station between 5:30 AM and 8:00 AM, and four (4) trains from Union Station towards Kitchener between 6:00 PM and 8:30 PM. Since the COVID-19 pandemic, GO train services have been reduced to six (6) trains daily.

In the RTP, the Kitchener GO line is programmed for 15 minutes or better service in both directions from Union Station to Mount Pleasant Station. The segment from Mount Pleasant GO Station to Kitchener GO Station is slated to have two-way all-day service; however, the train frequency is not mentioned in RTP.

**Figure 3** presents a snapshot of the Kitchener GO line within the context of the regional rail and rapid transit network as extracted from Map 3 in the RTP.

FIGURE 2: GO RER PROGRAM HIGHLIGHTS (SOURCE: RTP FIGURE 14)

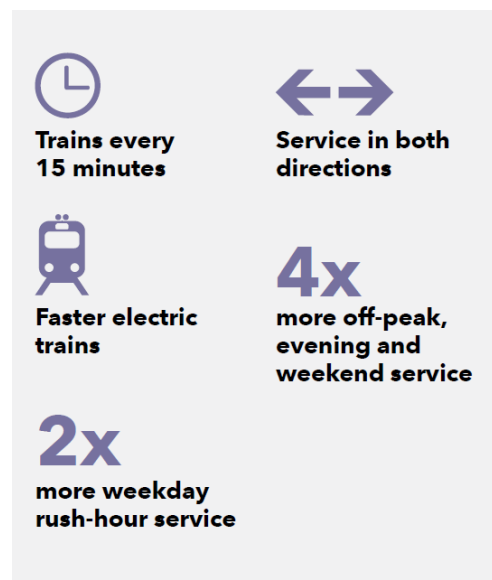
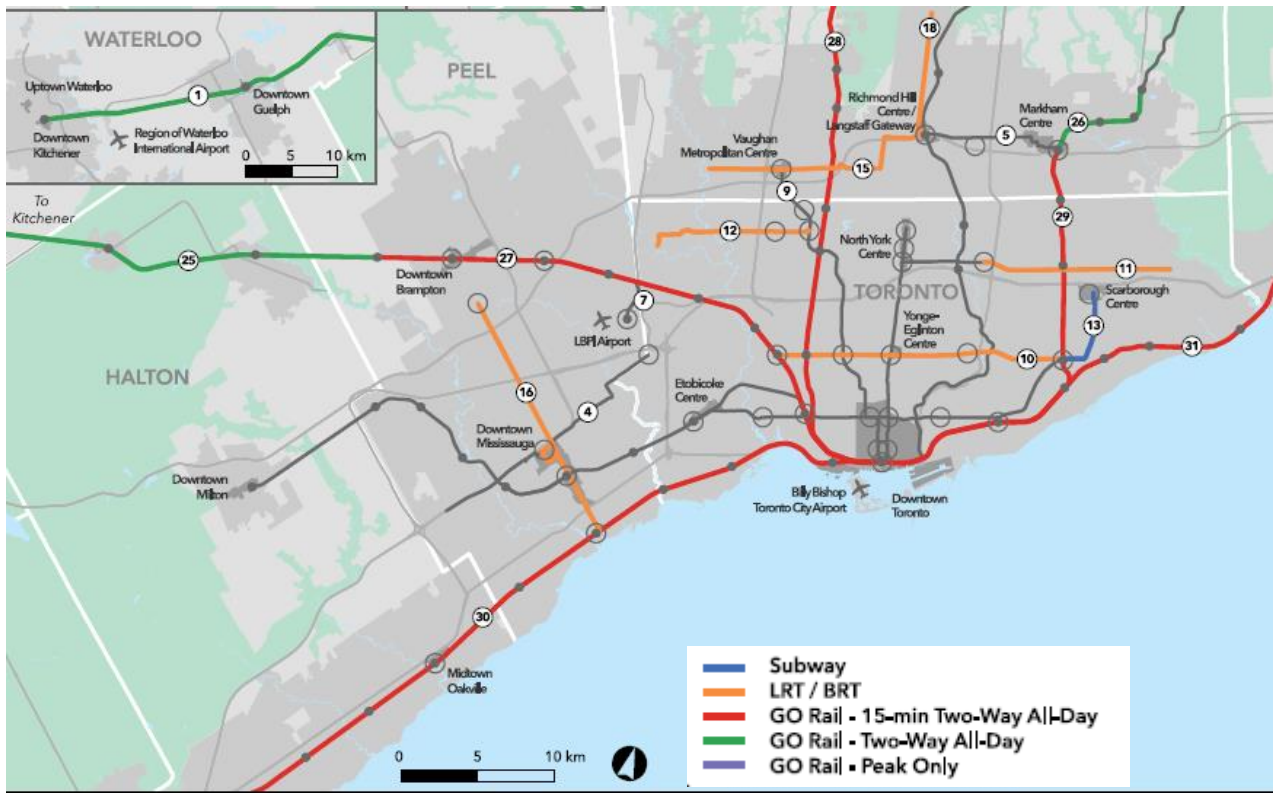


FIGURE 3 – SNAPSHOT OF MAP 3 – IN DELIVERY REGIONAL RAIL AND RAPID TRANSIT PROJECTS



## City of Guelph Official Plan

The City of Guelph's Official Plan (OP) guides future community development outlining the vision, principles, goals and objectives, and policies to promote long term community sustainability, social well-being, economic activity, cultural conservation and enhancement, environmental integrity, and energy sustainability. The City is currently undertaking a review to update its OP, expected to be completed by mid-2022. The last comprehensive review of the OP was adopted in 2012 known as Official Plan Amendment (OPA) 48.

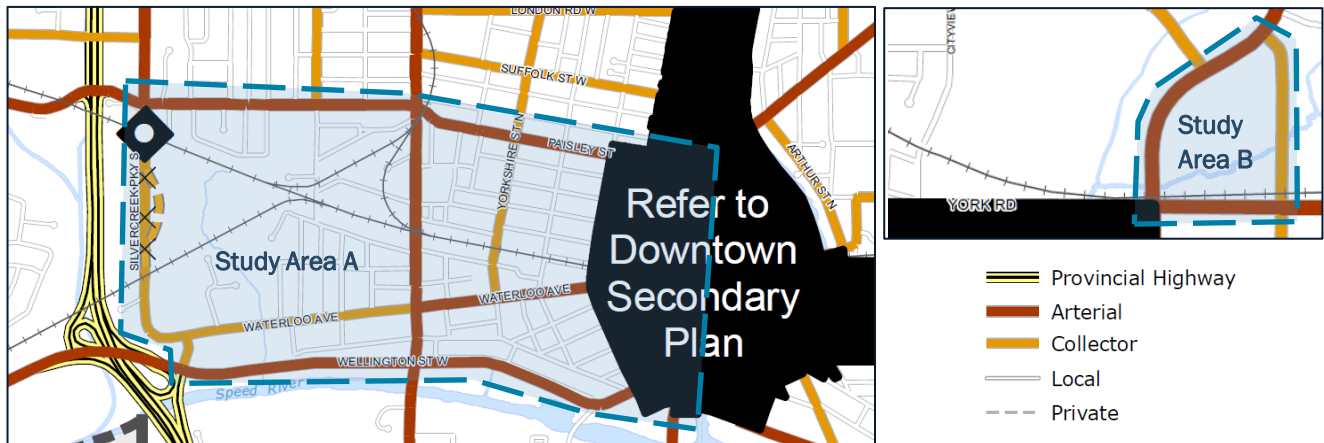
One of the key guiding principles to shape the future of the City is having a safe community conveniently connected for pedestrians, cyclists, public transit users and motorists. Section 2.2 of the OPA 48 defines the strategic transportation goal as development of a safe, efficient, convenient, and sustainable transportation system that provides for all modes of travel including cycling and walking to support sustainable land use patterns.

In Section 3.15 – Transportation, several initiatives outline how the City's transportation system must be planned and managed to fulfill the goal. This includes offering a balance of transportation choices and connectivity between the different modes with emphasis on promoting transit, cycling, and walking. The coordination between the modes/systems and investments are also key factors to the success of the initiatives. From a planning perspective, the expansion or improvement of existing transportation infrastructure should consider opportunities to move people by rail. Priority should also be given to expanding existing transit services to residential and other land uses that are transit supportive. Modal share of transit should be increased and linkages to nearby neighbourhoods should be improved. Lastly, where possible, the various transportation modes should be separated within transportation corridors.

The City's downtown adjacent to Study Area A is connected through multiple streets across Norfolk Street. The OP identifies Downtown as the Urban Growth Centre as well as a major transit station area functioning as a central transit hub providing connections within and outside the City.

Within the study areas as shown in **Figure 4**, Wellington Street West, Paisley Road/Street, Edinburgh Road, York Road and Watson Parkway are designated as arterial roads in accordance with Schedule 5. Waterloo Avenue is designated as an arterial to the east of Edinburgh Road, and as a collector to the west. Silvercreek Parkway is classified as an arterial to the north of Paisley Road and as a collector to the south. Watson Road is designated as a collector. All other streets within the two study areas are designated as local streets.

**FIGURE 4: ROAD FUNCTIONAL DESIGNATION – CLIP FROM SCHEDULE 5**



The OP encourages the enhanced role of the rail transportation for goods and passenger movement. It also encourages minimizing road/rail conflicts wherever possible and has identified Silvercreek Parkway and CNR grade separation to reconnect Silvercreek Parkway south of Paisley Road.

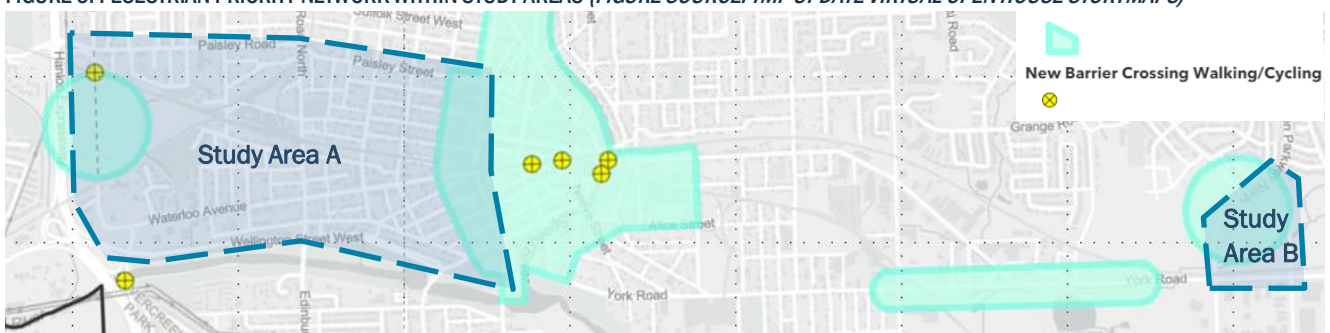
## Transportation Master Plan

The City is currently undertaking the Transportation Master Plan (TMP) update which will replace the City's 2005 Guelph Wellington Transportation Study. According to the May 26, 2021 report submitted to City Council, the evaluation and selection of the preferred alternative has been completed and the TMP is expected to be finalized in December 2021.

The report outlines the preferred alternative which will provide a safe, equitable and sustainable transportation system through a 'Sustainability + Resiliency Focus' network to move Guelph forward to 2051. The preferred alternative makes transit and active transportation a priority and provides more flexibility and resiliency to adapt to emerging technologies as well as changing trends in travel. The preferred alternative implements the Pedestrian Priority, Cycling Spine, Quality Transit and Resiliency networks and seeks to manage vehicular congestion by supporting significant mode shift towards sustainable modes.

The pedestrian priority network is proposed in areas of highest pedestrian activity including existing and planned intensification corridors and mixed-use nodes. Within the study area as shown in **Figure 5**, the lands abutting Silvercreek Parkway, the Downtown areas west of Dublin Street and the lands abutting Watson Parkway have been

**FIGURE 5: PEDESTRIAN PRIORITY NETWORK WITHIN STUDY AREAS (FIGURE SOURCE: TMP UPDATE VIRTUAL OPEN HOUSE STORYMAPS)**

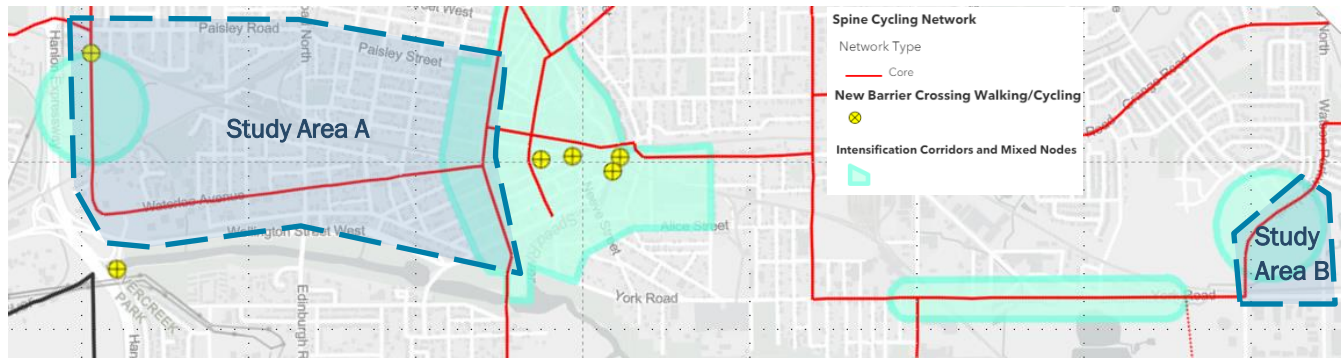




identified for pedestrian priority network. Discontinuation of Silvercreek Parkway at CNR has been identified as a barrier to cycling and walking,

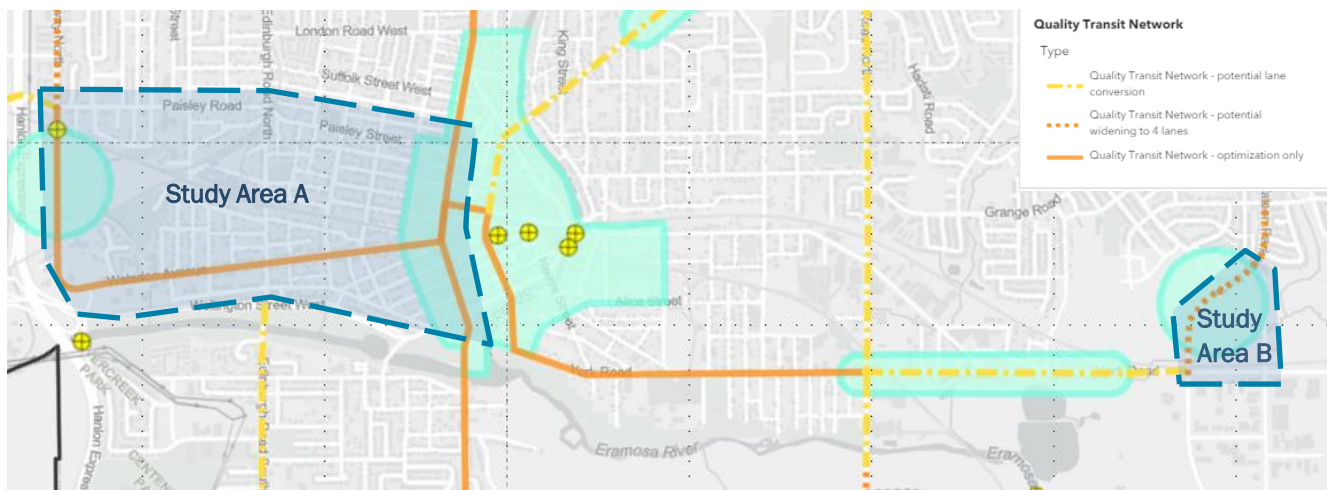
The Spine Cycling Network as shown in **Figure 6** represents the core of the City's larger cycling network. The Spine Network will have connecting cycling links to key destinations such as schools, parks, and areas of high activity. The City's Cycling Master Plan contains details of the City's larger cycling network.

**FIGURE 6: SPINE CYCLING NETWORK WITHIN STUDY AREAS (FIGURE SOURCE: TMP UPDATE VIRTUAL OPEN HOUSE STORYMAPS)**



The Quality Transit Network shown in **Figure 7** implements frequent transit service along the improved corridors. The network aligns with the planned intensification corridors and mixed-use nodes and acts as a spine with the City's larger transit feeder network. Within the study area, Gordon/Norfolk Street, Waterloo Avenue, Silvercreek Parkway, Watson Parkway and York Road have been identified as part of the Quality Transit Network corridors.

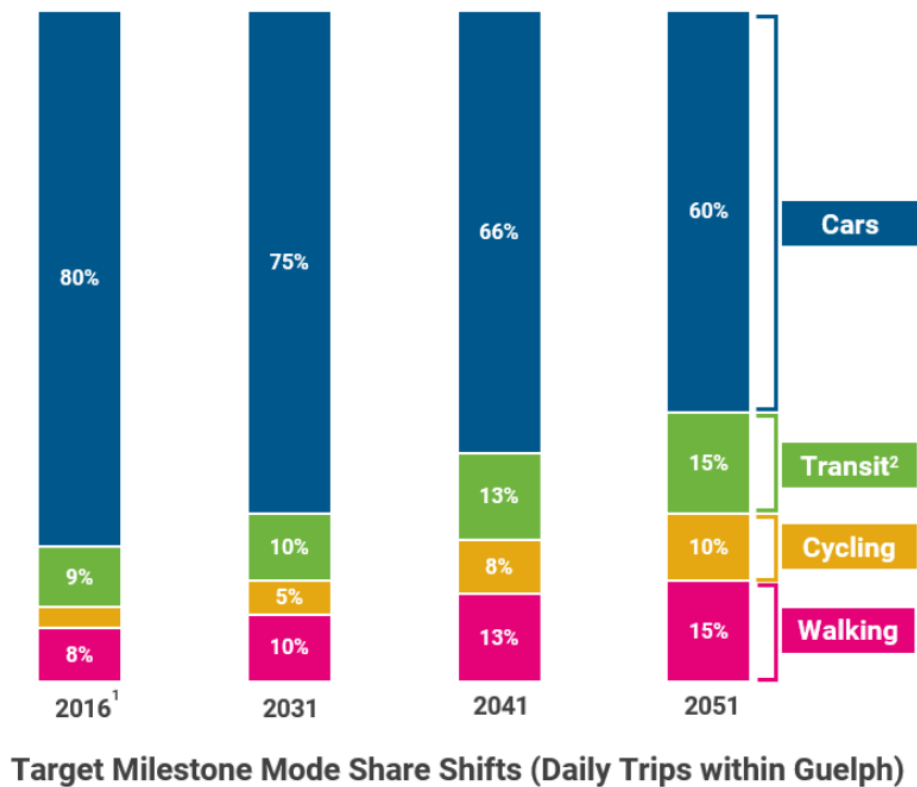
**FIGURE 7: QUALITY TRANSIT NETWORK WITHIN STUDY AREA (FIGURE SOURCE: TMP UPDATE VIRTUAL OPEN HOUSE STORYMAPS)**



The preferred alternative has also factored in the interregional travel and encourages coordination with both Provincial and Regional authorities to improve Hanlon Expressway and interregional transit including GO rail and bus services. The 2005 Guelph Wellington Transportation Study had recommended a grade separation for the Edinburgh Road and CN Rail crossing beyond 2010, however, the grade separation has not been constructed yet.

The mode share targets set within the TMP are shown in **Figure 8**. These targets will inform the development of future traffic forecast.

FIGURE 8: MODE SHARE TARGETS (FIGURE SOURCE: TMP UPDATE VIRTUAL OPEN HOUSE STORYMAPS)



<sup>1</sup> Source: 2016 Transportation Tomorrow Survey (TTS)  
<sup>2</sup> The transit numbers include travel by Guelph Transit and by school bus, which is assumed to remain at 2.5% every year into the future.

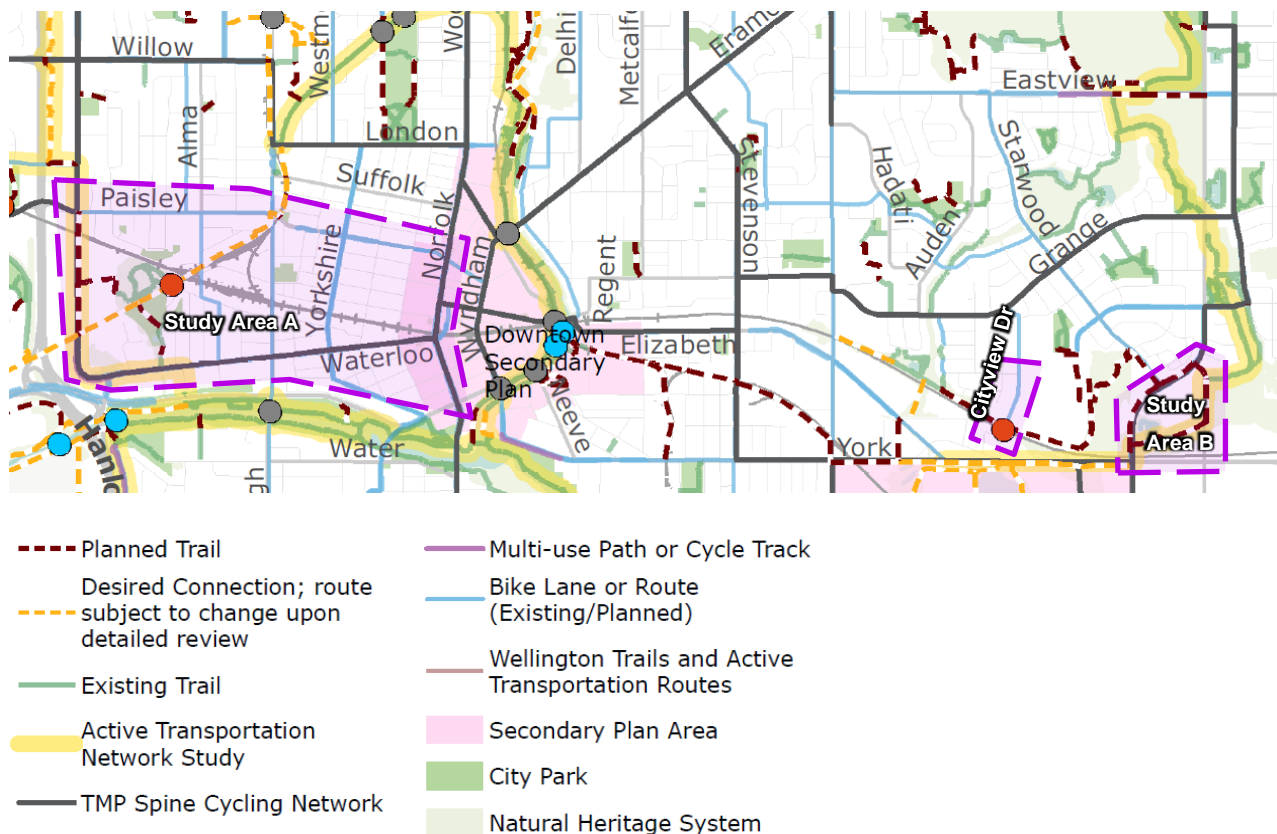
Active Transportation Network (Cycling and Multi-use Paths/Trails)

Four key plans, combined, shape the active transportation network plan of the City. The TMP, Active Transportation Network Study (2017) and Cycling Master Plan focus on pedestrian and cycling infrastructure in the road right-of-way. The Guelph Trail Master Plan (GTMP) - recently completed in May 2021- focuses on trails located outside of road rights-of-way. Collectively, these plans deliver an integrated network allowing individuals to choose how to navigate through the City.

Within Study Area A, there are several streets which currently contain bike lanes or paved shoulder cycling facilities including Waterloo Avenue, Norfolk Street, and a section of Paisley Street between Edinburgh Road and Glasgow Street. The existing signed bicycle route on Yorkshire Street connects the Old City neighbourhood to the city-wide bike network through bike lanes on Waterloo Avenue and Paisley Street. A local bike route on Alma Street provides the north-south connectivity between Paisley Road and Waterloo Avenue. A dedicated buffered bike lane facility also exists along Watson Parkway within Study Area B.

There are also multiple roadways where active transportation network improvements are proposed as shown in **Figure 9**. Bike lanes are proposed along Edinburgh Road and Paisley Road west of Edinburgh Road to Silvercreek Parkway. A multi-use trail is proposed along Silvercreek Parkway, which is also proposed to be part of the Spine Cycling Network. A trail is planned along Watson Road turning west along the north bank of Clyde Creek and connecting to bike lanes on Watson Parkway and subsequently the desired route along York Road. A signed bike route is also proposed along Cityview Drive along with a CN rail crossing connecting south to the desired route along York Road.

**FIGURE 9: EXISTING AND PROPOSED ACTIVE TRANSPORTATION NETWORK (FIGURE SOURCE: MAP 3 OF GTMP)**



## Transit Growth Strategy

The Guelph Transit Growth Strategy and Plan and Mobility Services Review - completed in 2010 - provided a detailed analysis and forecast for the operation of Guelph Transit and Mobility Services, setting out immediate and future strategies/directions for the service. The strategy recognized the need for integration between GO Rails and Guelph Transit. The study noted a strong travel demand between Guelph and Kitchener, greater than the demand between Guelph and Toronto.

The study also recommended Gordon/Norfolk/Woolwich Bus Rapid Transit which is included in the TMP Quality Transit Network.

## Transport Canada Guidelines

Transport Canada has developed two (2) main documents regarding grade rail crossings, in accordance with the Railway Safety Act (RSA) and the Grade Crossing Regulations (GCR).

- The Grade Crossing Standards (GCS)-2019 are enforceable standards for meeting the safety standards of the RSA and are incorporated in the GCR by reference.

- The second document is the Grade Separation Assessment Guidelines which is meant to inform companies and road authorities when considering grade crossings for grade separation or elimination of road/rail conflicts.

## GRADE CROSSING STANDARDS (2019)

The GCS document provides standards for existing and new grade crossings which encompasses items like crossing surface widths, warning systems, roadway approaches geometry and sightline requirements. Design considerations are also provided in the document regarding clearance distances and appropriate crossing locations in relation to roadways and intersections. Warning System design standards are also included in the document with recommendations for numbers and locations of light units, bells, and gates.

For existing crossings, the railway companies and road authorities must implement the standards by November 28, 2021, however, due to Covid-19 issues, 1-3 years extension has been granted.

In case of modification to an existing grade crossing including but not limited to increase in railway design speed, changes to road geometry, addition of a railway track - new grade crossing standards will generally apply.

## GRADE SEPARATION ASSESSMENT GUIDELINES

The Grade Separation Assessment document provides criteria and thresholds to consider when assessing grade crossings for grade separation. These include traffic and safety related criteria including Annual Average Daily Traffic Volumes (AADT), posted speeds, vehicle queuing, delay, and level of service of the subject roadways as well as the average train volumes, maximum speed, and cross product for the railway. These thresholds are summarized in **Table 1**. The guidelines recommend conducting a feasibility study to establish the grade separation need through a combination of the criteria.

TABLE 1: CRITERIA TO CONSIDER IN ASSESSING GRADE CROSSINGS FOR GRADE SEPARATION

Criteria	Threshold for Grade Separation
Traffic Volume	AADT exceeds 100,000
Train Volume	Average of 150 or more trains per day
Vehicle Speed	Posted/Unposted speed equals or exceeds 90 km/h
Cross Product	Exceeds 1 million
Queuing	Existing crossings where there are known queuing issues and an entranceway or intersection is within 30m of the nearest rail crossing  New grade crossings are not permitted where the train speed is more than 25 km/h, and there is an entranceway or intersection within 30m of the nearest rail of the proposed crossing
Train Speed	Exceeds 177 km/h
Vehicle Delay	Exceeds 40 vehicle hours per day
Level of Service	If a roadway is performing at a level of service below its intended minimum design level for 10 percent or more of the time.

The document also provides additional factors to be considered such as collision history, number of lanes/tracks, road surface, noise, social impacts, vulnerable users, feasibility and constructability.

## Future Developments



**Table 2** lists the active development applications in the vicinity of the study areas. The details have been obtained from the City of Guelph Development Applications website<sup>1</sup>, on Aug 05, 2021.

**TABLE 2: PLANNED DEVELOPMENTS IN THE STUDY AREAS**

Development	Application Summary	Travel Demand		Status
		AM	PM	
35,40 & 55 Silvercreek Parkway South	A mixed-use subdivision including commercial, residential and park uses	470	635	Under review
7 & 9 Omar Street and 19 Alma Street	Zoning By-law amendment to permit the two new single detached residential dwellings and the redevelopment of two existing single detached residential dwellings	No Impact		Under review
151 Bristol Street	Zoning By-law amendment to permit development of a townhouse block of five units	No Impact		Under review
75 Dublin Street N	20 affordable rental seniors' apartment units and 15 market apartment units	14	16	Under review
20 & 37 Cityview Drive North	A residential subdivision including single detached, semi-detached, street townhouses and apartment dwellings	161	206	Under review

All the developments are under review, and a date of construction is not yet known. However, the potential trips generated from these developments will be added to future background traffic as a conservative estimate.

The Traffic Impact Study for 35, 40 & 55 Silvercreek Parkway South mixed-use subdivision also assessed a grade separation for Kitchener GO Line crossing across Silvercreek Parkway South, located at the north end of the site. The study concluded that a grade separation is not warranted.

<sup>1</sup>

<https://cityofguelph.maps.arcgis.com/apps/webappviewer/index.html?id=a2237999c95940aabec8a1b8a4b9df00>