



TOWN OF ORANGEVILLE
Transit Optimization Study Update

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1.0

Introduction

The 2016 Orangeville Transit Optimization Study developed a five-year service plan based around two potential route structures, including one that assumed a new transit terminal would be constructed at Westdale Mall (Alternative A). Since the adoption of the report by Council, the site's property owner has withdrawn their support for the construction of a transit terminal on their property, resulting in the need to identify alternative transit terminal locations and develop an updated route design.

Five sites have been identified as potential locations for a transit terminal:

1. 4th Street at Broadway (existing transfer location)
2. Centre Street at Hillside Drive (Edelbrock Centre)
3. Diane Drive at Broadway (OBRY lands)
4. Townline at Mill Street (Orangeville GO Park-and-Ride)
5. Broadway at 1st Street (Downtown Orangeville)

The preliminary assessment of each site includes a review of site feasibility to accommodate a five bus bay terminal (four existing plus one potential expansion route). In addition, an assessment of route design has been completed to determine if the location is suitable to operating routes that meet desired run times that can accommodate timed transfers at the terminal (e.g. can the route structure provide adequate coverage to the Town in a manner that still promotes seamless connectivity between routes?).

The report summarizes the assessment of potential transit terminal locations, recommends a location, and updates the service design to suit the recommended site.

1.1

Assumptions

The following assumptions have been made as part of the evaluation of the suitability of each potential transit terminal site:

- **Capacity:** 5 30-foot Grande West Vicinity buses (4 proposed plus 1 for future expansion)
- **Spacing:** 5 metres separation between buses when parked (to permit full movements)
- **Amenities:** Terminal requires shelters and benches
- **Frequency:** Maximum frequency 30 minutes on each route

2.0

Transit Terminal Location Assessment

2.1

4th Street at Broadway

The east side of 4th Street, just north of Broadway, is the current location of Orangeville Transit's hub. There is room for two 30-foot Grande West Vicinity buses to load and unload, as well as to layover. Passenger amenities provided include a shelter, a bench, and waste receptacles. The location of the existing transit terminal is approximately half of kilometer from Downtown Orangeville, and is located on the east side of town. As part of the 2016 Orangeville Transit Optimization Study, Alternative B outlined a potential route structure based around the existing transit terminal at this location. **Figure 1** shows the existing transit terminal at 4th Street and Broadway.

In order to accommodate a total of five buses, a sidewalk would have to be constructed on the west side of 4th Street. Due to the road space occupied by the buses and the configuration of driveways on the street, the boarding and layover location for three additional buses would be located just south of First Avenue. This would result in three bays for southbound routes, and the two existing bays for northbound routes. **Appendix A** shows additional details regarding terminal design.

The land required for a sidewalk, shelters, and benches on the west side of 4th Street is partially located on private property, and would require expropriation or permission by the property owner to use the site for passenger amenities. Passengers transferring between routes may be forced to cross the street mid-block, which may present safety issues in the absence of a dedicated pedestrian crossing facility.

Figure 1: 4th Street at Broadway Transit Terminal



2.2 Centre Street at Hillside Drive (Edelbrock Centre)

This site, on Centre Street to the south of the Orangeville Brampton Railway (OBRY), is the close to the previously proposed Westdale Mall terminal, as outlined in Alternative A of the 2016 Orangeville Transit Optimization Study. Located just to the north of the Edelbrock Centre, the land to the west of Centre Street is not currently developed, while the land to the east is occupied by four detached homes. **Figure 2** shows the location of the proposed transit terminal on west side of Centre Street, north of Hillside Drive.

In order to accommodate a total of five buses, a sidewalk and layby lane for buses would be required to be constructed on the west side of Centre Street. This would result in five unidirectional bus bays, requiring all buses to access the terminal from the north and to exit the terminal to the south, potentially adding additional run time to certain routes. Although in close proximity to a regionally-defined floodplain, there is sufficient land on the west side of Centre Street to construct the required infrastructure. **Appendix B** shows additional details regarding a conceptual terminal design.

Although the location is quite central relative to the Town of Orangeville and could form a feasible hub for the transit network, the lack of population, employment, and destinations within the immediate walking catchment area has the potential to reduce transit ridership. The construction of five bus bays would also require the relocation of some utilities, storm drains, and a fire hydrant.

Figure 2: Centre Street at Hillside Drive Transit Terminal Site



2.3 Diane Drive at Broadway

This site is location in the western part of Orangeville, to the west of the OBRV crossing of Broadway. The land to the north of Broadway is owned by the railway, and could potentially be available to house a transit terminal. This site is located in a currently undeveloped area, where the terrain could prove challenging and result in increased construction costs. The land is covered by a number of trees, is not flat, and an approximately 200-metre long brook is present. **Figure 3** shows the location of the proposed transit terminal at Diane Drive and Broadway.

In order to accommodate a total of five buses, a platform and unidirectional (eastbound) bus loop would have to be constructed on the north side of Broadway. Buses would access the loop at the west side of the terminal, and exit the terminal from its east side. A sidewalk on the north side of Broadway, along with a pedestrian crossing, would be required to support a transit terminal at this location. **Appendix C** shows additional details regarding terminal design.

From a network perspective, the location of the terminal on the west side of town is not ideal, as it would likely result in some lopsided routes. Round-trip travel times to access destinations on the east side of Orangeville would exceed 30 minutes, resulting in a requirement for more buses to maintain proposed frequencies. Additionally, the lack of population, employment, and destinations within the immediate walking catchment area has the potential to reduce transit ridership. A walking connection across the ORBY to Preston Drive would increase the residential catchment area and provide easy transit to residents living north of the railway.

Figure 3: Diane Drive at Broadway Transit Terminal Site



2.4 Townline at Mill Street (GO Park-and-Ride)

The OBRY station on Townline near Mill Street is the site of GO Transit's Orangeville Park-and-Ride facility. It currently serves 12 GO buses each weekday, in addition to the Credit Valley Explorer tourist train. There is a designated loading/unloading area for one GO Bus, in addition to passenger amenities such as a shelter, a bench, and a bicycle rack. Parking is provided for approximately 50 vehicles, and a loop is located at the south end of the site to allow GO buses to turn around and exit. The location of the existing transit terminal is approximately half of kilometer from Downtown Orangeville, and is located on the southeast side of town. **Figure 4** shows the OBRY station and GO Transit Park-and-Ride facility.

The site, as currently configured, is unable to accommodate even four buses, while still reserving the existing layby spot for a GO Bus. The loop at the south end of the site is not large enough to permit buses to turn around while other buses are loading/unloading passengers. A potential expansion into the gravel lot to the south would likewise not create enough space to accommodate a transit terminal for Orangeville Transit without compromising the existing functionality of the site. **Appendix D** shows additional details regarding the conceptual terminal design.

Figure 4: OBRY Station Transit Terminal Site



2.5 Broadway at 1st Street (Downtown Orangeville)

This site, on either side of Broadway to the west of 1st Street, is located in the centre of Downtown Orangeville. Located on-street, the existing parking spaces would be converted to permit bus loading and unloading. **Figure 5** and **Figure 6** show the location of the proposed transit terminal on Broadway, west of 1st Street.

In order to accommodate a total of five buses, up to 14 parking spaces would have to be converted to bus layby spaces, by re-painting the pavement. No physical modifications to the infrastructure on Broadway are required to accommodate the bus terminal. In the short term, while Orangeville Transit operates with a fleet of four buses, only 11 parking spots would have to be converted. Positioning buses both on the north and south sides of Broadway would permit them to operate both eastbound and westbound. **Appendix E** shows additional details regarding the conceptual terminal design.

The land required for shelters and benches on either side of Broadway is located on Town-owned property. Passengers transferring between routes may be forced to cross Broadway, although this is facilitated by the signalized intersection immediately adjacent to the terminal at 1st Street. The increased density of residents, employment, and destinations in the immediate walking catchment area has the potential to increase transit ridership.

Figure 5: Downtown Orangeville Transit Terminal Site (looking east)



Figure 6: Downtown Orangeville Transit Terminal Site (looking west)



2.6 Feasibility Evaluation

The five potential sites have been assessed for their suitability as a transit terminal location using nine evaluation criteria. Each site has been assigned a relative score of 0 (x), 1 (✓), or 2 (✓✓) for each criterion. The criteria developed below all influence the decision of the most suitable location, with consideration being given to site suitability, compatibility with potential route network, surrounding land uses, and construction costs. The criteria used in the evaluation are detailed below:

Physical constraints

Does the proposed transit terminal location have sufficient room to accommodate 5 30-foot buses, their movements to access/egress the site, and required passenger amenities? *This criterion is of critical importance.*

Compatibility with potential route networks

Is the proposed transit terminal in a location that can serve as a hub for a route network in Orangeville? Does it allow for buses to efficiently serve all parts of Town at a reasonable frequency, while minimizing unnecessary layovers? *This criterion is of critical importance.*

Population within 400 metres

What is the residential population within 400 metres (5-minute walk) of the proposed transit terminal location? A larger population catchment area can potentially result in higher ridership.

Proximity to destinations

What destinations/trip generators exist within 400 metres (5-minute walk) of the proposed transit terminal location? Important destinations include retail stores, community centres, schools, and cultural facilities. A larger number of destinations within the transit terminal's catchment area can potentially result in higher ridership

Adjacent land use

What is the land use adjacent to the proposed transit terminal location? Does it conflict with a transit terminal?

Ability to accommodate passenger amenities

Do any passenger amenities currently exist at the proposed transit terminal location? Is there room to provide shelters and benches?

Connections to GO Transit

Can passengers accessing the proposed transit terminal location easily connect to GO Bus Route 37?

Relative cost

What is the extent of infrastructure requirements at the proposed transit terminal location? Do they require significant investments or can they be implemented for a limited amount of capital spending?

Table 1 shows the assessment of the potential transit terminal location sites.

Table 1: Transit Terminal Location Assessment

Criteria	4th Street at Broadway	Centre Street at Hillside Drive	Diane Drive at Broadway	Townline at Mill Street	Downtown Orangeville
Physical constraints	✓ <ul style="list-style-type: none"> 3 SB bus bays on west side of 4th Street 2 NB bus bays on east side of 4th Street (existing) Potential safety issues for pedestrians crossing Fourth Street mid-block 	✓✓ <ul style="list-style-type: none"> 5 SB bus bays in new layby curb lane 	✓✓ <ul style="list-style-type: none"> 5 bus bays in new bus loop adjacent to north side of Broadway 	✗ <ul style="list-style-type: none"> No room on site to accommodate 5 local transit buses + GO Transit + station parking 	✓✓ <ul style="list-style-type: none"> Conversion of up to 16 existing parking spaces on Broadway 3 EB and 3 WB bus bays in existing curb lanes
Compatibility with potential route networks	✓✓ <ul style="list-style-type: none"> Good compatibility with Alternative B route network Flexibility to operate both NB and SB 	✓ <ul style="list-style-type: none"> Good compatibility with Alternative A route network Less routing flexibility - SB approach/exit required 	✗ <ul style="list-style-type: none"> Poor compatibility due to being located at west edge of town 	✗ <ul style="list-style-type: none"> Poor compatibility due to being located at south/east edge of town 	✓✓ <ul style="list-style-type: none"> Good compatibility due to being located in centre of town Flexibility to operate both EB and WB
Population within 400 metres	✓✓ 672	✓ 328	✓ 287	✓✓ 537	✓✓ 824
Proximity to destinations	✓ <ul style="list-style-type: none"> Small retail Rotary Park Shoppers Drug Mart 	✓ <ul style="list-style-type: none"> Edelbrock Centre FreshCo 	✓ <ul style="list-style-type: none"> Shoppers Drug Mart 	✗ <ul style="list-style-type: none"> None 	✓✓ <ul style="list-style-type: none"> Downtown Orangeville Public library Theatre Orangeville Lord Dufferin Centre Small retail 4 churches
Adjacent Land Use	✓✓ <ul style="list-style-type: none"> Retail Existing transit terminal 	✗ <ul style="list-style-type: none"> Located across the street from residential homes (potential noise complaints) 	✓ <ul style="list-style-type: none"> Vacant Land 	✓ <ul style="list-style-type: none"> Light industrial Existing transit terminal 	✓ <ul style="list-style-type: none"> Mixed-use area Conversion of 11 downtown parking spaces for transit terminal

Criteria	4th Street at Broadway	Centre Street at Hillside Drive	Diane Drive at Broadway	Townline at Mill Street	Downtown Orangeville
Ability to accommodate passenger amenities	✓ <ul style="list-style-type: none"> Sufficient room to provide benches and shelters May require expropriation 	✓ <ul style="list-style-type: none"> Sufficient room to provide benches and shelters on Town-owned land 	✓✓ <ul style="list-style-type: none"> Sufficient room to provide benches and shelters on Town-owned land 	✓ <ul style="list-style-type: none"> Existing bus loop requires modification to provide benches and shelters 	✓✓ <ul style="list-style-type: none"> Sufficient room to provide benches and shelters on Town-owned sidewalk
Connections to GO Transit	✓✓ Direct connection	✓ Walking connection	✓ Walking connection	✓✓ Direct connection	✓✓ Direct connection
Relative cost	✓ <ul style="list-style-type: none"> MEDIUM Existing infrastructure adequate for 2 buses Pedestrian sidewalk to be built on west side of 4th Street May require expropriation Passenger amenities to be provided 	✓ <ul style="list-style-type: none"> MEDIUM Utilities (storm drains and fire hydrant) to be relocated Pedestrian sidewalk to be built Bus lay-by curb lane to be built Passenger amenities to be provided 	X <ul style="list-style-type: none"> HIGH Pedestrian sidewalk to be built Bus platform to be built Looping bus roadway to be built Pedestrian crossing of Broadway required Passenger amenities to be provided 	X <ul style="list-style-type: none"> HIGH Gravel parking lot to be paved Bus platforms to be constructed Passenger amenities to be provided 	✓✓ <ul style="list-style-type: none"> LOW Existing parking spots to be re-stripped to indicate bus loading areas Passenger amenities to be provided
Overall Score (out of 16)	12	8	8	6	15

2.7 Recommended Terminal Location

Based on the outcome of the terminal feasibility assessment, the recommended location for Orangeville Transit’s terminal is on Broadway, west of 1st Street, in Downtown Orangeville.

3.0

Downtown Terminal Operations

3.1

Bus Operations

The Downtown Orangeville terminal would be located on-street on Broadway, to the west of 1st Street. Westbound buses would stop and layover on the north side of the street, while eastbound buses would stop and layover on the south side of the street (see **Figure 7**).

Figure 7: Downtown Orangeville Transit Terminal Operations



3.2

Passenger Amenities

In the vicinity of the proposed terminal, Broadway has wide sidewalks that would allow for the provision of passenger amenities. It is recommended that the following amenities be provided on either side of the street:

- Passenger shelters;
- Benches;
- Maps and timetables; and
- Bicycle parking spaces.

A signalized pedestrian crossing, street lighting, waste receptacles, and a bench on the south side of Broadway already exist and should be integrated into the design of the on-street transit terminal. The costs and complexity of providing the passenger amenities that do not currently exist are minimal, but their existence is crucial to maximizing passenger convenience at the terminal.

3.3 Effect on Downtown Parking

The Downtown Orangeville terminal would require the conversion of 11 parking stalls into bus layover spaces to accommodate the four buses recommended by this service plan. Five of the 11 spaces are located on the south side of Broadway, and six are located on its north side. In the long term, the removal of an additional three parking stalls would be required to accommodate a fifth bus. Should the expansion of the Orangeville Transit require additional bus layover spaces, it would be possible to extend the terminal further west by converting more parking stalls to spaces reserved for buses.

In order to determine the effect of the removal of 11 parking stalls on Broadway, a review of the Downtown Parking Study completed by Paradigm Transportation Solutions Limited in 2016 was undertaken. The study found that the average on-street parking utilization ranges from 46% on weekdays to 59% on weekends. The maximum on-street parking utilization ranges from 80% on weekdays to 85% on weekends. Total Downtown on-street parking supply is 235 stalls, while the total overall supply of public parking stalls (including municipal lots) in Downtown is 578. The removal of 11 stalls to accommodate four buses would represent a reduction of less than 5% of on-street parking supply, or 2% of the total overall Downtown public parking supply. It is also worth noting that there are two large lots in very close proximity to the proposed terminal site: the Town Centre parking lot, with a capacity of approximately 150 stalls, and the Little York municipal lot, with a capacity of 117 stalls.

In conclusion, the removal of 11 parking stalls required to accommodate four buses at the transit terminal will not be expected to have a significant impact on Downtown parking.

4.0

Recommended Service Design

The following section illustrates the recommended modifications to the transit network over a five-year period based on the re-location of the terminal and the improvements in service levels identified in the Orangeville Transit Optimization Study.

4.1

Guiding Principles

A route structure was developed based on the addition of a fourth bus route and the relocation of the transit terminal to the recommended site on Broadway, in Downtown Orangeville. The service structure:

- Leverages strategic location of Downtown transit terminal to facilitate direct trips, and transfers between routes, when required;
- Provides more direct two-way service on key corridors and connecting key destinations;
- Expands service to underserved areas and newly developed areas in the Town;
- Maximizes use of existing bus stop infrastructure;
- Is flexible to provide service to the growing residential community in northwest Orangeville once Hansen Road is extended; and
- Addresses schedule adherence issues.

One of the top priorities when developing the new route structure was to ensure stops with high passenger activity continued to receive service and connections could still be made.

4.2

Route Network

Figure 8 illustrates the recommended four-bus route design for Orangeville Transit, with the Downtown terminal serving as the central transfer location.

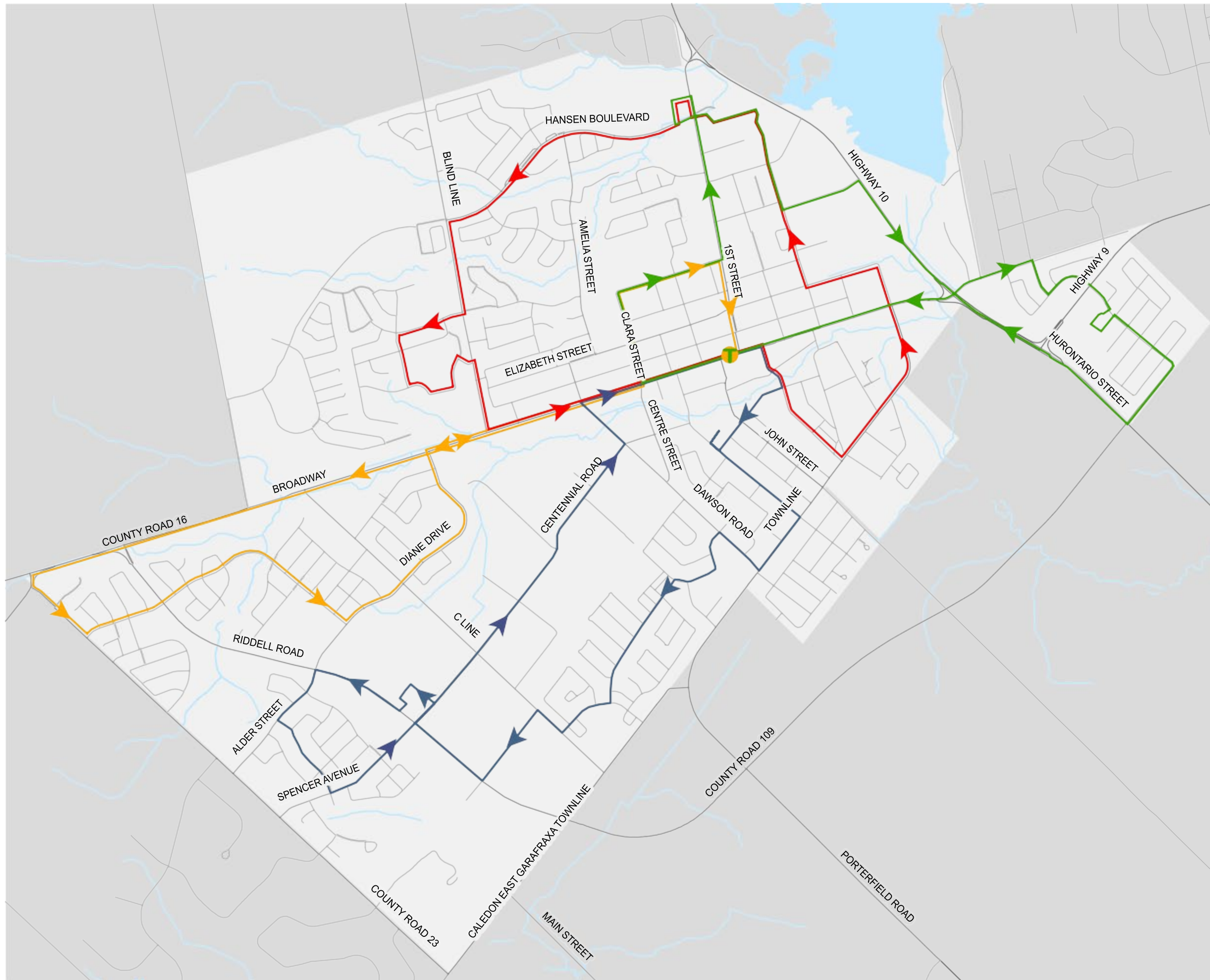
The structure is based on a four route system, with four buses in operation during regular daytime service hours. The routes are designed so that all buses converge at the Downtown Terminal every 30 minutes. While there are no improvements to frequency, this route structure utilizes a new fourth route to extend service to new neighbourhoods and provide improved service to key destinations, such as Downtown Orangeville, Orangeville District Secondary School, Tony Rose Memorial Sports Centre, Walmart, and the Orangeville Mall. Further, the new route structure makes use of components of the existing route structure wherever possible. This has the added benefits of leveraging existing infrastructure (i.e. bus stops and shelters) and reducing the learning curve of the new route structure for Orangeville Transit customers.



Town of Orangeville
Orangeville Transit Optimization Study Update

**Downtown Orangeville Transit
Terminal Route Structure**

Figure 8



- Highway
- Arterial Road
- Collector Road
- Local Road
- Ramp
- Waterbody
- Town of Orangeville

- Transit Route**
- Blue Route
 - Green Route
 - Orange Route
 - Red Route



MAP DRAWING INFORMATION:
DATA PROVIDED BY: COUNTY OF DUFFERIN AND MNRF
MAP CREATED BY: SMB
MAP CHECKED BY: AIG
MAP PROJECTION: NAD 1983 UTM Zone 17N



PROJECT: 17-5832
STATUS: DRAFT
DATE: 2017-07-14

4.2.1

Green Route

The new Green Route is a modification of the existing Green Route. The route is a one-way clockwise loop connecting the following key destinations:

- Downtown Orangeville;
- Orangeville District Secondary School (ODSS);
- Tony Rose Memorial Sports Centre;
- First Street;
- Orangeville Mall;
- Walmart; and
- Headwaters Health Care Centre.

The route begins by heading westbound from the Downtown transit terminal to the Orangeville Mall and Walmart, via Clara Street, Fead Street, and First Street. Departing the Orangeville Mall, it then proceeds through the Walmart parking lot, east on 4th Avenue, south on Highway 10, and loops around the neighbourhoods surrounding the Headwaters Health Care Centre along the current routing, before returning to the Downtown transit terminal. This route has been designed to help provide direct, two-way service to the Orangeville Mall and Walmart (when paired with the Red Route) and direct, two-way service to ODSS and the Tony Rose Memorial Sports Centre (when paired with the Orange Route). The Green Route will lay over at the Downtown transit terminal on the north side of Broadway and be interlined with the Orange Route.

4.2.2

Red Route

The new Red Route will operate on portions of the existing Green Route and Blue Route. The route is a one-way counter-clockwise loop connecting the following key destinations:

- Downtown Orangeville;
- Orangeville GO Park-and-Ride;
- Walmart;
- Orangeville Mall;
- Hansen Boulevard;
- Blind Line; and
- Westdale Mall.

The route begins by heading eastbound from the Downtown transit terminal to Walmart and the Orangeville Mall, via Mill Street, Towline, and 3rd Street. Departing the Orangeville Mall, it then loops into residential areas along Hansen Boulevard, Blind Line, and College Avenue before returning to the Downtown transit terminal. This route has been designed to help provide direct, two-way service to the Orangeville Mall and Walmart (when paired with the Green Route). Additionally, the Red Route has been designed so that it can be restructured to service residential areas along Hansen Boulevard once it has

been extended west of Blind Line. The Red Route will lay over at the Downtown transit terminal on the south side of Broadway and be interlined with the Blue Route.

4.2.3

Blue Route

The new Blue Route is a modification of the existing Blue Route. The route is a one-way clockwise loop connecting the following key destinations:

- Downtown Orangeville;
- Horizon Court Apartments;
- Parkview Drive;
- Westside Market Village;
- Sherwood Street;
- Centennial Road industrial area; and
- Westdale Mall.

The new Blue Route has a similar route structure to the existing Blue Route; however, it is approximately 1.5 kilometres shorter, addressing current schedule adherence issues. The route begins by heading eastbound from the Downtown transit terminal to the Westside Market Village, via Mill Street, Church Street, Blythia Street, Towline, Parkview Drive, and Riddell Road. Departing the Westside Market Village, it then loops into residential areas along Alder Street, Sherwood Street, and Spencer Avenue, before returning to the Downtown transit terminal via Centennial Road and the Westdale Mall. Students can also use the Blue Route to get to Westside Secondary School and the Alder Recreation Centre by getting off at either the Westside Market stop and walking 250m north across the running track or by getting off the bus near the intersection of Alder Street and Riddell Road. The Blue Route will lay over at the Downtown transit terminal on the south side of Broadway and be interlined with the Red Route.

4.2.4

Orange Route

The new Orange Route is a modification of the existing Orange Route. The route has two loops on either end: a one-way counter-clockwise loop at its west end and a one-way clockwise loop on its east end. The central portion along Broadway that connects the two loops has two-way service. The Orange Route connects the following key destinations:

- Downtown Orangeville;
- Westdale Mall;
- Springbrook Plaza;
- Montgomery Boulevard;
- Alder Recreation Centre;
- Westside Secondary School;
- Diane Drive;
- Orangeville District Secondary School (ODSS);and

- Tony Rose Memorial Sports Centre.

The new Orange Route has a similar route structure to the existing Orange Route; however, it is approximately 2.5 kilometres shorter, addressing current schedule adherence issues. The route begins by heading westbound from the Downtown transit terminal to the Westside Secondary School, via Broadway, B Line, and Montgomery Boulevard. Departing the Westside Secondary School, it then travels along Alder Street, Diane Drive, and Broadway before returning to the Downtown transit terminal via a loop on Clara Street, Fead Street, and 1st Street. This route has been designed to help provide direct, two-way service to the Orangeville District Secondary School (when paired with the Green Route). The Orange Route will lay over at the Downtown transit terminal on the north side of Broadway and be interlined with the Green Route.

4.2.5 Route Interlining

Route interlining is a common practice to reduce the number of physical transfers for passengers and to build in recovery time for bus operators when certain may experience schedule adherence issues. To reduce transfers for crosstown passengers, it is recommended that the Red and Blue Routes be interlined, and that the Orange and Green Routes be interlined.

4.2.6 Coverage

Based on the recommended route structure, approximately 63% of the Town's population is located within 400 metres (5 minutes walking distance) of a transit stop. This is an increase from the coverage of the existing route network, which sees only 57% percent of Orangeville residents within a 400-metre walk of a bus stop. This is illustrated in **Figure 9**.

Most stops within the existing system continue to be serviced, with the exception of approximately ten existing stops that currently receive limited ridership. New neighbourhoods are also serviced in this plan, including:

- The new residential area near Montgomery Boulevard and B-Line;
- New residential areas near Spencer Avenue and Sherwood Street;
- Existing residences near College Avenue, Fieldgate Drive, and Meadow Drive.

There are a number of major destinations in the Town that also have improved service. These include:

1. **Downtown:** As a result of the relocation of the transit terminal, all routes will converge Downtown. This will provide direct service to the many destinations Downtown from all corners of Orangeville.
2. **Westdale Mall:** All four transit routes pass by the intersection of Centre Street and Broadway every 30 minutes. The buses are off set, so that some pass by Westdale Mall at the beginning of their run, while others arrive on their way back to the Downtown transit terminal.

3. **Orangeville Mall and Walmart:** The Mall and the surrounding big box retail outlets (including Walmart) have two bus routes that residents can use to access these locations. The Green Route provides direct access to these retailers from the Downtown transit terminal, operating every 30 minutes. The Red Route takes a more direct route back to the terminal from the Orangeville Mall and Walmart. These route also operates every 30 minutes, thus creating an average headway of 15 minutes to these destinations.
4. **Orangeville District Secondary School/Tony Rose Memorial Sports Centre:** The school and recreation centre can be accessed directly by the Green Route (30 minute headway) or the Orange Route (30 minute headway). Since the Green Route passes the site toward the beginning of its run and the Orange Route passes the site toward the end of its run, a bus will pass by the school and recreation centre approximately every 15 minutes and provide a direct connection to every route in the system.
5. **Westside Secondary School/Alder Street Recreation Centre:** The school and recreation centre can be accessed directly by the Orange Route (30 minute headway). The Blue Route (30 minute headway) also serves the school and recreation centre from either the Westside Market stop or the intersection of Alder Street and Riddell Road. Both stops are within an accessible walking distance of the school and recreation centre (approximately 200m to 300m).

4.2.7

Schedule Adherence

As identified in the 2016 Orangeville Transit Optimization Study, schedule adherence for the three existing routes is a significant issue during peak hours. Congestion on Broadway, in particular, has been noted as slowing buses down, often causing them to arrive late at the transit terminal. Even though only one bus may arrive late, this has a cascading effect on the entire network, as the other buses delay their departures to facilitate connections. The recommended service design addresses schedule adherence issues by shortening the length of the routes, thus making a 30-minute run time more consistently achievable. **Table 2** shows the existing and proposed route lengths, and the average speeds required to complete the route with enough time to allow for a 3-minute layover at the transit terminal.

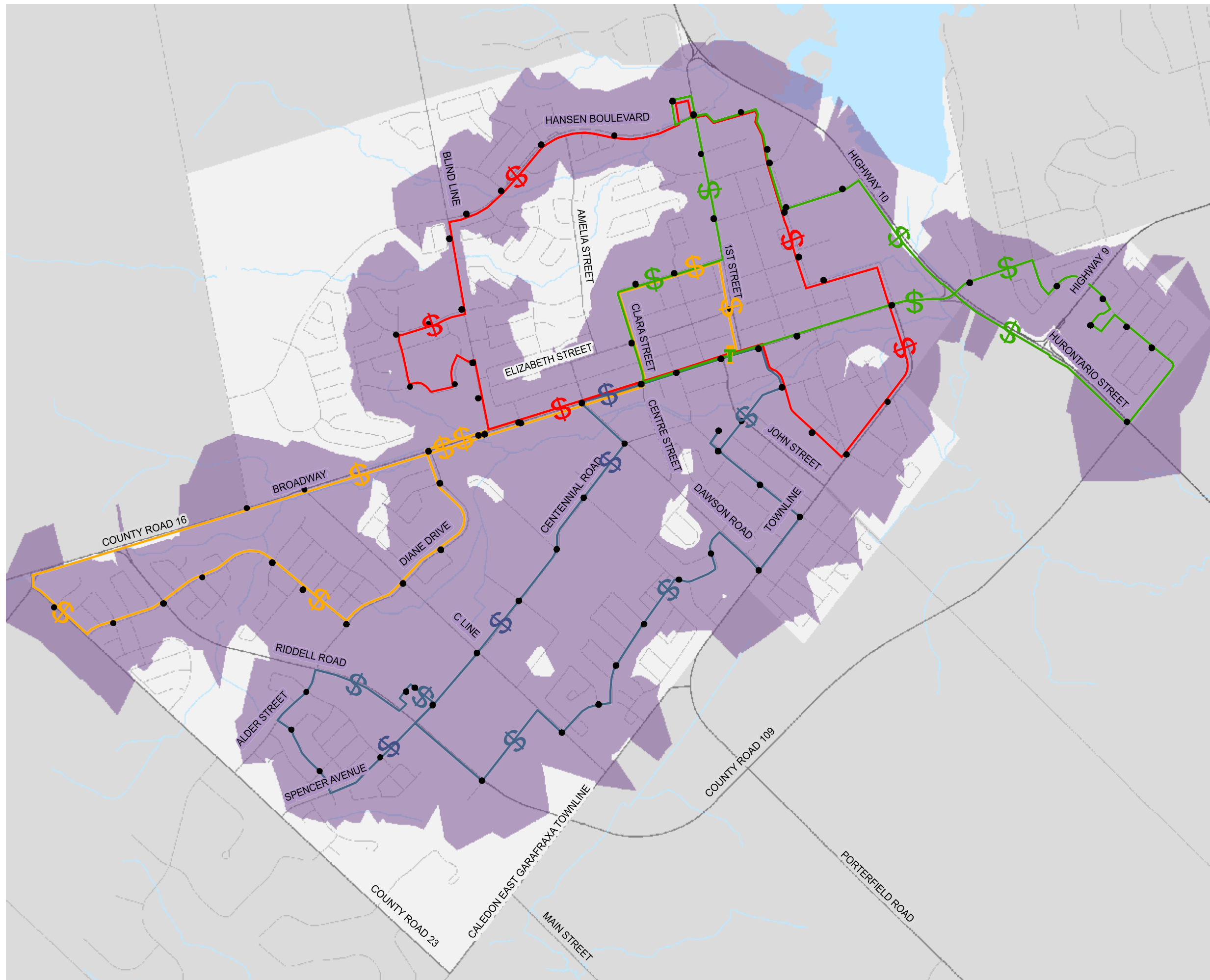
Table 2: Existing vs. Proposed Route Lengths

Route	Existing Routes		Proposed Routes	
	Length (km)	Average Speed (km/h)	Length (km)	Average Speed (km/h)
Orange	12.7	28.2	10.3	22.9
Green	11.6	25.8	9.6	21.3
Blue	12.3	27.3	10.6	23.6
Red	-	-	9.2	20.4



Town of Orangeville
Orangeville Transit Optimization Study Update

**Downtown Terminal Route Network Coverage
400 Metre Walking Distance Catchment Area**
Figure 9



- Downtown Terminal Route Network Bus Stop
- Downtown Terminal Route Network 400 Metre Coverage
- Highway
- Arterial Road
- Collector Road
- Local Road
- Ramp
- Waterbody
- Town of Orangeville

Transit Route

- Blue Route
- Green Route
- Orange Route
- Red Route

The Downtown Terminal route network covers a population of 21,718 (2016 census) within a 400 metre walking distance to a bus stop. The route network covers 63% of the population within Orangeville which is an improvement of 6% from the existing route network.



MAP DRAWING INFORMATION:
DATA PROVIDED BY: COUNTY OF DUFRERIN AND MNRF
MAP CREATED BY: SMB
MAP CHECKED BY: AIG
MAP PROJECTION: NAD 1983 UTM Zone 17N



PROJECT: 17-5832
STATUS: DRAFT
DATE: 7/18/2017

4.3 Evening Service

The 2016 Orangeville Transit Optimization Study recommended that evening service be extended from 6:15 pm to 9:45pm. As of January 2, 2017, Orangeville Transit extended its operating hours to 8:45pm on the three existing routes. It is recommended that conventional service be extended by one additional hour to 9:45pm Monday to Friday, using a reduced service structure starting at 6:15pm. This further expansion of evening service will help better serve employees ending their shifts at retail workplaces. While the recommendation increases the system's span of service, it also addresses the need for system productivity, by reducing the number of vehicles required to undertake the service during low demand periods. The recommended evening service, unchanged from the 2016 Orangeville Transit Optimization Study, is summarized below.

4.3.1 Fixed Route Service

Evening service after 6:15pm on weekdays would be provided by two buses operating all four routes:

1. Green Route interlined with the Orange Route
2. Blue Route interlined with the Red Route

All routes would operate on a 60-minute headway, offset so that two buses meet at the Downtown terminal every 30 minutes. This would mean passengers transferring between the Green Route and the Blue Route and between the Orange Route and the Red Route would need to wait at the terminal for 30 minutes.

The benefit of this route structure is that both the Green Route and the Red Route go to the Orangeville Mall and a number of the major retailers (e.g. Walmart) in the northeast big box area. By offsetting these two routes, service to the Mall and the surrounding retail area continue to be provided every 30 minutes in the evening. This is likewise true of service to the Westside Secondary School, the Alder Street Arena, and the Westside Market Village, destinations that can be accessed by either the Orange Route or the Blue Route.

4.3.2 Late Night Retail Drop-off Service

As detailed in the 2016 Orangeville Transit Optimization Study, it is recommended that the Town enter into discussions with the Mall property owner as well as other major retailers in the northeast big box area to provide a late evening retail drop off service for employees. This bus would operate on a dynamic routing after the last regular service run.

The arrangement would limit the number of resources used to deliver the service, as only one bus would be in service. It is recommended that the Town should explore this potential with major retailers in the northeast retail area and implement the service based on an adequate cost recovery target being achieved. This discussion should include the potential for the Mall or other retailers contributing funding to this drop-off service.

4.4 Weekend Service

It is recommended that the frequency on Saturdays be reduced from every 30 minutes to every 60 minutes between 7:15am to 6:15pm. This was recommended in the 2016 Orangeville Transit Optimization Study and no change is required due to the new route structure or terminal location. Saturday service would operate the same as the recommended weekday evening service. Two buses would be utilized to operate all four routes:

1. Green Route interlined with the Orange Route
2. Blue Route interlined with the Red Route

As on weekday evenings, all routes would operate on a 60-minute headway, offset so that two buses meet at the terminal every 30 minutes. Until Saturday service performance is improved, the addition of Sunday service should be delayed. It is recommended that Saturday service ridership be monitored. Sunday service should be re-explored as a viable option if ridership on Saturdays achieves 15 boardings per revenue vehicle hour on average (or higher).

4.5 Summary of Service Hours

Table 3 below provides a summary of service level and service span modifications for the recommended Downtown transit terminal route structure.

Table 3: Downtown Terminal Route Structure Headways by Route

Route Name	AM Peak (7:15am- 9:15am)	Midday (9:15am- 2:15pm)	PM Peak (2:15pm- 6:15pm)	Early Evening (6:15pm- 8:45pm)	Late Evening (8:45pm- 9:45pm)	Saturday (7:15am- 6:15pm)
Orange	30	30	30	60	60	60
Green	30	30	30	60	60	60
Blue	30	30	30	60	60	60
Red	30	30	30	60	60	60

4.6 Revenue Service Hours

Revenue service hours have been calculated based on the recommended service levels detailed in the previous section. This includes the addition of a fourth bus route, the extension of weekday evening service and the reduction of Saturday service frequency. No changes to overall revenue service hours are recommended from the 2016 Orangeville Transit Optimization Study.

Table 4 indicates the annual service hours for the existing service and the proposed service.

Table 4: Existing and Proposed Revenue Service Hours

Period	Existing Service	Proposed Service
Weekday	8,250	11,000
Weekday evening	1,875	1,750
Saturday	1,716	1,144
Late Night Drop off	-	167
Auxiliary Hours (4%)	474	556
Total Service Hours	12,315	14,616



Next Steps

There are a number of steps that need to be completed before the proposed transit terminal and modified route and service structure can be implemented. These include:

- **Test new route structure with the bus operator.**

The bus operator should be consulted in the development of the route network to ensure that the proposed routes and run times are achievable within the parameters outlined in this report. The bus drivers should run the routes to confirm their operability, the suitability of the stopping locations, and any other particularities.
- **Consult with downtown business.**

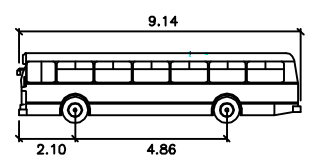
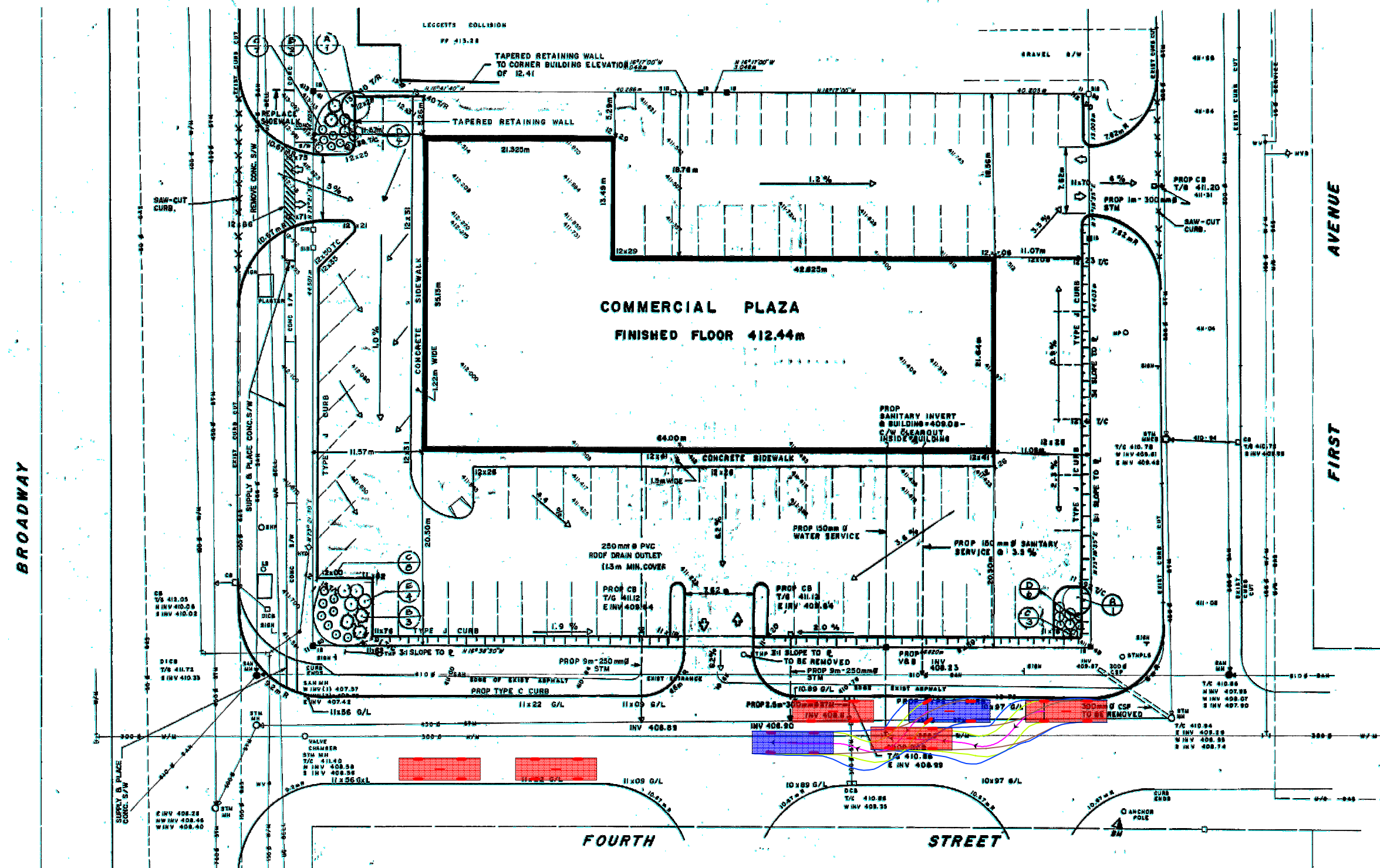
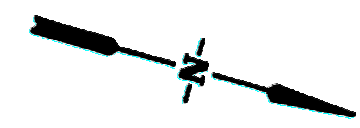
The relocation of the transit terminal to the recommended location on Broadway in Downtown Orangeville will require the conversion of 11 spaces to accommodate four buses. Business in the immediate vicinity of the site should be consulted with regarding the loss of parking and its availability in the proximity. The benefits of the proposed terminal location, including increased transit ridership, better access to downtown businesses, and improved passenger convenience should also be shared with the businesses.
- **Identify preliminary infrastructure costs.**

The costs of providing the required infrastructure at the new terminal (including shelters, benches, bus stops) should be detailed. Furthermore, additional costs relating to the removal/addition of new bus stops, the construction of bus pads, and the provision of passenger amenities such as benches and shelters arising from the new system design need to be estimated.
- **Present new route structure and terminal location to council.**

Before the transit terminal can be relocated to the Downtown location, the route network modified, and the service levels tweaked, Orangeville Town Council should approve the recommended changes. The increase in service hours and capital expenditures will necessitate additional funding, and as a result, the support of council is advisable.

Appendix A

4th Street at Broadway Terminal Design



Grande West Vicinity 30Ft meters
 Width : 2.50
 Track : 2.50
 Lock to Lock Time : 6.0
 Steering Angle : 33.1
 Min. ϕ Turning Radius : 8.9

CODE	QUANTITY	N.A.M.B	CONDITION
A	2	PINUS NIGRA AUSTRIAN PINE	200 CM. WB.
B	5	JUNIPERUS VIRGINIANA "HEYZI" HEYZI JUNIPER	60CM POTTED
C	18	JUNIPERUS SABINA "TAMARISCOPOLIA" TAMARIA JUNIPER	40 CM. POTTED
D	10	WEIGELA FLORIDA "MINUET" MINUET WEIGELA	40 CM POTTED
E	4	PRUNUS SPINOSA PURPLELEAF SANDCHERRY	60 CM POTTED

BM ELEV 412.257
 2 NAILS IN NORTH FACE OF HYDRO ANCHOR POLE

LEGEND

411.223	INDICATES EXISTING ELEVATION 411.223
412.47	INDICATES PROPOSED ELEVATION 412.47
T/C	INDICATES TOP OF CURB
T/R	INDICATES TOP OF RETAINING WALL
G/L	INDICATES GUTTER LINE

NOTES

- TYPE C CURB TO PROPERTY LINE AT ALL ENTRANCES
- MINIMUM COVER : STORM SEWER 1.30 m
 : SANITARY SEWER 2.75 m
 : WATERMAIN 1.80 m

NO	REVISIONS	DATE	APP'D
1	RELOCATED FOURTH STREET ENTRANCE and REVISED GRADING	12/13/08	B.R.
2	REVISED BUILDING LOCATION AND PARKING LOT	4/27/09	R.C.
3	ADD 'AS CONST' DIMENSIONS	7/10/09	B.R.

CLIENT
ETON CONSTRUCTION LTD.
 MISSISSAUGA, ONT.

TITLE
COMMERCIAL PLAZA

R.J. BURNSIDE & ASSOCIATES LTD.
 CONSULTING MUNICIPAL ENGINEERS & PLANNERS

DRAWN : D.C. MONTGOMERY
 DESIGNED : B.G. ROGERS

DRAWING NO : C-1146-1/61
 SCALE : 1:250

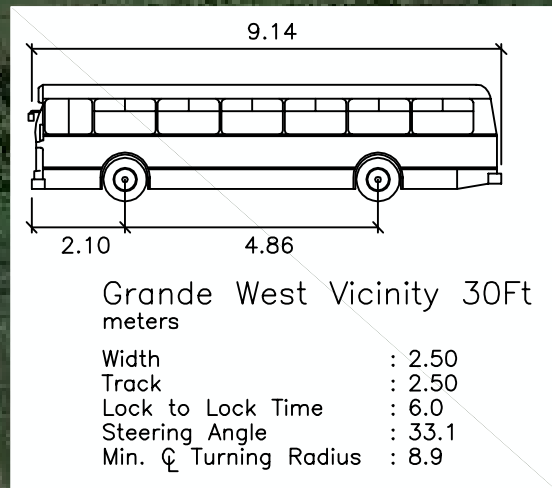
Appendix B

Centre Street at Hillside Drive Terminal Design

Broadway

Centre Street

Approximate New Regional Floodline



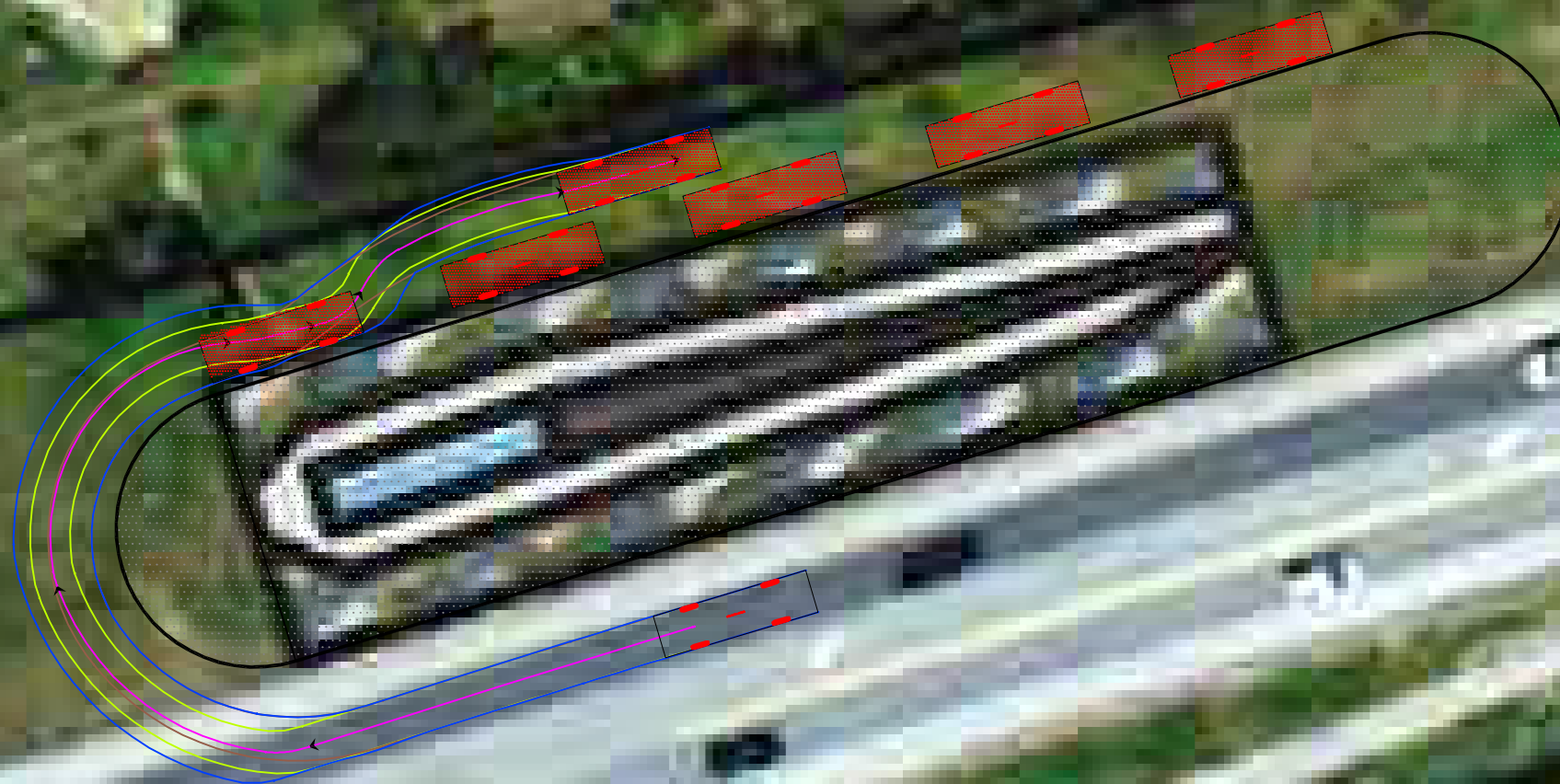
NOTE: Aerial image from Google Earth Pro is approximate only.

Appendix C

Diane Drive at Broadway Terminal Design

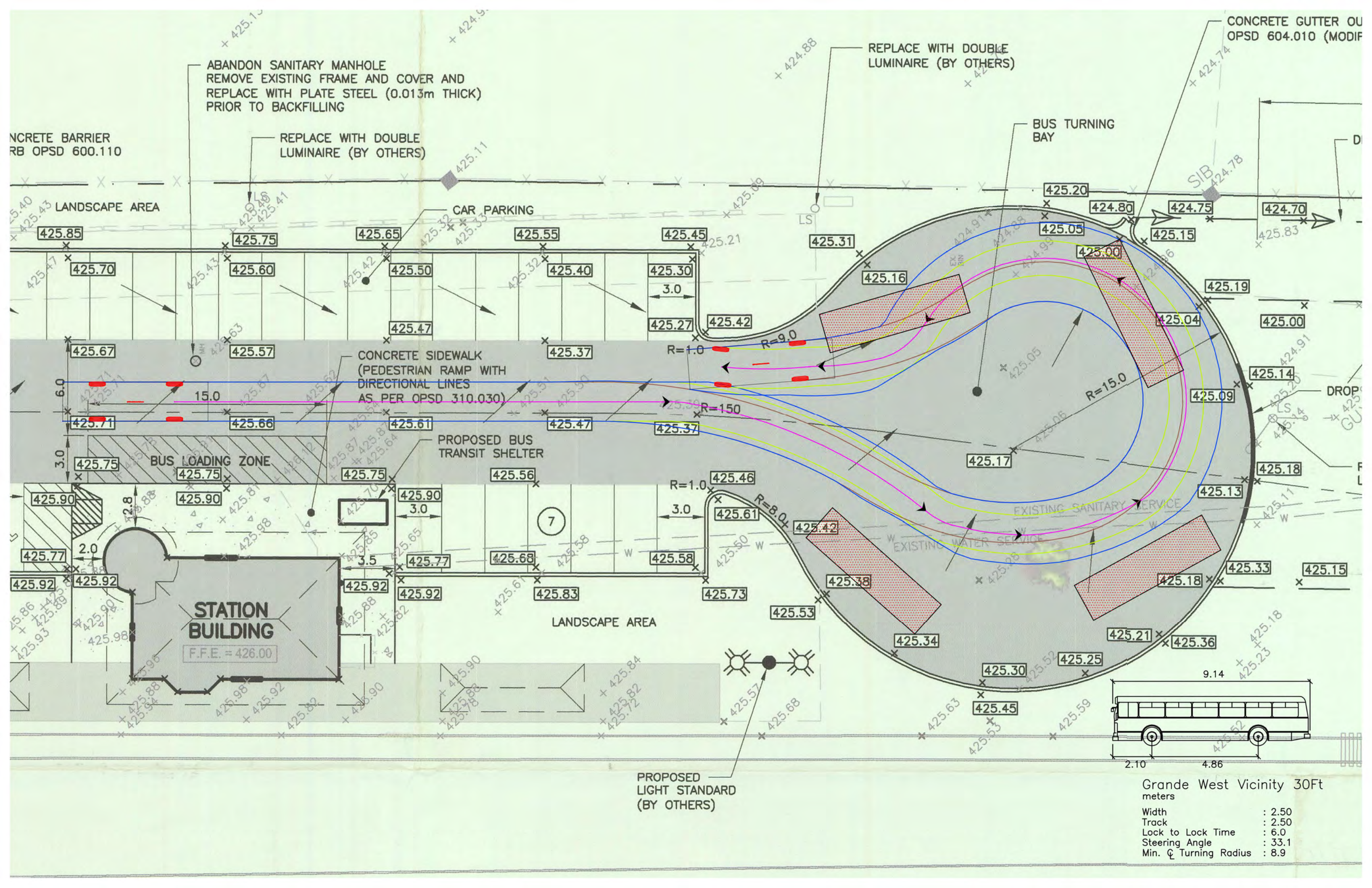


Grande West Vicinity 30Ft
meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 33.1
Min. ζ Turning Radius : 8.9



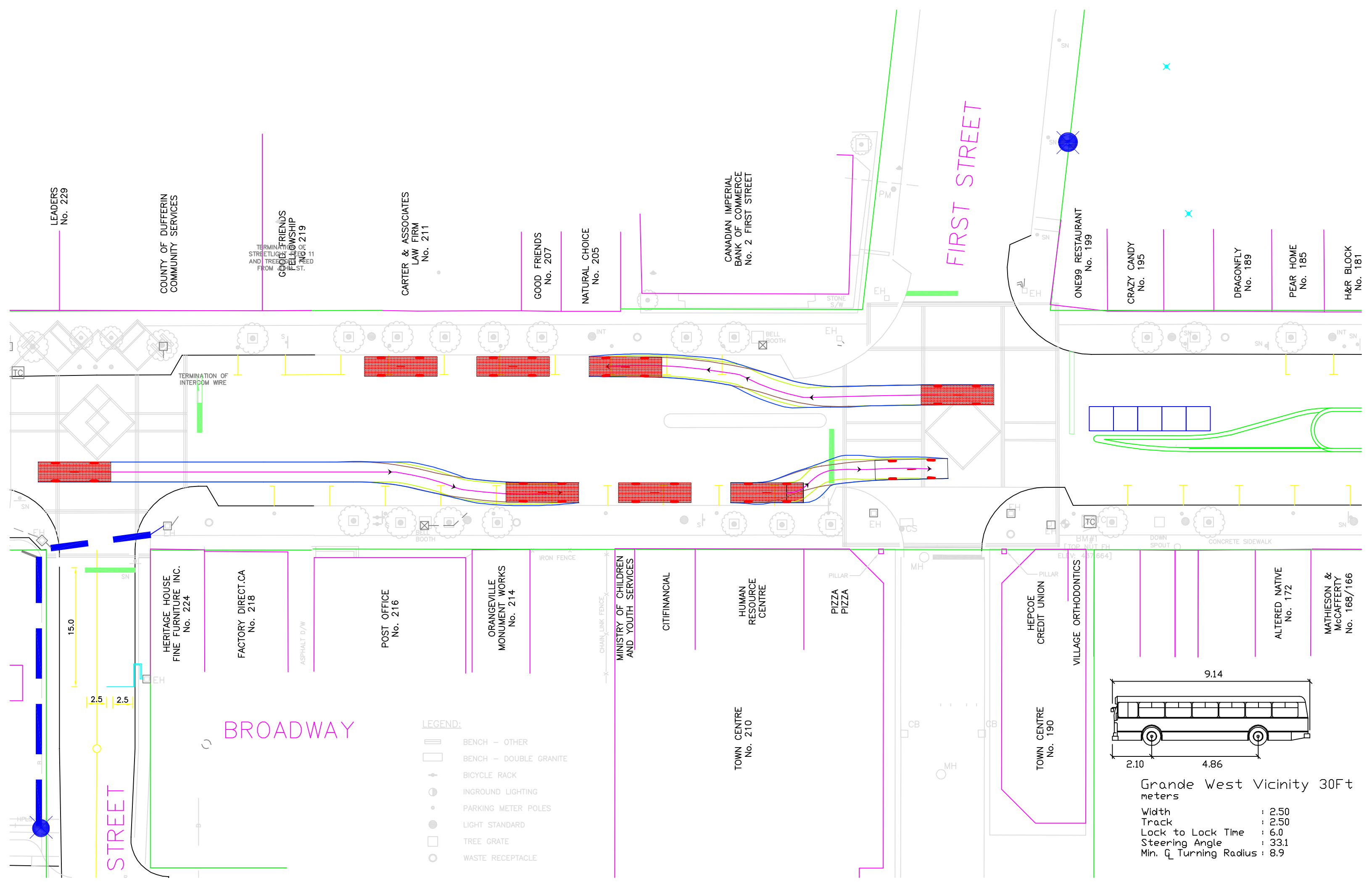
Appendix D

Townline at Mill Street Terminal Design



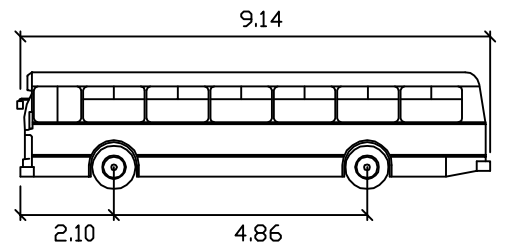
Appendix E

Downtown Orangeville Terminal Design



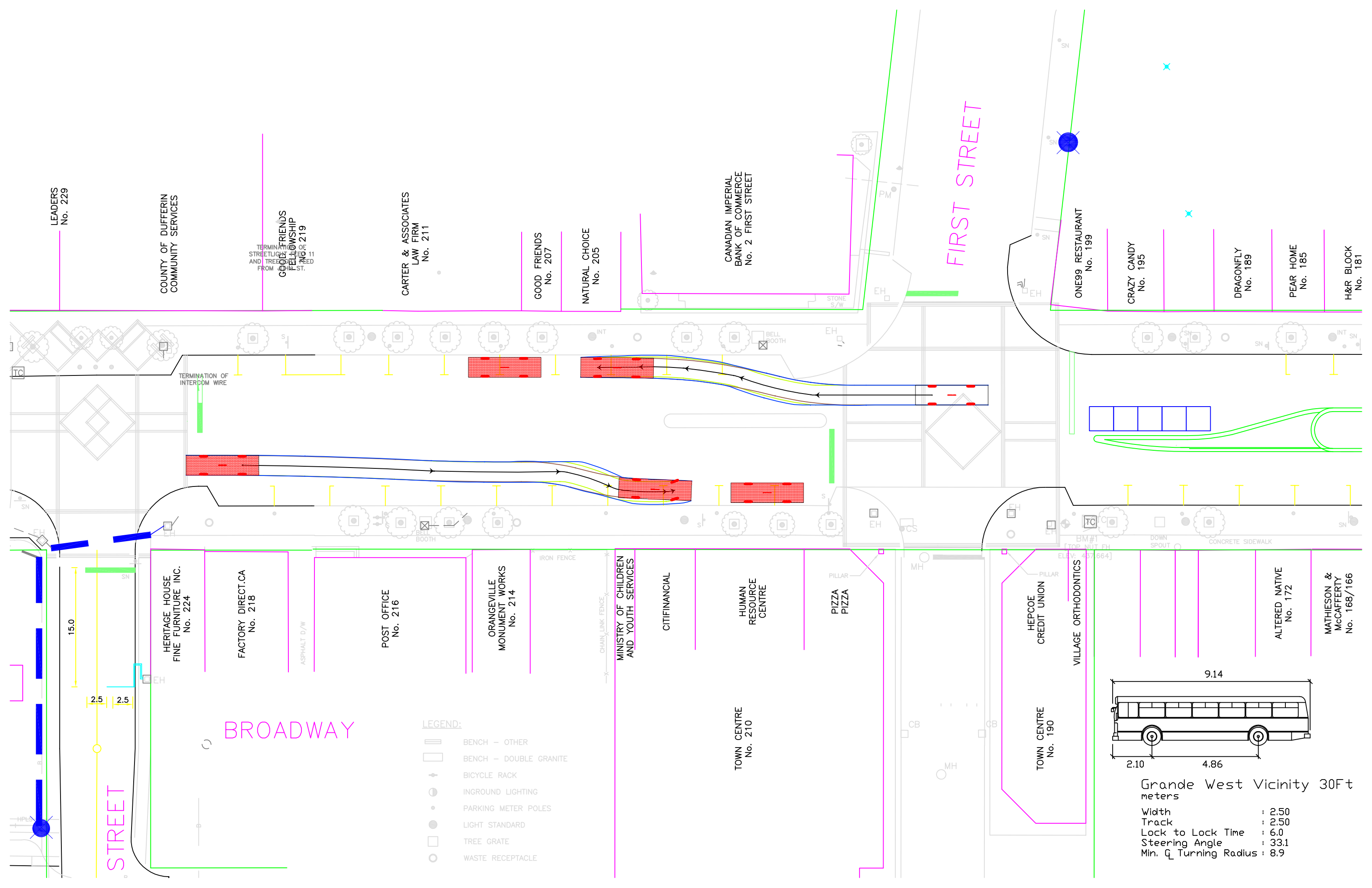
LEGEND:

- BENCH - OTHER
- BENCH - DOUBLE GRANITE
- BICYCLE RACK
- INGROUND LIGHTING
- PARKING METER POLES
- LIGHT STANDARD
- TREE GRATE
- WASTE RECEPTACLE



Grande West Vicinity 30Ft meters

Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 33.1
Min. ϕ Turning Radius	: 8.9



LEADERS
No. 229

COUNTY OF DUFFERIN
COMMUNITY SERVICES

GOOD FRIENDS
FELLOWSHIP
No. 219

CARTER & ASSOCIATES
LAW FIRM
No. 211

GOOD FRIENDS
No. 207

NATURAL CHOICE
No. 205

CANADIAN IMPERIAL
BANK OF COMMERCE
No. 2 FIRST STREET

FIRST STREET

ONE99 RESTAURANT
No. 199

CRAZY CANDY
No. 195

DRAGONFLY
No. 189

PEAR HOME
No. 185

H&R BLOCK
No. 181

TERMINATION OF
INTERROOM WIRE

HERITAGE HOUSE
FINE FURNITURE INC.
No. 224

FACTORY DIRECT.CA
No. 218

ASPHALT D/W

POST OFFICE
No. 216

ORANGEVILLE
MONUMENT WORKS
No. 214

MINISTRY OF CHILDREN
AND YOUTH SERVICES

CITIFINANCIAL

TOWN CENTRE
No. 210

HUMAN
RESOURCE
CENTRE

PIZZA
PIZZA

HEPCOE
CREDIT UNION

TOWN CENTRE
No. 190

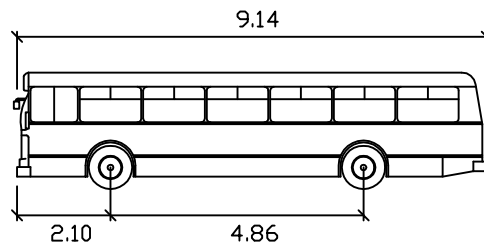
VILLAGE ORTHODONTICS

ALTERED NATIVE
No. 172

MATHIESON &
McCAFFERTY
No. 168/166

LEGEND:

- BENCH - OTHER
- BENCH - DOUBLE GRANITE
- BICYCLE RACK
- INGROUND LIGHTING
- PARKING METER POLES
- LIGHT STANDARD
- TREE GRATE
- WASTE RECEPTACLE



Grande West Vicinity 30Ft
meters

Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 33.1
Min. Q Turning Radius	: 8.9