



Transportation Impact Study

12749 Tenth Line – Acorn South

April 2026 | Project # 100990
Town of Whitchurch-Stouffville

TYLin

EXECUTIVE SUMMARY

TYLin has been retained to prepare a Transportation Impact Study in support of the Acorn South subdivision, located within the Community of Stouffville Secondary Plan Area in the Town of Whitchurch-Stouffville, York Region.

The objective of this study is to determine the traffic volumes anticipated to be generated by the Acorn South subdivision during the critical weekday a.m. and p.m. peak periods, assess the impact of this traffic on the existing and future roadway network, recommend any necessary improvements to accommodate the projected traffic, and confirm that the internal road network is consistent with Town standards and provides safe operation of vehicles within the proposed subdivision.

This study investigates and presents baseline traffic conditions for the study area, prepares forecasts for future background traffic growth, and assesses the operating conditions of the study area road network under both existing (2025) and future conditions. A future 2030 (short-term) and 2035 (long-term) planning horizon is considered for this study.

Proposed Development

The proposed development comprises a total of 157 townhouse units.

Turning Movement Counts

Turning movement counts at the study intersections were collected on November 1, 2023. To account for counts at the relocated Old Elm GO Station, 2031 GO Station trips from the 2020 Lincolnville MTSA Transportation Study (the 'MTSA Study'), prepared by HDR, were scaled down to match existing turning volumes and assigned to the study network for the purposes of existing traffic analysis and have been removed from future scenarios to account for the full 2031 GO station trips in the future.

Background Growth

To ensure consistency with Section 3.2 of the MTSA Study, no background growth was applied to existing traffic volumes, as the majority of growth in the vicinity of the study area is expected to result from the new developments.

The short-term future background traffic was obtained by combining:

- ▶ the existing traffic volume with the adjusted GO station trips,
- ▶ traffic volume from Zone 7,
- ▶ future GO station trips (after removing the scaled-down GO trips for existing analysis),
and

- ▶ trips generated from the neighbouring developments 12875 Tenth Line (Acorn North subdivision) and 12811 Tenth Line (Lincolnville Northcape subdivision), which are expected to be built in parallel with Acorn South.

The long-term future background traffic was obtained by combining the short-term background development traffic from zones 5, 10, and 12, and external zones outside Phase 3 lands.

Mode Split

Mode split information was obtained from the MTSA Study, based on the 2016 Transportation Tomorrow Survey data. The percentage of residential non-auto trips was observed to be 32% during the a.m. peak period and 27% during the p.m. peak period. These splits were applied to the a.m. and p.m. peak hour trip generation.

Vehicle Trips

The proposed development lands are expected to generate a total of 55 two-way vehicle trips during the a.m. peak hour, consisting of 14 inbound and 41 outbound trips. During the p.m. peak hour, it is expected to generate 91 new two-way vehicle trips consisting of 52 inbound and 39 outbound trips.

The future total traffic volumes in the weekday peak hours for the 2030 and 2035 planning horizons were derived by combining the future background traffic volumes with the estimated site-generated traffic.

Traffic Capacity

The study area will generally have residual capacity and study intersections will be operating well. To support the 2030 horizon year, TYLin recommends signalization of the following intersections:

- ▶ Bethesda Side Road at Tenth Line
- ▶ Tenth Line at Road C

The intersection of Tenth Line and Bethesda Side Road is currently under two-way stop control on eastbound and westbound approaches of the intersection and is bisected by the rail corridor on the west and north legs. Special consideration will be needed to account for this when designing the signal to accommodate the railway, including barriers and calculating appropriate clearance times. TYLin recommends considering implementing no right turn on red on the west and north legs at this intersection from a safety perspective, as it is bisected by a rail corridor.

A dedicated southbound left turn lane is recommended at the intersection of Tenth Line and GO Primary Access/Road B to improve traffic operations at this intersection.

Based on MTO left turn warrants analysis, left turn lanes are warranted at the following intersections:

- ▶ Southbound left-turn lane at Tenth Line and GO Primary Access/Road B.

Under the long-term (2035) development scenario, some study area intersections will be operating at capacity. The signalized intersection of Tenth Line and Bethesda Side Road will have some movements approaching capacity during the weekday p.m. peak hour. This is driven by traffic from the long-term development areas identified in the MTSA Study, not by traffic from the site itself. The 95th percentile queue lengths for some of the movements exceed the available storage length at the intersection of Tenth Line and Main Street. It is expected that jog elimination would mitigate some of the deficiencies associated with the jogged traffic movements along the Tenth Line.

To support the traffic operations under the 2035 horizon year, TYLin recommends the following improvements:

- ▶ A dedicated eastbound right turn lane at Tenth Line and Bethesda Side Road
- ▶ A dedicated northbound left turn lane at Tenth Line and Bethesda Side Road converting the movement into a dual left turn lane
- ▶ A dedicated southbound left turn lane at Tenth Line and Road B/GO Primary Access

These forecasts demonstrate that a long-term development scenario can be supported.

A well-connected collector road network is recommended to mitigate the traffic congestion along Tenth Line and Bethesda Side Road.

Queuing

Based on the review of the transportation road network within the Phase 3 block plan, the queues extending from the study area intersections are not expected to exceed the intersection spacing proposed from the current block plans. Additionally, the review confirms the adequacy of the road geometry/intersection spacing and provides ways in which road bend risk can be mitigated.

Cross-Sections

The proposed roadway cross-sections for Tenth Line, Bethesda Side Road, and the collector roads are designed to accommodate vehicular traffic, active transportation, and streetscape amenities, while allowing flexibility for future modifications, if needed.

- ▶ **Tenth Line** is proposed with a 31.0 m right-of-way and a two-lane cross-section, allowing for 3.5 m through lanes in each direction, a wide median, a 3.3 m left-turn lane at intersections, wide boulevards, 2.0 m sidewalks, and 2.0 m cycle tracks. This configuration protects for future road widening at the Town's discretion. Although analysis indicates that four to five lanes are not required, the Town should monitor traffic operations and conduct further study to confirm the ultimate needs for Tenth Line south of the Phase 3 lands to Main Street.
- ▶ **Bethesda Side Road**, as previously identified in the 2020 MTSA Study, is proposed with a 27.0 m right-of-way and a two-lane cross-section, allowing for 3.5 m through lanes, 3.3 m

left-turn lanes, wide boulevards, a 2.0 m sidewalk on the north, and a 4.0 m multi-use path on the south.

- ▶ **Collector Road A** is proposed as a 20.0 m right-of-way with a two-lane cross-section. Its design is based on the Lincolnville Urban Design Guidelines (2023), and includes two 3.5 m through lanes, a 2.4 m lay-by/parking lane on the east side, a 2.0 m sidewalk on the east side, and a 3.0 m multi-use path on the west side, with remaining space for street furniture, landscaping, and street trees.
- ▶ **Collector Road C** is proposed as a 20.0 m right-of-way with a two-lane cross-section. Its design is based on the Lincolnville Urban Design Guidelines (2023), and includes two 3.5 m through lanes, a 2.4 m lay-by/parking lane on the north side, a 2.0 m sidewalk on the north side, and a 3.0 m multi-use path on the south side, with remaining space for street furniture, landscaping, and street trees.

Site Access

Under the short-term (2030) development scenario, new and modified accesses are proposed along Tenth Line and Bethesda Side Road to support the planned development.

Along Tenth Line, two new collector road accesses (Roads B and C) are proposed on the east side of the corridor, generally opposite and south of the existing GO Station access. These accesses will serve the developments east of Tenth Line, with Collector Road C planned as a signalized intersection.

Two additional Right-in/Right-out intersections are also proposed on the east side of Tenth Line, south of the intersection with GO Primary Access and Road B. These accesses will primarily serve the developments located east of Tenth Line.

Along Bethesda Side Road, one stop-controlled access is proposed on the south side of the roadway, east of Tenth Line. This access will serve the adjacent developments.

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1 INTRODUCTION

1.1 Scope and Objective

TYLin has been retained to prepare a Transportation Impact Study in support of the Acorn South subdivision, located within the Community of Stouffville Secondary Plan Area in the Town of Whitchurch-Stouffville, York Region. The study area, referred to as “Acorn South”, focuses on the lands and road network immediately surrounding the existing and future Old Elm GO Station (formally the Lincolnville GO Station), and would be bounded by Tenth Line to the west, Lincolnville Northcape subdivision to the north, and Brundale subdivision to the south-east.

This study investigates and presents the baseline traffic conditions for the study area, prepares forecasts for future background traffic growth, and assesses the operating conditions for the study area road network for existing (2025) and future conditions. A future 2030 and 2035 (five-year and ten-year post build-out) planning horizon is considered for this study.

The objective of this study is to determine the traffic volumes anticipated to be generated by the Acorn South subdivision during the critical weekday a.m. and p.m. peak periods to assess the impact of this traffic on the existing and future roadway network, recommend improvements to accommodate the projected traffic if any are needed, and confirm that the internal road network is consistent with Town standards and provides safe operation of vehicles within the proposed subdivision.

This study builds upon the previous Transportation Study for the entirety of the Lincolnville MTSA lands prepared by HDR for the Town of Whitchurch Stouffville in October 2020 (the ‘MTSA Study’) and the Lincolnville Phase 3 Lands Transportation Impact Study prepared by TYLin in April 2024.

1.2 Study Methodology

Study analysis will focus on existing conditions, modelled on turning moving counts obtained by TYLin, collected in November 2023 at the intersections listed below, as well as future conditions forecasted from site generated traffic and traffic volumes forecasted for the wider study area. For the purpose of this analysis, these traffic counts will be considered as existing traffic conditions.

- ▶ Bethesda Side Road at Tenth Line (unsignalized)
- ▶ Bethesda Side Road at York Durham Line (unsignalized)
- ▶ Main Street at Tenth line (north leg) (signalized)
- ▶ Main Street at Tenth line (south leg) (unsignalized)
- ▶ Main Street at York Durham Line (unsignalized)

Traffic volumes for future conditions will be forecasted using the traffic developed in background developments within the vicinity of the subject lands for the 2030 and 2035 study horizons. Estimated future traffic volumes for background conditions will consist of corridor growth and traffic for planned developments within the planning horizon, consistent with the Town's guidelines. ITE's Trip Generation Manual (12th Edition) will be used to estimate trip generation for the proposed Acorn South subdivision development.

It is important to note that transportation impact studies for surrounding developments are being conducted concurrently with this study. These developments are considered background developments of the Acorn South subdivision. Likewise, the Acorn South subdivision is considered a background development of the surrounding studies. The surrounding developments include:

- ▶ 12875 Tenth Line (Acorn North subdivision)
- ▶ 12811 Tenth Line (Lincolnvill Northcape subdivision)

Our study assessment will be based on weekday a.m. and p.m. peak hour analysis, deemed the critical periods for study area assessment due to the primarily residential nature of the projected developments. Traffic operations assessment will consider existing intersections under current stop control and signalized conditions. Based on recommended future study area infrastructure improvements, analysis for future conditions will assess future intersections under stop control and signal control. A study intersection analysis will be conducted using Synchro software.

This study will also include traffic signals and turning lane warrants to confirm the need for study intersection signalization and dedicated turning lanes, respectively.

2 SITE CHARACTERISTICS

2.1 Study Environment

The proposed development is located within the Town of Whitchurch-Stouffville. The study area, referred to as “Acorn South”, focuses on the lands and road network immediately surrounding the Old Elm GO Station (formally Lincolnville GO Station), and would be bounded by Tenth Line to the west, Lincolnville Northcape subdivision to the north, and Brundale subdivision to the south-east. The proposed site and the surrounding road network are illustrated in **Figure 2-1**.

Figure 2-1 Site Location



2.2 Development Context

The Acorn South Conceptual Demonstration Plan (March 23,,2026) is shown in the **Figure 2-2** below. The unit count information for each of the sections is summarized in **Table 2-1** and is based on the latest unit counts provided by the Landowner's Group shown in **Appendix A**.

Figure 2-2 Land Ownership Map



The development shows one land use, with unit counts summarized in **Table 2-1** based on the latest information provided by the Landowner's Group, included in **Appendix A**.

The ITE land use code identified in the table below corresponds to the following land use:

- LUC 215: Single Family Attached Housing.

Table 2-1 Unit Count Information

Section Name	Landowner Group	ITE Land Use Code (LUC)	
		215 #Units	Total Residential #Units
E	Acorn South (12749 Tenth Line)	157	157

**Note - Total Gross Floor Area for non-residential land use is estimated to be between 1,000 and 25,000 ft.² as per ITE Trip Generation Manual.*

The ITE land use codes identified in the table above correspond to the following land uses:

► **LUC 215:** Single Family Attached Housing

It is to be noted that the land uses considered for this study is residential Townhouses (Single Family Attached - LUC 215).

As per table above, a total of 157 townhouse units. Note that these land uses and statistics are subject to change and are currently estimated for the purposes of traffic analysis.

2.3 Site Circulation Analysis

We conducted a site circulation analysis of the main intersections within the study area to assess the circulation visibility of emergency and waste collection vehicles.

2.3.1 Emergency Vehicle

An Emergency Fire Truck vehicle measuring 12.80 m (length) and 2.54 m (width) was simulated for turning movements to confirm that the selected fire truck vehicle can ingress, circulate through and egress the residential development site without conflict, as shown in **Appendix B**.

2.3.2 Waste Collection

The Front-End Garbage Truck (waste collection) vehicle measuring 12.00 m (length) and 2.40 m (width) was simulated to ensure ingress/ egress, and circulation through the proposed accesses and at the allocated refuse areas, as shown in **Appendix B**.

3 EXISTING TRANSPORTATION CONDITIONS

3.1 Road Network

The following describes the existing boundary road infrastructure applicable to the study area.

Tenth Line is an existing north-south municipal arterial roadway up to Bethesda Side Road. Tenth Line has a marked two-lane cross-section up to 200m north of Forsyth Farm Drive, then transitions to a marked four-lane cross-section travelling south. There is a dedicated westbound left-turn lane at the intersection with Bethesda Side Road and left-turn lanes at intersections with some of the local roadways serving the existing residential developments north of Main Street.

Pavement markings are provided to indicate the unpaved shoulder along Tenth Line through part of the existing development to the south of the subject site. Sidewalks are provided on both sides of the road from Main Street to Walter Atkinson Avenue. Tenth Line operates with a posted speed limit of 50 km/h between Main Street and just north of Forsyth Farm Road, 60 km/h from just north of Forsyth Farm Road up to Bethesda Side Road, and 70 km/h north of Bethesda Side Road.

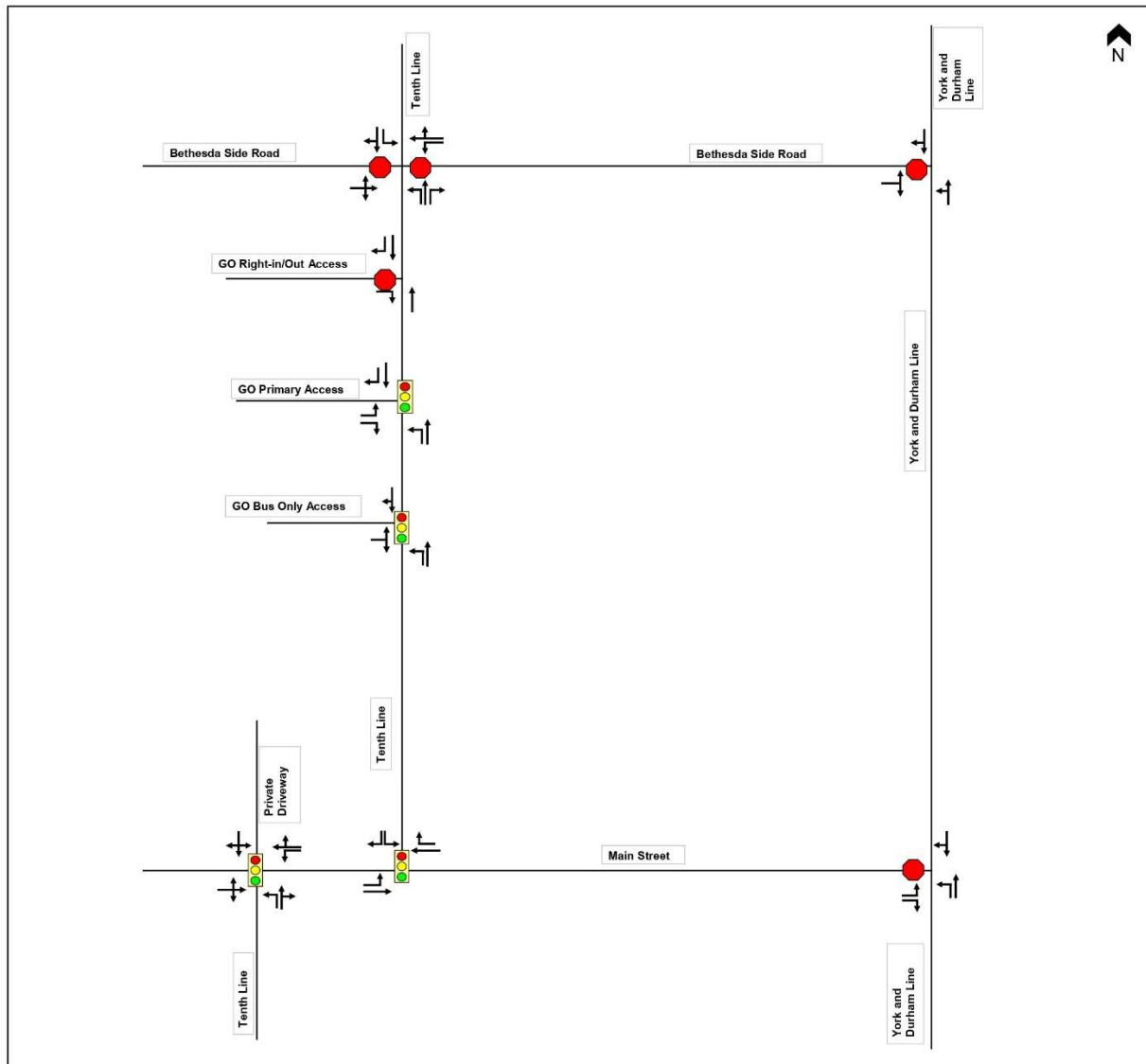
Bethesda Side Road is an existing east-west municipal arterial road with a two-lane rural cross-section from Ninth Line to York Durham Line, with a dedicated southbound left-turn lane at the intersection with Tenth Line. No additional pavement markings are provided. The road operates with a posted speed limit of 60 km/h within the study area.

York Durham Line is an existing north-south regional arterial road with a two-lane rural cross-section through the study area, with a dedicated northbound left turn lane at the intersection with Main Street. Pavement markings are provided to indicate the natural shoulder. The road operates with a posted speed limit of 60 km/h within the study area.

Main Street is an existing east-west municipal major arterial road with a two-lane urban cross-section from Ninth Line to Eastern Gate Crescent, continuing as a two-lane urban cross-section to York Durham Line. Dedicated northbound and southbound turn lanes are provided at the intersections with Ninth Line, Stouffer Street, and Tenth Line, and a northbound left-turn lane at the intersection with York Durham Line. Designated on-street parking is provided on both sides of the street between Ninth Line and Park Drive, and pavement markings are provided east of Tenth Line to indicate the unpaved shoulder. Sidewalks are provided on both sides of the road from Ninth Line to Eastern Gate Crescent. The road operates with a posted speed limit of 40 km/h from Ninth Line to Tenth Line, and 50 km/h from Tenth Line to York Durham Road.

An existing lane configuration diagram for the intersections is provided in **Figure 3-1**.

Figure 3-1 Existing Lane Configurations



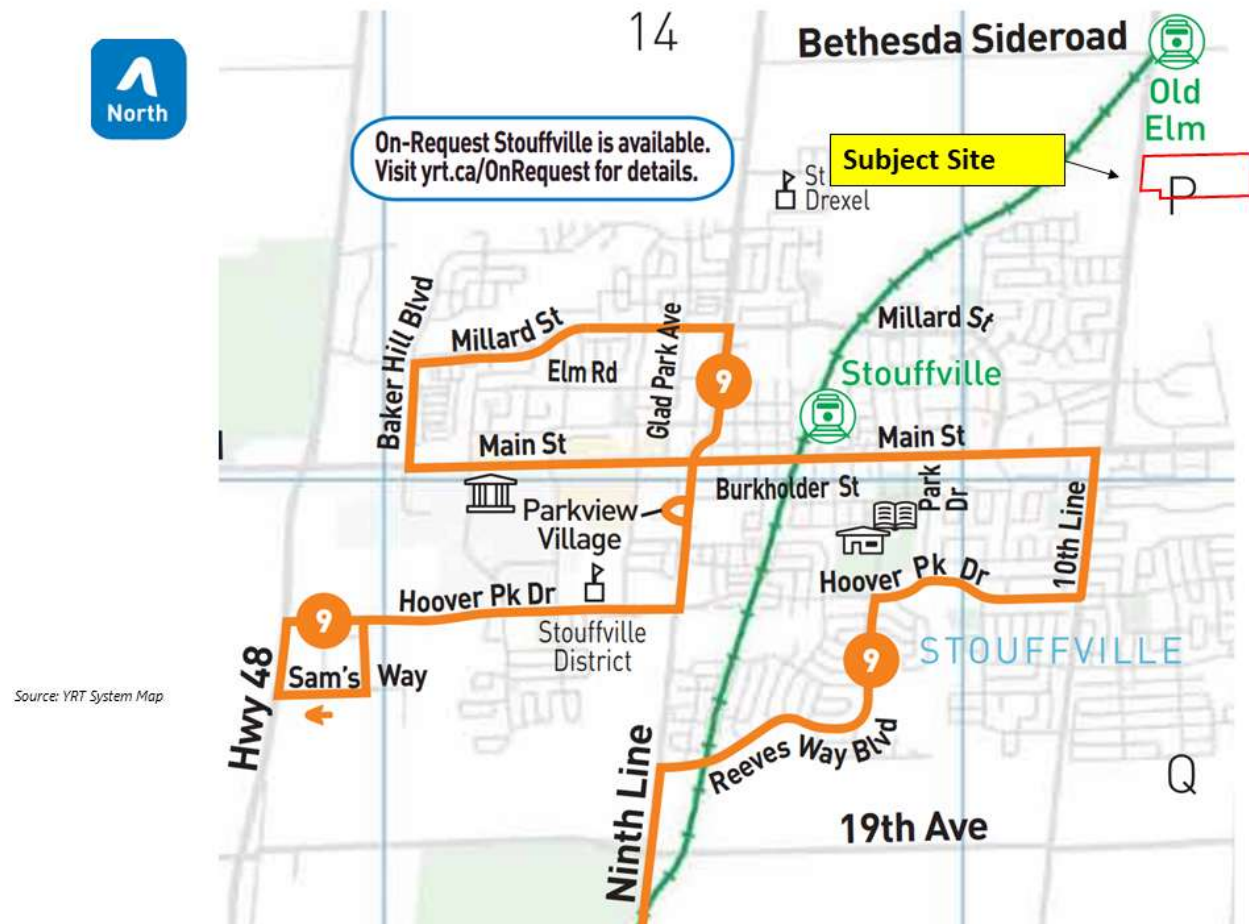
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Figure 3-1
Existing
Lane Configuration

3.2 Transit network

The local bus network in Stouffville is operated by York Region Transit (YRT), and the inter-regional and rail network is operated by GO Transit. Several local and regional connections in the vicinity of the subject site, with future connections in development. **Figure 3-2** shows the of existing YRT route network.

Figure 3-2 Existing YRT Network for Stouffville



Source: YRT System Map – Jan 2026

York Region Transit

- **Route 9** This bus route provides primarily east–west service through the Stouffville area. Route 9 operates northbound from the southern segment of Ninth Line and travels westbound via Reeves Way Boulevard and Hoover Park Drive, continuing along Main Street, Millard Street, and Baker Hill Boulevard. The route then proceeds southbound via Glad Park Avenue to Main Street and continues westbound along Hoover Park Drive to Sam's Way and Highway 48. From Highway 48, Route 9 returns eastbound along Hoover

Park Drive and Main Street before continuing southbound along Ninth Line. Route 9 operates approximately every 45 minutes on weekdays only, excluding holidays.

All YRT buses are designated as accessible, with low-floor access as well as priority and courtesy seating. Buses are also equipped with bike racks as part of YRT's *Bike and Ride* program. YRT also offers 2-hour transfers, providing unlimited travel in any direction, including return trips. Specialized services, including paratransit and community buses, are available.

GO Transit Service

- ▶ **Route 70:** GO bus route provides primarily north-south service throughout the municipalities of Whitchurch-Stouffville, Markham, and Toronto. During peak periods, the southbound bus operates hourly, departing from Uxbridge Station and arriving at Old Elm GO Station as its final stop. After peak periods, the bus makes a final stop at Mount Joy GO Station. During morning peak periods, the northbound Route 70 GO buses depart from Stouffville GO and arrive at its final stop in Uxbridge, while during evening peak periods, the Route 70 GO Bus departs from Old Elm GO. Route 70 includes buses 70B, 70D, and 70F. Route 70 operates hourly 7 days a week, not including holidays, and will bypass all other stations within the City of Toronto other than Union. GO Bus Service does not operate at stations between Old Elm GO and Union Station during peak periods on weekdays
- ▶ **Route 71:** GO bus route provides primarily north-south service throughout the municipalities of Whitchurch-Stouffville, Markham, and Toronto. Route 71 provides service in the directions, time periods, and segments not covered by GO Train service. Route 71 buses to and from Union Station will bypass all other stations within the City of Toronto. During morning peak hours, the southbound 71 GO Bus departs from Uxbridge and has a final stop at Old Elm GO. After peak hours, route 71 has a final stop at Union Station. During morning peak hours, the northbound 71 GO Bus will depart from Union Station and arrive at Uxbridge. Route 71 provides late hour services departing from Union Station to Old Elm GO with the last departure time at 2:40 am. Route 71 operates hourly, 7 days a week, not including holidays.
- ▶ **Stouffville Line:** Train service begins at Old Elm GO Station and travels southbound towards Stouffville GO Station with several stops in Markham and Toronto before arriving at its final stop at Union Station. The Stouffville Line operates twice per hour over the entire route during peak periods on weekdays, but only goes southbound starting from Old Elm GO Station. Otherwise, the train operates hourly in both directions 7 days a week. On weekends after its third train at Old Elm GO Station, the southbound train will begin to depart from Mount Joy GO Station and end at Union Station. The northbound train will operate hourly on weekends, departing from Union Station and stopping at Mount Joy

GO Station, with the final train service at 4:15 pm.

All GO Transit Buses are designated as accessible with low-floor access as well as priority and courtesy seating. All GO Transit Trains typically have a Customer Service Ambassador located in the middle of the train, where all trains are designed to be *accessible* with a ramped mini platform for boarding and exiting, as well as priority seating. The GO Transit Service also offers 3-hour transfers, providing unlimited travel in any direction, including return trips. Recently, as a part of the *One Fare* program, the cross-transfer between YRT and Toronto Transit Commission (TTC) is free of charge for transit riders. This initiative has been implemented for the convenience of transit riders and to encourage more people to use transit services.

3.3 Pedestrian Routes

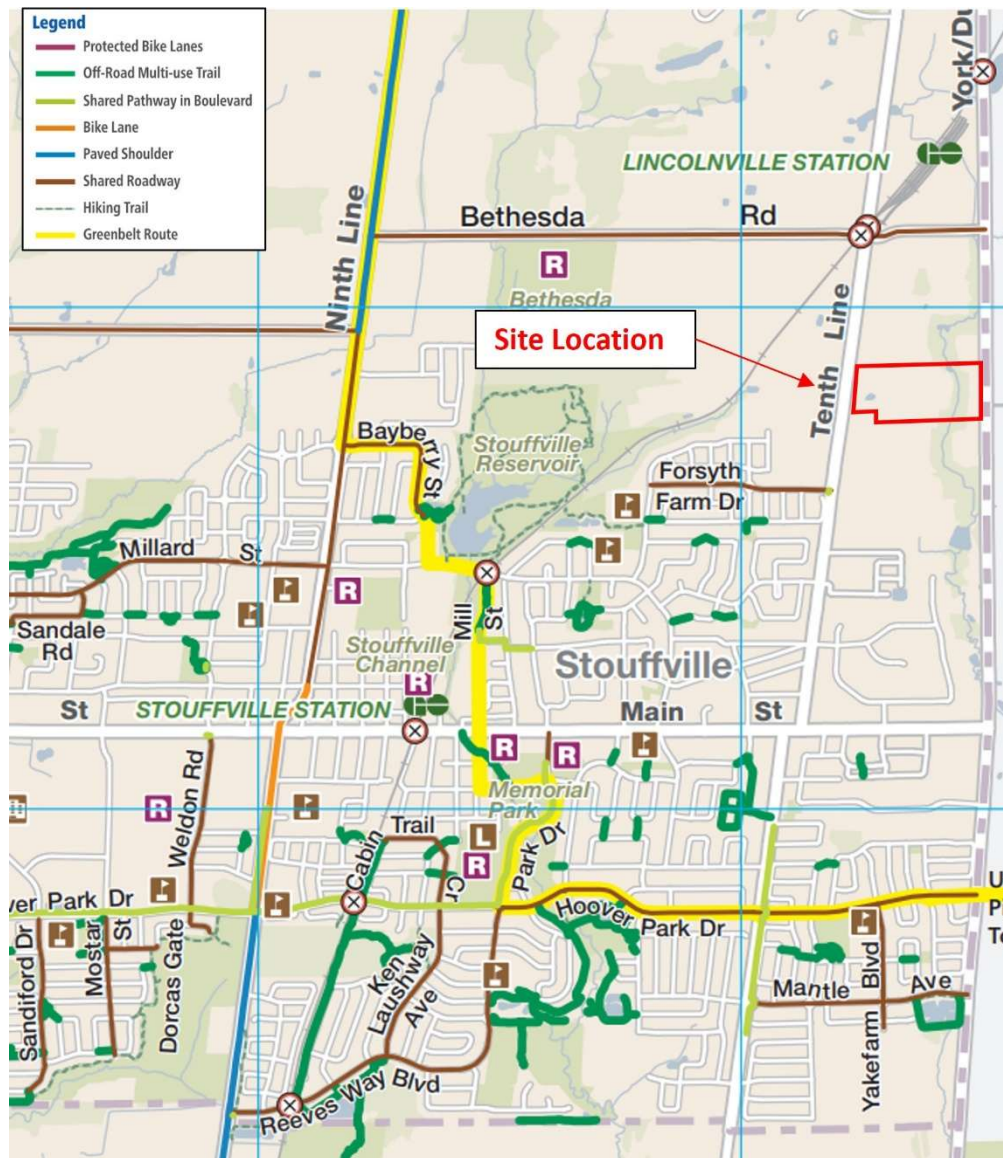
Pedestrian routes lack connectivity in the vicinity of the study area. Sidewalks on both sides of the road are not provided along Tenth Line near the study area, Bethesda Side Road, nor York Durham Line. Sidewalks are only provided at Tenth Line south of Forsyth Farm Drive on the west side and along Tenth Line south of the Eastridge Evangelical Missionary Church on the east side.

3.4 Cycling Routes

Designated cycling facilities are not provided in the vicinity of the study area. Bike routes are available on major roads to the west and north of the subject site, with connected networks throughout the town.

Along the length of Bethesda Side Road, there is a shared roadway for cyclists that connects to the south of Ninth Line and then transitions to a paved shoulder along the north side of Ninth Line after Bethesda Side Road West. A paved bike lane is provided on the south of Ninth Line, after the intersection at Rupert Avenue and Ninth Line. **Figure 3-3** shows the existing cycling network around the subject site.

Figure 3-3 Existing Cycling Network



Source: York Region Cycling Map (2021)

3.5 Existing Adjusted Traffic Volumes

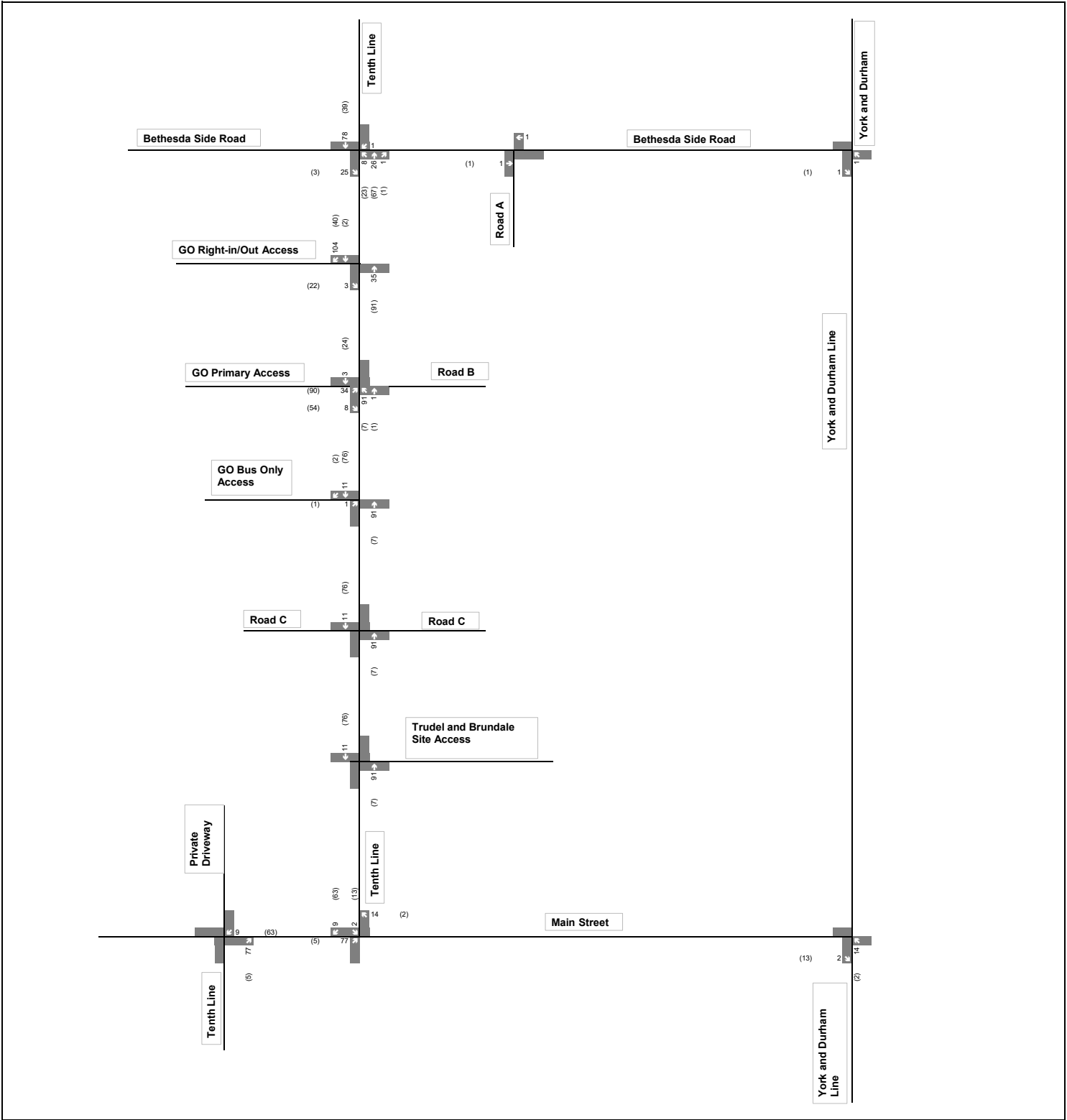
Turning movement counts at the study intersections were collected on November 1, 2023, which are considered existing for the purposes of the traffic analysis. Detailed data collected is included in **Appendix C**.

While the traffic counts at the newly relocated Old Elm GO Station were not counted, the estimated traffic under existing conditions was predicted based on the projected traffic volumes using the following methodology:

- ▶ Future trips (year 2030) to and from the relocated Old Elm GO station were extracted from section 4.3 of the MTSA Study. As per this document, the trips were obtained from the Lincolnville GO Station Traffic Impact Study (Stantec, January 11, 2019).
- ▶ These 2031 GO station trips were then scaled down to match the existing turning volumes and assigned to the study network for the purposes of existing traffic analysis and have been removed from future scenarios to account for the full 2031 GO station trips in the future.

Note that this only impacts the existing traffic conditions at the GO Station accesses, and all other study area intersections are not impacted by these assumptions. Additionally, future horizons are assessed based on the future 2031 GO Station trips, based on the Lincolnville GO Station Traffic Impact Study (2019) prepared by Stantec.

Figure 3-4 summarizes the adjusted GO Station trips considered under existing conditions during each of the weekday a.m. and weekday p.m. peak hours. **Figure 3-5** summarizes the baseline traffic volumes with the adjusted GO Station trips during each of the weekday a.m. and weekday p.m. peak hours.



4 FUTURE BACKGROUND TRAFFIC

4.1 Study Area Transportation Network Improvement

4.1.1 Road Network Improvement

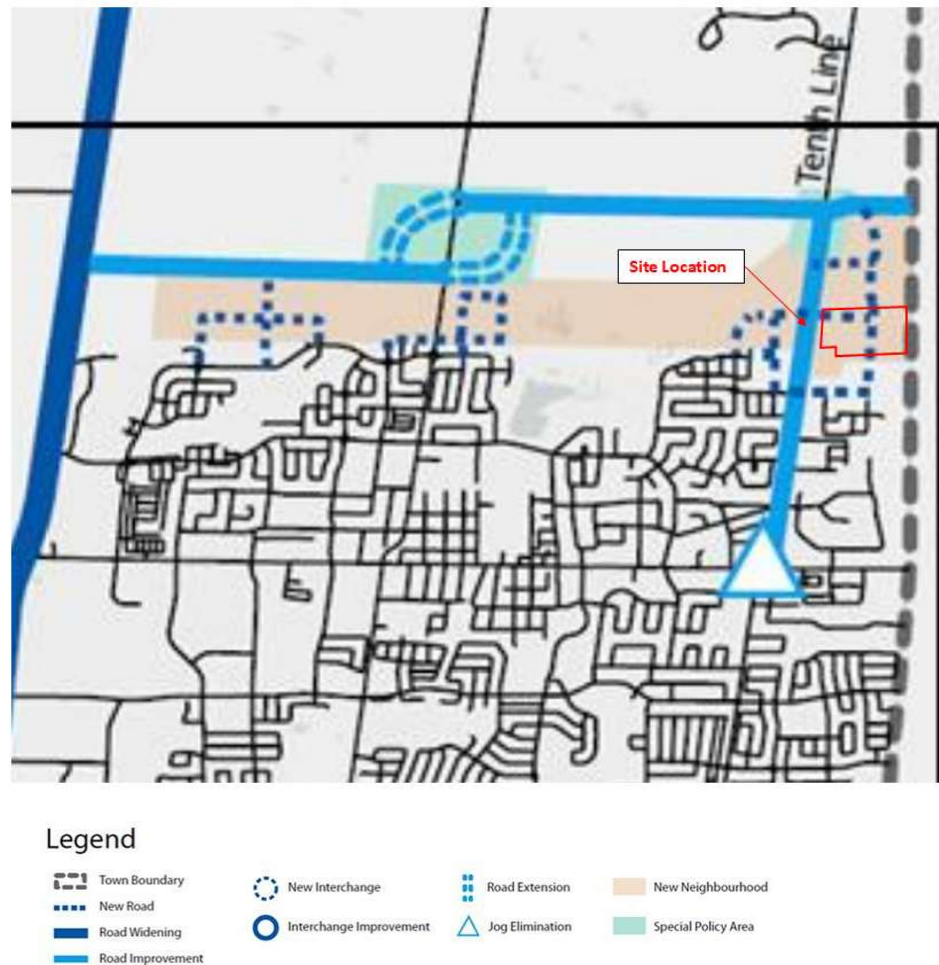
The Town's Transportation Master Plan (TMP), dated April 2024, recommends the following improvements within the study area:

- ▶ Provide a separated bike facility along the Tenth Line corridor.
- ▶ Protect for jog elimination at the intersection of Main Street and Tenth Line.
- ▶ Reconstruct Tenth Line between Bethesda Side Road and Forsyth Farm Drive.
- ▶ Construct new collector roads to support new developments.

The proposed road improvements within the study area in the TMP are shown in **Figure 4-1**. The timing of implementation of the above improvements is based on development triggers (i.e., either the short-term, or long-term development scenarios).

Note that the planned improvements of jog elimination at Tenth Line and Main Street have not been accounted for in this study as it lies outside the MTSA boundary. This is consistent with the previous transportation study conducted by HDR. Additionally, there are no transportation studies currently completed for this jog elimination and should be considered by the Town when future studies are conducted.

Figure 4-1 Proposed Road improvements within study area



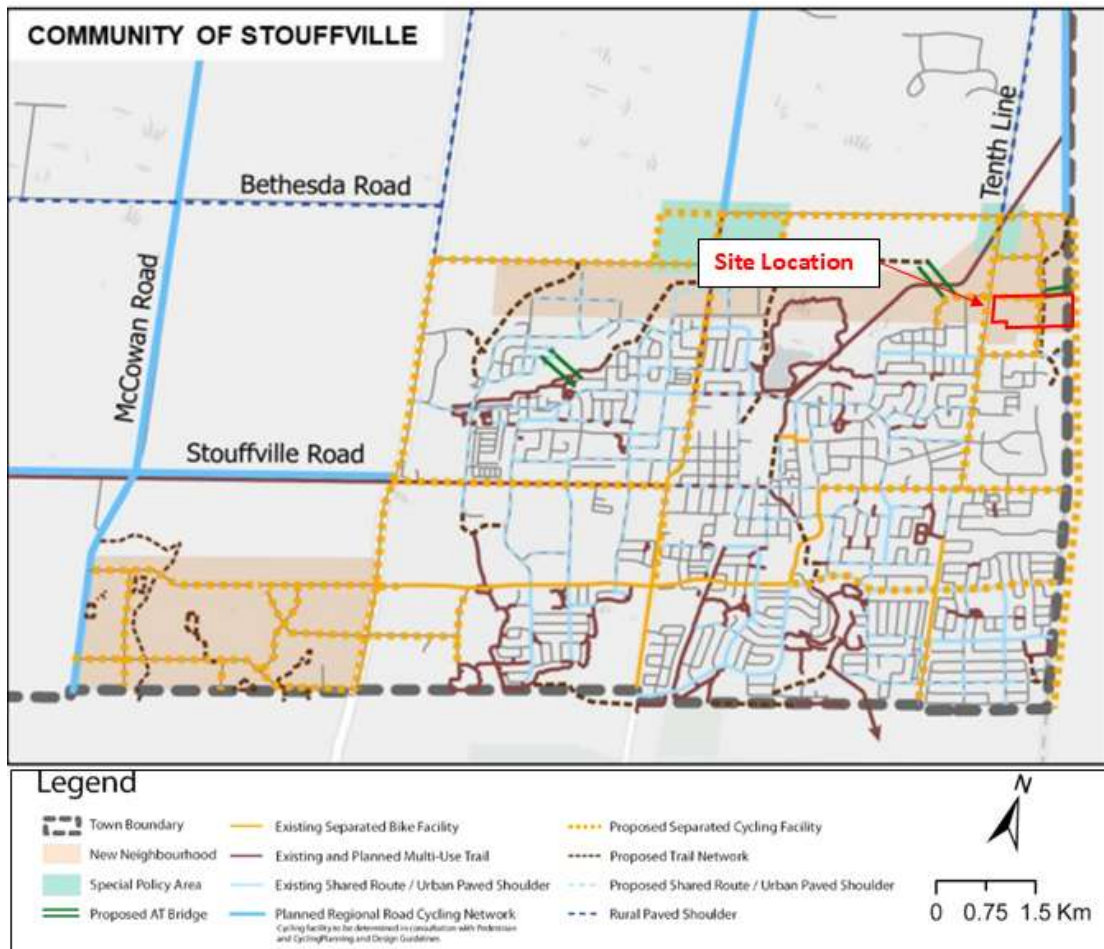
Source: Town of Whitchurch-Stouffville Transportation Master Plan (2023)

4.1.2 Active Transportation Facilities

Within the study area, the TMP recommends a separate cycling facility along Tenth Line between Bethesda Side Road and Main Street and a paved shoulder along Tenth Line north of Bethesda Side Road. The TMP also recommends a separate cycling facility along Bethesda Side Road between Ninth Line and Tenth Line and along the new collector roads within the Phase 3 Lands. As part of the TMP recommendations, active transportation bridges are proposed, including a crossing over the GO rail line south of the Old Elm GO Station.

The proposed active transportation facilities within the study area in the TMP are shown in **Figure 4-2**.

Figure 4-2 Proposed active transportation facilities within study area



Source: Town of Whitchurch Stouffville Transportation Master Plan (2023)

4.1.3 Transit Facilities

The TMP recommends restoring and improving fixed routes services along Ninth Line, restoring service along Stouffville Road/Main Street and providing direct service to the GO Stations. Additionally, the TMP recommends provision of town-wide on-demand transit services.

4.2 Background Corridor Growth

As previously stated, in consistency with section 3.2 of the Lincolnville MTSA Transportation Study (2020), no background growth was applied to existing traffic volumes as majority of growth in the vicinity of study area was considered to be the result of the new developments. The background developments identified below are expected to make up the background traffic growth expected in the area.

4.3 Background Developments

4.3.1 Short-Term (2030) Background Developments

The short-term background developments considered in the analysis are listed below:

- ▶ **Future GO station trips** - As the Old Elm GO station is fully operational at the time of this study, trips to and from relocated Old Elm GO station trips were considered a part of background developments in this study. Note that GO station trips are expected to grow based on the surrounding developments and therefore are expected to change based on each horizon. These trips were extracted from section 4.3 of the MTSA Study and are based on the January 2019 Transportation Study prepared by Stantec.
- ▶ **Background traffic from Zone 7 of the MTSA Study** - As stated in table 5 of the MTSA Study, zone 7 falls outside the MTSA lands and is expected to be comprised of approximately 83 medium-density residential units and 221 low-density residential units. As stated in table 9 of the MTSA Study, this zone is expected to generate 63 two-way vehicle trips during the a.m. peak hour consisting of 16 inbound and 47 outbound trips. During the p.m. peak hour, it is expected to generate 85 new two-way vehicle trips consisting of 54 inbound and 31 outbound trips. Based on our understanding of the surrounding developments, it is understood that the developments from Zone 7 are in the development application process and have therefore been assumed to be in place by the short-term horizon. The same trip generation identified in the MTSA Study for Zone 7 has been implemented for this study.
- ▶ **Lincolnville Northcape Subdivision** - This subdivision is planned to be developed north of Acorn South and is expected to be comprised of approximately 132 town-house units and 161 mixed use residential units. This zone is expected to generate 107 two-way vehicle trips during the a.m. peak hour consisting of 34 inbound and 73 outbound trips. During the p.m. peak hour, it is expected to generate 150 new two-way vehicle trips consisting of 96 inbound and 54 outbound trips.

- ▶ **Acorn North** - This subdivision is planned to be developed north of Lincolnville Northcape subdivision and is expected to be comprised of approximately 127 mid-rise apartment units, 120 single family attached units and 228 mixed use residential units. This includes 41 mixed used residential units from a partial apartment block shown in the concept plan. This zone, excluding the partial apartment block, is expected to generate 156 two-way vehicle trips during the a.m. peak hour consisting of 50 inbound and 106 outbound trips. During the p.m. peak hour, it is expected to generate 209 new two-way vehicle trips consisting of 139 inbound and 70 outbound trips.

4.3.2 Long-Term (2035) Background Developments

In addition to the short-term background stated above, the trips from the following zones outside the MTSA lands were included in the long-term background developments. As per Tables 5 and 9 of the MTSA Study, the nature of developments within these zones and trips generated to/from these zones are listed below. The same trip generation identified in the MTSA Study for the zones noted above has been implemented for this study. Additionally, growth from zones outside Phase 3 lands was also included in the long-term background developments:

- ▶ **Zone 5** – This zone is expected to have 31 medium-density residential units and 83 low-density residential units. It will generate 163 two-way vehicle trips during the a.m. peak hour, consisting of 40 inbound and 123 outbound trips. During the p.m. peak hour, it is expected to generate 216 new two-way vehicle trips consisting of 135 inbound and 81 outbound trips.
- ▶ **Zone 10** - This zone is a commercial land use and is expected to generate 79 two-way vehicle trips during the a.m. peak hour, consisting of 66 inbound and 13 outbound trips. During the p.m. peak hour, it is expected to generate 78 new two-way vehicle trips consisting of 16 inbound and 62 outbound trips.
- ▶ **Zone 12** - This zone is expected to have 117 medium-density residential units and 312 low-density residential units. It will generate 225 two-way vehicle trips during the a.m. peak hour, consisting of 56 inbound and 169 outbound trips. During the p.m. peak hour, it is expected to generate 298 new two-way vehicle trips consisting of 188 inbound and 110 outbound trips.
- ▶ **External Zones** – These zones are expected to have low and medium-density residential uses. As per Table 12 of the MTSA Study, these zones are expected to generate 999 two-way vehicle trips during the a.m. peak hour, consisting of 269 inbound and 829 outbound trips. During the p.m. peak hour, it is expected to generate 1401 new two-way vehicle trips consisting of 883 inbound and 518 outbound trips.

Based on Exhibit 8 of the MTSA Study, the location of these zones is shown in **Figure 4-3**. The section map shown in **Figure 2-2** was overlaid on the zone map shown in **Figure 4-3** to identify the zone numbers that are not a part of the ownership map but are expected to be built in the short-term and long-term horizons. Based on this process, zones 5, 7, 10, and 12 were identified as background developments, and zones 1, 2, 3, 4, 6, 8, and 9 are considered to be comprised of the proposed Lincolnville Phase 3 lands. Since detailed information about the development expected to occur within these zones was unavailable, this information was assumed based on the information available from the MTSA Study.

Figure 4-3 Zone Map from Lincolnville MTSA Transportation Study (2020)



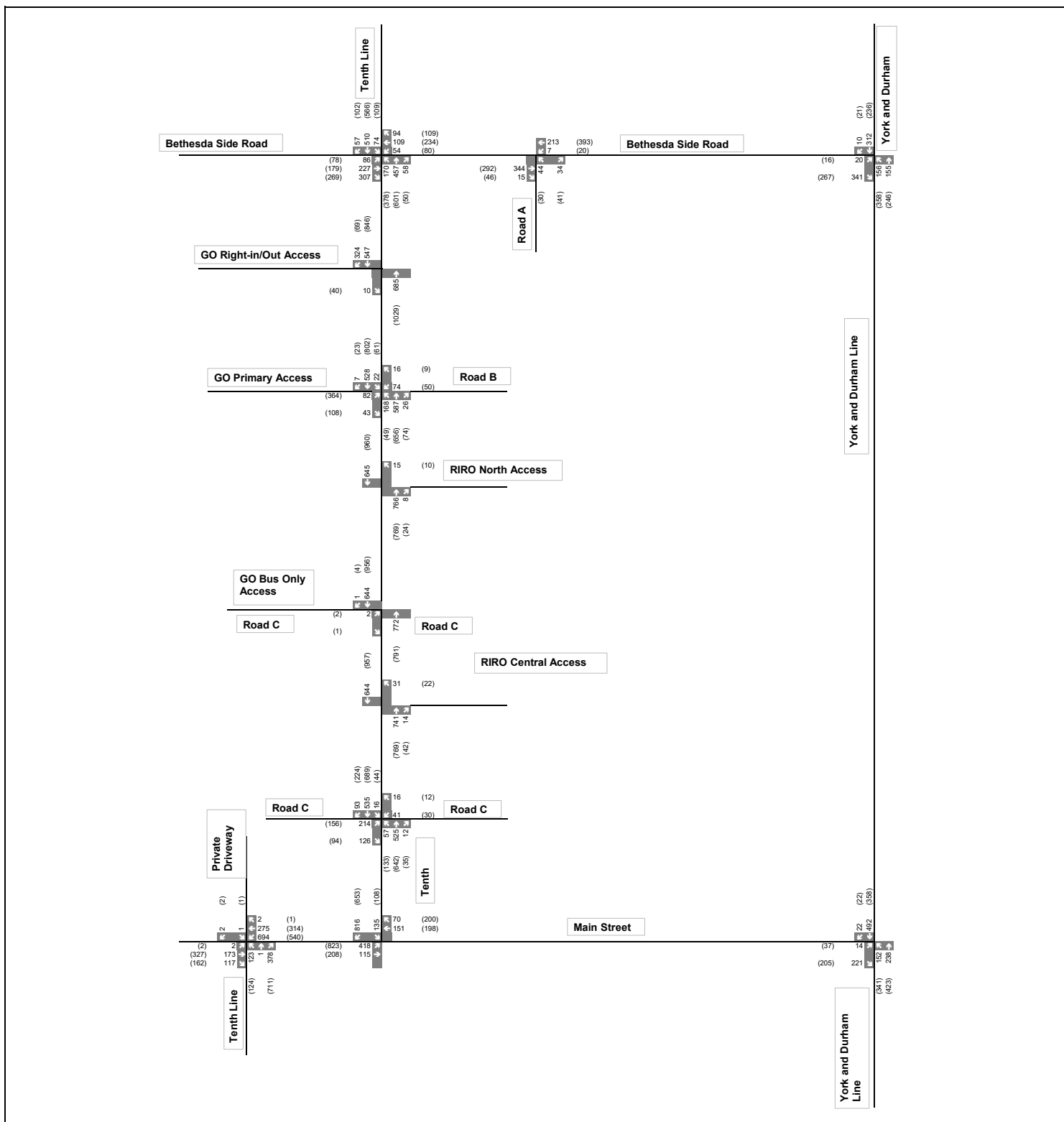
4.4 Future Background Traffic

4.4.1 Short-Term Future Background Traffic

The short-term future background traffic was obtained by combining the existing traffic volume with the adjusted GO station trips, traffic volume from Zone 7, future GO station trips, and removing the scaled-down GO station trips to account for the full 2031 GO station trips in the future, as stated in **Section 3.5** of this report. Additionally, it was also considered trips that come from 12811 Tenth Line (Lincolnville Northcape subdivision) and 12875 Tenth Line (Acorn North subdivision), which are neighbouring developed areas that are expected to be built in parallel with Acorn South. The short-term background traffic volumes are shown in **Figure 4-4**.

4.4.2 Long-Term Future Background Traffic

The long-term future background traffic was obtained by combining the short-term background development traffic with the traffic volume from zones 5, 10, and 12 and external zones outside Phase 3 lands. The long-term background traffic volumes are shown in **Figure 4-5**.



5 FUTURE TOTAL TRAFFIC

5.1 Existing Travel Patterns

Table 5-1 shows the mode splits information obtained from Section 4.2.1 of the MTSA Study, which was based on 2016 Transportation Tomorrow Survey data. This information is based on existing travel patterns and has been used for future assessments in this study. The relevant excerpts from the previous study regarding multi-modal split and existing travel patterns are detailed in **Appendix D**.

Table 5-1 Existing Modal Split

Mode	Residential Mode Split	
	AM peak period	PM peak period
Transit	3%	7%
Vehicle Driver	68%	73%
Walk/Cycle	13%	6%
Vehicle Passenger/School Bus/Taxi	16%	14%
Total	100%	100%
Non-Auto	32%	27%

The percentage of non-auto trips was obtained by combining % trips made by non-auto modes like transit, walk/cycle, and vehicle passenger/school bus/taxi. The subsequent residential mode splits percentages were applied to the a.m. and p.m. peak hour trip generation, as shown in **Table 5-2**.

5.2 Site Trip Generation

Trips generated for the Acorn North area are estimated using the Institute of Transportation Engineers (ITE) 12th Edition. No pass-by trips were considered, given that residential land uses typically do not generate pass-by travel behaviour. Additionally, the internal trip capture/multi-use reduction factor was not considered for the Acorn South area. **Table 5-2** summarizes the estimated total trip generation for the Acorn South area.

Table 5-2 Site Trip Generation for the Acorn South Area

Unit Count	Land Use	Parameters	Peak Hour Trip Generation					
			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Units: 157	Single Family Attached Housing (LUC 215)	Average Rate	0.52			0.79		
		Trip Distribution	25%	75%	100%	57%	43%	100%
		Gross Trips	21	61	82	71	53	124
		Modal Split	32%			27%		
		Net Trips	14	41	55	52	39	91
Total Gross Trips			21	61	82	71	53	124
Total Net Trips			14	41	55	52	39	91

No modal split reduction rate was applied to Mixed-Use Residential land use because the ITE Trip Generation Manual only provides vehicle trips. The proposed development land is expected to generate a total of 55 two-way vehicle trips during the a.m. peak hour consisting of 14 inbound and 41 outbound trips. During the p.m. peak hour, it is expected to generate 91 new two-way vehicle trips consisting of 52 inbound and 39 outbound trips.

5.3 Site Trip Distribution and Assignment

The distribution of site traffic was adopted based on section 4.2.2 of the MTSA Study and is as shown in **Table 5-3** below.

Table 5-3 Site Traffic Distribution

To/From	New Site Trips
	Residential
North	3%
South	60%
East	3%
West	34%
Total	100%

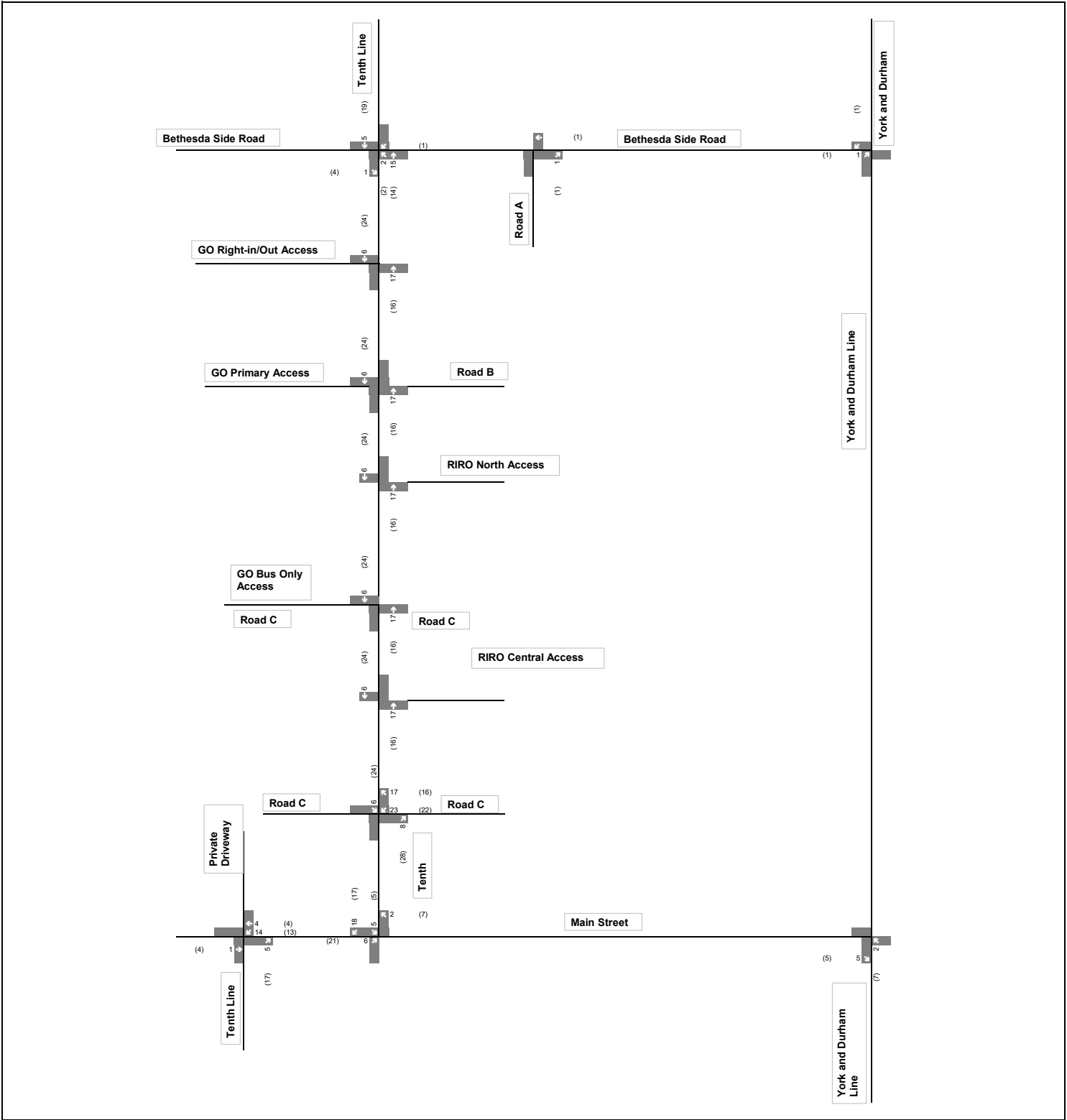
It is to be noted that while assigning site traffic, trip routes were estimated based on Google Maps data, which provides estimated travel route times based on peak periods and engineering judgment. This identified that while a path from the southwest (including the majority of York Region, Toronto, and other major Cities) using Main Street and Tenth Line traveling to/from the site may be the most “direct route”, it often results in the highest levels of congestion due to the existing congestion on Main Street.

Therefore, some of the trips traveling to/from the site may consider using the surrounding routes along Bethesda Side Road, York Durham Line, or Ninth Line to avoid the congested corridor of Downtown Whitchurch-Stouffville. The estimated site trips generated by the proposed draft plan, as assigned to the nearby road network under 2030 and 2035 traffic conditions for the weekday a.m. and p.m. peak hours, are shown in **Figure 5-1**.

5.4 Future Total Traffic Volumes

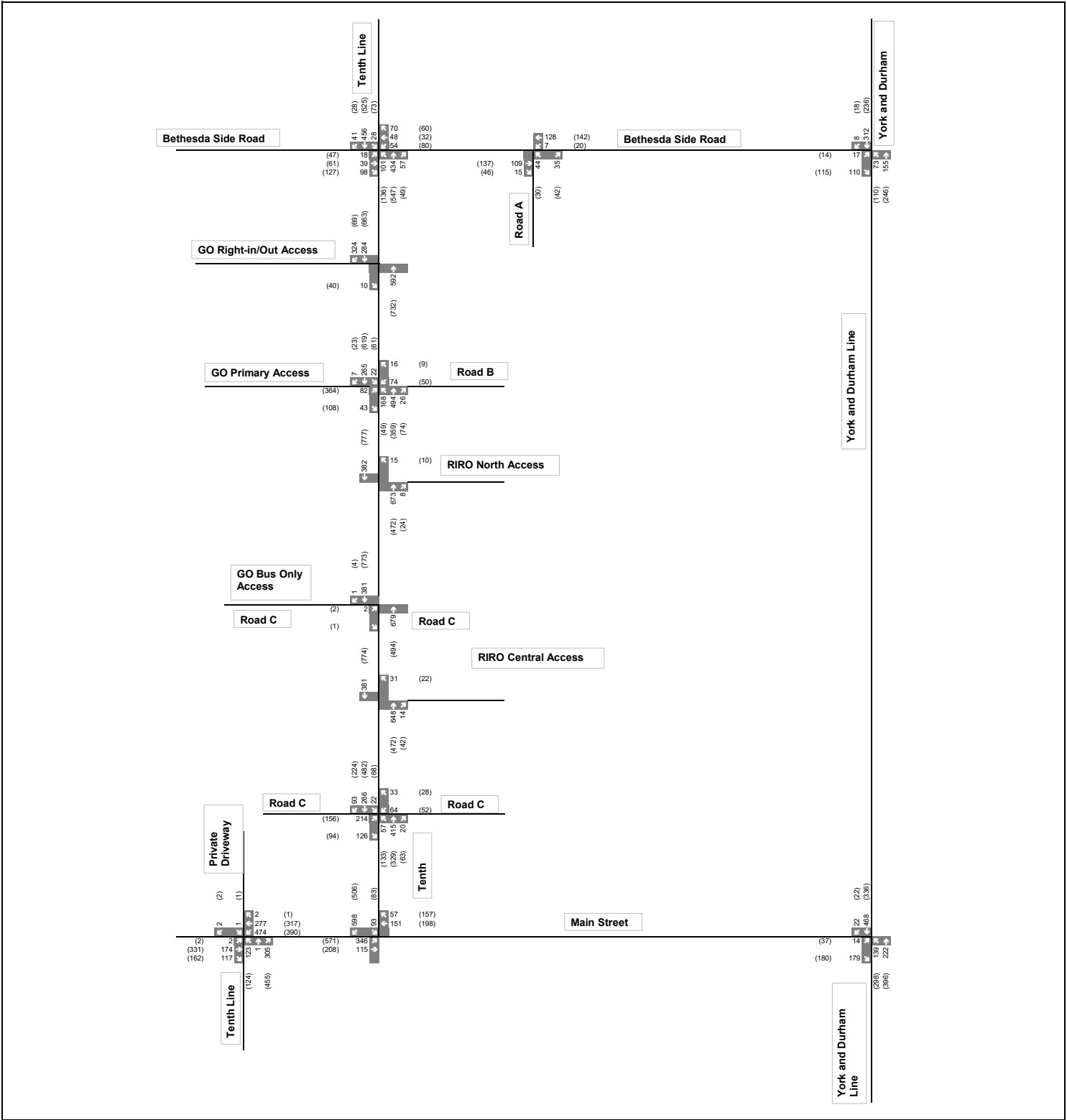
The future total traffic volumes in the weekday peak hours for the 2030 and 2035 planning horizons were derived by combining the future background traffic volumes with the estimated site-generated traffic.

Figure 5-2 and **Figure 5-3** summarize the future total traffic volumes at the 2030 and 2035 planning horizons during the weekday a.m. and p.m. peak hours, respectively.



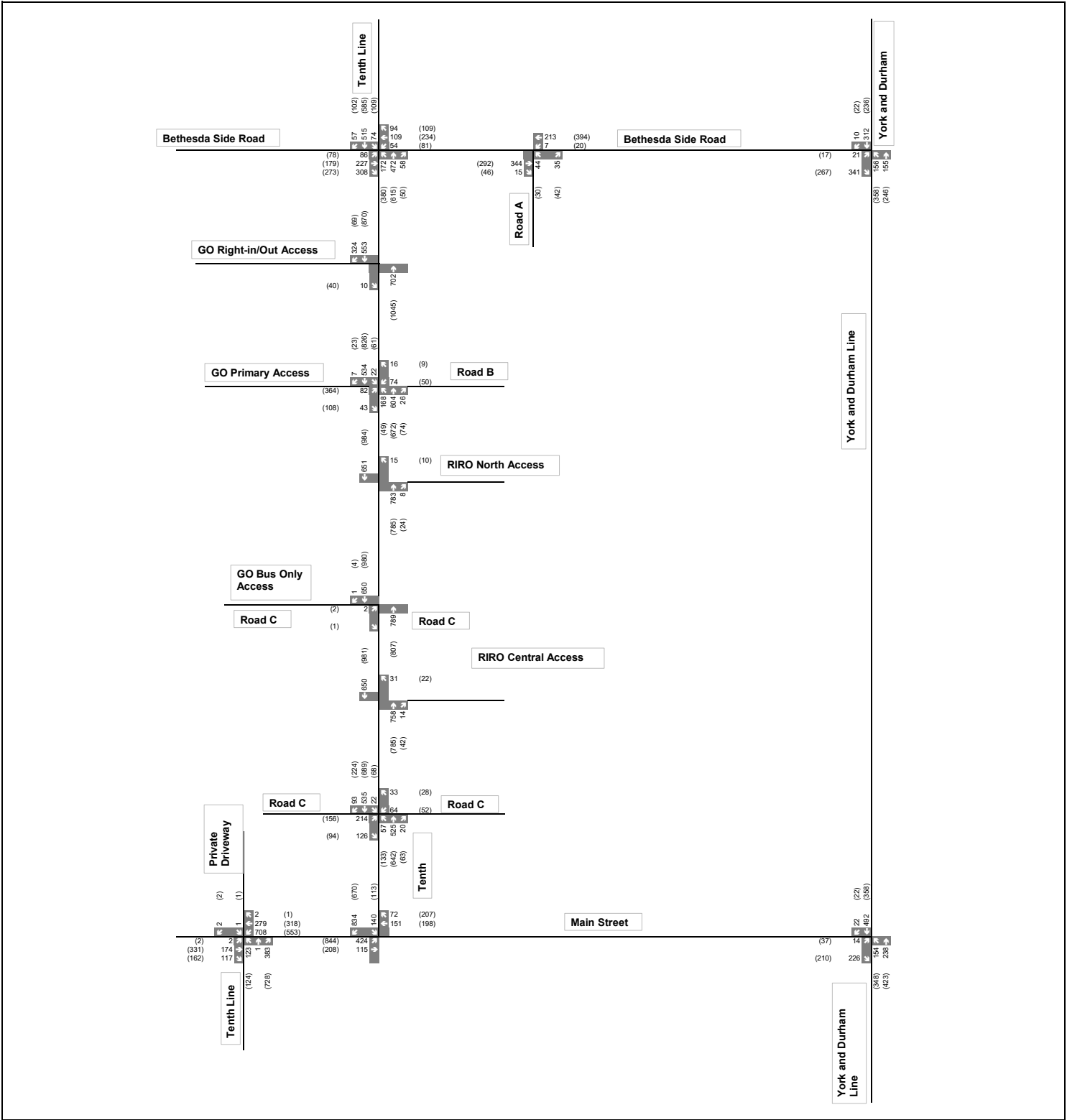
Legend
 xx A.M. Peak Hour Traffic
 (xx) P.M. Peak Hour Traffic

Figure 5-1
 Estimated Site
 Traffic Volumes



Legend
 xx A.M. Peak Hour Traffic
 (xx) P.M. Peak Hour Traffic

Figure 5-2
 2030 Future Total
 Traffic Volumes



Legend
 xx A.M. Peak Hour Traffic
 (xx) P.M. Peak Hour Traffic

Figure 5-3
 2035 Future Total
 Traffic Volumes

6 INTERSECTION CONTROL WARRANT SUMMARY

Traffic warrants were conducted for both signalized intersections and left-turn lanes.

6.1 Traffic Signal Warrant

Traffic signal warrant analysis was completed for the following unsignalized intersections based on the Ontario Traffic Manual (OTM) Book 12 Justification 7 Signal Warrant Analysis:

- ▶ Tenth Line and Bethesda Side Road
- ▶ Road A and Bethesda Side Road
- ▶ Road C and Tenth Line
- ▶ Main Street and York Durham Line

Only the Tenth Line and Bethesda Side Road intersection satisfies the OTM signal warrant under the 2035 future total conditions to enhance overall traffic performance. However, signalization is proposed at this intersection in the 2030 future background scenarios. In addition, signalization at Road C and Tenth Line is also proposed to enhance overall traffic performance at this intersection and based on the recommendations provided in Section 5 of the Lincolnville MTSA Study.

Traffic signal warrants are provided in **Appendix E**. Based on the warrants assessed for the 2035 future total traffic conditions, the results are summarized below:

- ▶ Bethesda Side Road & Road A – Not warranted
- ▶ Main Street and York Durham Line – Not warranted
- ▶ Tenth Line & Bethesda Side Road – Warranted under 2035 horizon year
- ▶ Tenth Line & Road C – Not warranted

6.2 MTO Left Turn Lane Requirement

The MTO left-turn lane warrants were used to determine if left turn lanes were warranted at the following proposed unsignalized intersections listed below:

- ▶ Road A and Bethesda Side Road
- ▶ Tenth Line and Road B

The left turn lane warrant analysis was conducted using the 2035 future total turning, advancing, and opposing volumes at the proposed intersections as provided in **Appendix E**. The posted speed on Bethesda Side Road is 60km/hr and the posted speed on Tenth Line Road is also 60km/hr. Left-turn lanes are warranted or recommended at the following locations:

- ▶ Southbound left-turn lane at Tenth Line and GO Primary Access/Road B (30 m storage and 50 m taper).

7 TRAFFIC CAPACITY ANALYSIS

The capacity analysis identifies how well the intersections and access driveways are operating and how they are expected to operate in the future. The analysis contained in this report utilized the Highway Capacity Manual (HCM) 2000 techniques within the Synchro Version 12 Software package and also applied the guidelines provided in the York Region's Transportation Mobility Plan Guidelines (TMoP-2025). The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement. Queuing characteristics are reported as the predicted 95th percentile queue for each turning movement.

The analysis includes identification of all intersections and for all movements; v/c ratios, LOS indicators, and 95th percentile queue lengths. 'Critical' intersections and movements include:

- ▶ v/c ratios threshold of 0.85 for critical movements and intersections in urban areas
- ▶ v/c ratios threshold of 0.70 or critical movements and intersections in rural areas
- ▶ 95th percentile queue lengths for individual movements, and/or do they exceed available lane storage.

The following tables summarize the Synchro/HCM capacity results for the study intersections during the weekday a.m. and weekday p.m. peak hours under existing (2023), future background (2030 and 2035), and future total (2030 and 2035) traffic conditions. Detailed Synchro reports are included in **Appendix F**.

7.1 Existing Conditions

The traffic capacity analysis results for the intersections in the study area are summarized in **Table 7-1** for the weekday a.m. and weekday p.m. peak hours under baseline traffic conditions.

Table 7-1 Existing Capacity Analysis

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
Tenth Line (South Leg) and Main Street (Signalized)	<i>Overall</i>	0.32	18	B	0.46	20	B
	EBLTR	0.35	20	B	0.58	24	C
	WBL	0.26	11	B	0.27	12	B
	WBTR	0.24	11	B	0.28	11	B
	NBL	0.30	29	C	0.31	29	C
	NBTR	0.08	26	C	0.07	26	C
	SBLTR	0.00	25	C	0.00	25	C
Tenth Line (North Leg) and Main Street (Signalized)	<i>Overall</i>	0.22	16	B	0.24	13	B
	EBL	0.20	4	A	0.23	4	A
	EBT	0.10	4	A	0.16	4	A
	WBT	0.17	9	A	0.20	9	A
	WBR	0.02	8	A	0.06	8	A
	SBL	0.24	32	C	0.20	31	C
	SBR	0.17	31	C	0.14	31	C
Main Street and York Durham Line (Unsignalized)	EBL	0.05	18	C	0.20	28	D
	EBR	0.23	12	B	0.19	11	B
	NBL	0.10	9	A	0.18	9	A
	NBT	0.12	0	A	0.20	0	A
	SBTR	0.26	0	A	0.18	0	A
York Durham Line and Bethesda Side Road (Unsignalized)	EBLR	0.05	11	B	0.09	10	B
	NBTL	0.04	2	A	0.03	1	A
	SBTR	0.19	0	A	0.15	0	A
Bethesda Side Road at Tenth	EBLTR	0.14	13	B	0.24	14	B
	WBL	0.01	13	B	0.01	14	B

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
Line (Unsignalized)	WBTR	0.08	12	B	0.07	11	B
	NBL	0.01	8	A	0.01	8	A
	NBT	0.10	0	A	0.10	0	A
	NBR	0.00	0	A	0.00	0	A
	SBL	0.01	8	A	0.01	8	A
	SBTR	0.15	0	A	0.14	0	A
Tenth Line & GO Primary Access (Signalized)	<i>Overall</i>	<i>0.12</i>	<i>5</i>	<i>A</i>	<i>0.22</i>	<i>10</i>	<i>A</i>
	EBL	0.31	26	C	0.35	20	C
	EBR	0.01	24	C	0.04	19	B
	NBL	0.11	3	A	0.01	4	A
	NBT	0.10	3	A	0.08	4	A
	SBT	0.08	3	A	0.19	5	A
	SBR	0.00	0	A	0.00	0	A
Tenth Line & GO Right-in/out (Unsignalized)	EBR	0.00	9	A	0.03	9	A
	NBT	0.10	0	A	0.11	0	A
	SBT	0.06	0	A	0.12	0	A
	SBR	0.07	0	A	0.03	0	A
Tenth Line & GO Bus Only Access (Signalized)	<i>Overall</i>	<i>0.14</i>	<i>1</i>	<i>A</i>	<i>0.17</i>	<i>1</i>	<i>A</i>
	EBLR	0.03	29	C	0.03	29	C
	NBL	0.00	0	A	0.00	0	A
	NBT	0.14	1	A	0.06	1	A
	SBTR	0.07	1	A	0.17	1	A

Under the existing conditions, all study area intersections and movements are operating well during both peak hours. Signalized intersections operate at LOS 'C' or better, with v/c ratios not exceeding 0.58 (below the 0.85 threshold), while stop-controlled intersections operate at LOS 'D' or better with v/c ratios not exceeding 0.24.

7.2 Future Background 2030

Signal timings from the existing conditions were carried forward for all study intersections. The only improvement to this scenario was the addition of a traffic signal at Bethesda Side Road and Tenth Line intersection to improve capacity performance. Signal timing plans were also optimized for the following intersections:

- ▶ GO Primary Access/Road B and Tenth Line
- ▶ Main Street & Tenth Line (South leg)

The traffic capacity analysis results for the intersections in the study area are summarized in **Table 7-2** for weekday a.m. and p.m. peak hours under 2030 future background traffic conditions.

Table 7-2 Future Background 2030 Capacity Analysis

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
Tenth Line (South Leg) and Main Street (Signalized)	<i>Overall</i>	<i>0.71</i>	<i>21</i>	<i>C</i>	<i>0.70</i>	<i>24</i>	<i>C</i>
	EBLTR	0.54	25	C	0.81	33	C
	WBL	0.87	25	C	0.82	23	C
	WBTR	0.28	9	A	0.32	9	A
	NBL	0.32	23	C	0.36	26	C
	NBTR	0.20	21	C	0.29	25	C
	SBLTR	0.00	19	B	0.01	21	C
Tenth Line (North Leg) and Main Street (Signalized)	<i>Overall</i>	<i>0.48</i>	<i>20</i>	<i>B</i>	<i>0.67</i>	<i>16</i>	<i>B</i>
	EBL	0.47	6	A	0.70	8	A
	EBT	0.10	4	A	0.17	4	A
	WBT	0.18	11	B	0.22	11	B
	WBR	0.04	10	B	0.11	10	B
	SBL	0.36	32	C	0.31	32	C

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
	SBR	0.42	32	C	0.34	32	C
Main Street and York Durham Line (Unsignalized)	EBL	0.07	22	C	0.30	46	E
	EBR	0.33	14	B	0.26	12	B
	NBL	0.14	9	A	0.25	9	A
	NBT	0.14	0	A	0.24	0	A
	SBTR	0.31	0	A	0.21	0	A
York Durham Line and Bethesda Side Road (Unsignalized)	EBLR	0.20	12	B	0.20	12	B
	NBTL	0.06	3	A	0.09	3	A
	SBTR	0.20	0	A	0.16	0	A
Bethesda Side Road at Tenth Line (Signalized)	Overall	0.43	8	A	0.50	10	A
	EBLTR	0.36	21	C	0.55	22	C
	WBL	0.42	22	C	0.47	21	C
	WBTR	0.28	21	C	0.14	18	B
	NBL	0.21	4	A	0.32	6	A
	NBT	0.37	4	A	0.48	7	A
	NBR	0.04	3	A	0.03	4	A
	SBL	0.05	3	A	0.17	5	A
	SBTR	0.44	5	A	0.48	7	A
Road A & Bethesda Side Road (Unsignalized)	EBTR	0.08	0	A	0.12	0	A
	WBTL	0.00	0	A	0.02	1	A
	NBLR	0.11	10	B	0.11	10	B
Tenth Line & GO Primary Access/Road B (Signalized)	Overall	0.47	9	A	0.88	21	C
	EBL	0.39	20	C	0.78	27	C
	EBTR	0.03	18	B	0.07	21	C
	WBL	0.36	20	B	0.41	30	C

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
	WBTR	0.01	18	B	0.01	30	C
	NBL	0.28	6	A	0.30	14	B
	NBTR	0.48	7	A	0.49	13	B
	SBTL	0.29	6	A	0.84	23	C
	SBR	0.00	4	A	0.02	8	A
Tenth Line & GO Right-in/out (Unsignalized)	EBR	0.01	10	A	0.09	14	B
	NBT	0.37	0	A	0.46	0	A
	SBT	0.18	0	A	0.41	0	A
	SBR	0.21	0	A	0.04	0	A
Tenth Line & GO Bus Only Access (Signalized)	<i>Overall</i>	<i>0.44</i>	<i>2</i>	<i>A</i>	<i>0.50</i>	<i>2</i>	<i>A</i>
	EBLR	0.06	29	C	0.06	30	C
	NBL	0.00	0	A	0.00	0	A
	NBT	0.45	2	A	0.33	2	A
	SBTR	0.26	2	A	0.51	3	A
Tenth Line & North Access Right-in/out (Unsignalized)	WBR	0.04	14	B	0.02	11	B
	NBTR	0.42	0	A	0.31	0	A
	SBT	0.24	0	A	0.48	0	A
Tenth Line & Central Access Right-in/out (Unsignalized)	WBR	0.08	14	B	0.04	12	B
	NBTR	0.41	0	A	0.32	0	A
	SBT	0.24	0	A	0.48	0	A
Tenth Line & Road C (Signalized)	<i>Overall</i>	<i>0.48</i>	<i>12</i>	<i>B</i>	<i>0.62</i>	<i>11</i>	<i>B</i>
	EBL	0.72	30	C	0.62	30	C
	EBTR	0.09	19	B	0.06	23	C
	WBL	0.16	20	B	0.13	23	C
	WBTR	0.01	19	B	0.01	22	C

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
	NBL	0.11	5	A	0.43	9	A
	NBTR	0.39	7	A	0.31	5	A
	SBL	0.03	5	A	0.08	4	A
	SBTR	0.33	6	A	0.62	9	A

Under the 2030 future background conditions, all study area intersections are projected to operate well during both peak hours. Individual movements are expected to operate with reserve capacity and with minimal delays, with most functioning below the v/c threshold of 0.85 and a LOS of 'C' or better, with the following exceptions:

- ▶ The WBL movement at Tenth Line (South Leg) and Main Street intersection operates at a v/c ratio of 0.87. However, it experiences an acceptable delay of 25 seconds and LOS C in the p.m. peak hour.
- ▶ The EBL movement at Main Street and York Durham Line intersection operates at LOS E during the p.m. peak period, with a higher delay of 46 seconds. However, it maintains a low v/c ratio of 0.30, indicating that capacity is not a limiting factor.
- ▶ The overall v/c ratio of Tenth Line & GO Primary Access/Road B is 0.88 in the p.m. peak period with acceptable delay of 21 seconds and LOS C.

7.3 Future Background 2035

For the future background 2035 scenario, as stated in **Section 6.1**, a traffic signal is warranted at the Tenth Line and Bethesda Side Road intersection under the 2035 horizon. Signal timing plans were also optimized for the following intersections:

- ▶ GO Primary Access/Road B and Tenth Line – protected/permitted EBL and WBL signal phases in the p.m. peak period only
- ▶ Tenth Line & Road C
- ▶ Main Street & Tenth Line (North leg) – split signal phases (SBR and EBL) in the a.m. peak period only
- ▶ Main Street & Tenth Line (South leg)

Additionally, geometric improvements were proposed for this scenario and are presented below:

- ▶ EBR lane at Tenth Line and Bethesda Side Road
- ▶ Another NBL lane at Tenth Line and Bethesda Side Road
- ▶ SBL lane at GO Primary Access/Road B and Tenth Line

The traffic capacity analysis results for the intersections in the study area are summarized in **Table 7-3** for weekday a.m. and p.m. peak hours under 2035 future background traffic conditions.

Table 7-3 Future Background 2035 Capacity Analysis

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
Tenth Line (South Leg) and Main Street (Signalized)	Overall	0.83	28	C	0.91	43	D
	EBLTR	0.50	32	C	0.85	49	D
	WBL	0.88	23	C	0.95	48	D
	WBTR	0.22	6	A	0.29	10	B
	NBL	0.51	50	D	0.37	38	D
	NBTR	0.25	43	D	0.73	50	D
	SBLTR	0.01	40	D	0.01	32	C
Tenth Line (North Leg) and Main Street (Signalized)	Overall	0.64	31	C	0.84	27	C
	EBL	0.59	25	C	0.87	16	B
	EBT	0.15	17	B	0.16	4	A
	WBT	0.39	38	D	0.33	27	C
	WBR	0.05	32	C	0.14	25	C
	SBL	0.65	51	D	0.46	44	D
	SBR	0.76	31	C	0.45	44	D
Main Street and York Durham Line (Unsignalized)	EBL	0.08	25	C	0.40	66	F
	EBR	0.43	16	C	0.31	13	B
	NBL	0.16	9	A	0.29	9	A
	NBT	0.15	0	A	0.25	0	A
	SBTR	0.32	0	A	0.23	0	A

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
York Durham Line and Bethesda Side Road (Unsignalized)	EBLR	0.57	18	C	0.51	17	C
	NBTL	0.13	5	A	0.30	7	A
	SBTR	0.20	0	A	0.16	0	A
Bethesda Side Road at Tenth Line (Signalized)	<i>Overall</i>	<i>0.79</i>	<i>22</i>	<i>C</i>	<i>0.92</i>	<i>29</i>	<i>C</i>
	EBLT	0.89	44	D	0.98	73	E
	EBR	0.29	19	B	0.19	19	B
	WBL	0.36	20	B	0.35	21	C
	WBTR	0.37	19	B	0.67	25	C
	NBL	0.36	11	B	0.79	22	C
	NBT	0.61	17	B	0.75	21	C
	NBR	0.04	10	B	0.03	11	B
	SBL	0.23	10	A	0.44	13	B
	SBTR	0.80	24	C	0.90	34	C
Road A & Bethesda Side Road (Unsignalized)	EBTR	0.23	0	A	0.22	0	A
	WBTL	0.00	0	A	0.02	0	A
	NBLR	0.16	13	B	0.16	14	B
Tenth Line & GO Primary Access/Road B (Signalized)	<i>Overall</i>	<i>0.55</i>	<i>10</i>	<i>A</i>	<i>0.95</i>	<i>28</i>	<i>C</i>
	EBL	0.39	20	C	0.78	26	C
	EBTR	0.03	18	B	0.07	21	C
	WBL	0.36	20	B	0.40	30	C
	WBTR	0.01	18	B	0.01	30	C
	NBL	0.42	8	A	0.45	23	C
	NBTR	0.59	9	A	0.86	25	C
	SBL	0.06	5	A	0.57	30	C
	SBT	0.51	7	A	0.94	33	C

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
	SBR	0.00	4	A	0.02	8	A
Tenth Line & GO Right-in/out (Unsignalized)	EBR	0.02	12	B	0.13	18	C
	NBT	0.44	0	A	0.66	0	A
	SBT	0.35	0	A	0.54	0	A
	SBR	0.21	0	A	0.04	0	A
Tenth Line & GO Bus Only Access (Signalized)	<i>Overall</i>	<i>0.52</i>	<i>3</i>	<i>A</i>	<i>0.63</i>	<i>3</i>	<i>A</i>
	EBLR	0.06	29	C	0.07	34	C
	NBL	0.00	0	A	0.00	0	A
	NBT	0.53	3	A	0.53	3	A
	SBTR	0.44	2	A	0.64	4	A
Tenth Line & North Access Right-in/out (Unsignalized)	WBR	0.04	15	C	0.03	15	C
	NBTR	0.50	0	A	0.51	0	A
	SBT	0.41	0	A	0.61	0	A
Tenth Line & Central Access Right-in/out (Unsignalized)	WBR	0.09	15	C	0.07	16	C
	NBTR	0.48	0	A	0.52	0	A
	SBT	0.41	0	A	0.61	0	A
Tenth Line & Road C (Signalized)	<i>Overall</i>	<i>0.62</i>	<i>12</i>	<i>B</i>	<i>0.77</i>	<i>15</i>	<i>B</i>
	EBL	0.72	30	C	0.62	30	C
	EBTR	0.09	19	B	0.06	23	C
	WBL	0.16	20	B	0.13	23	C
	WBTR	0.01	19	B	0.01	22	C
	NBL	0.18	6	A	0.81	39	D
	NBTR	0.49	8	A	0.58	8	A
	SBL	0.04	5	A	0.13	5	A
	SBTR	0.58	9	A	0.80	13	B

Under the 2035 future background conditions, intersections are projected to operate well during both peak hours. Individual movements are expected to operate with reserve capacity and with acceptable delays, with most functioning below the v/c threshold of 0.85 and a LOS of 'D' or better, with the following exceptions:

- ▶ The overall v/c ratio of Tenth Line (South Leg) and Main Street intersection is 0.91 in the p.m. peak period with acceptable delay of 43 seconds and LOS D.
- ▶ The EBLTR movement at Tenth Line (South Leg) and Main Street intersection operates at a v/c ratio of 0.85 in the p.m. peak hour. However, it experiences an acceptable delay of 49 seconds and LOS D.
- ▶ The WBL movement at Tenth Line (South Leg) and Main Street intersection operates at a v/c ratio of 0.88 and 0.95 in the a.m. and p.m. peak hour, respectively. However, it experiences an acceptable delay of 23 and 48 seconds and LOS C and D in the a.m. and p.m. peak periods, respectively.
- ▶ The EBL movement at Tenth Line (North Leg) and Main Street intersection operates at v/c ratio of 0.87 but with low delay of 16 seconds and LOS B.
- ▶ The EBL movement at Main Street and York Durham Line intersection operates with constrained performance in the p.m. peak hour with delay of 66 seconds and LOS F, but with an acceptable volume-to-capacity ratio of 0.40.
- ▶ The overall v/c ratio of Tenth Line and Bethesda Side Road intersection is 0.92 in the p.m. peak period with acceptable delay of 29 seconds and LOS C.
- ▶ The EBLT movement at Tenth Line and Bethesda Side Road intersection is expected to operate with v/c ratio of 0.89 in the a.m. peak hour but with acceptable delay of 44 seconds and LOS D. In addition, during the p.m. peak hour, the volume-to-capacity ratio is expected to be 0.93 with delay of 73 seconds and LOS E.
- ▶ The SBTR movement at Tenth Line and Bethesda Side Road intersection is expected to operate with v/c ratio of 0.95 in the p.m. peak hour but with acceptable delay of 28 seconds and LOS C.
- ▶ The overall v/c ratio of Tenth Line & GO Primary Access/Road B intersection is 0.95 in the p.m. peak period with acceptable delay of 28 seconds and LOS C.
- ▶ The NBTR movement at Tenth Line & GO Primary Access/Road B operates with volume-to-capacity ratio of 0.86 in the p.m. peak hour but with acceptable delay of 25 seconds and LOS C.
- ▶ The SBT movement at Tenth Line & GO Primary Access/Road B operates with volume-to-capacity ratio of 0.94 in the p.m. peak hour but with acceptable delay of 33 seconds and LOS C.

7.4 Future Total 2030

Signal timings from the previous future background conditions were carried forward for all study intersections. Signalization at Bethesda Side Road and Tenth Line intersection is proposed to improve capacity performance. Signal timing plans were also optimized for the following intersections:

- ▶ GO Primary Access/Road B and Tenth Line – protected/permitted EBL and WBL signal phases
- ▶ Tenth Line & Road C
- ▶ Main Street & Tenth Line (North leg)
- ▶ Main Street & Tenth Line (South leg)

The traffic capacity analysis results for the intersections in the study area are summarized in **Table 7-4** for weekday a.m. and weekday p.m. peak hours under 2030 future total traffic conditions.

Table 7-4 Future Total 2030 Capacity Analysis

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
Tenth Line (South Leg) and Main Street (Signalized)	Overall	0.70	20	C	0.72	25	C
	EBLTR	0.55	26	C	0.82	34	C
	WBL	0.82	20	B	0.85	26	C
	WBTR	0.27	9	A	0.32	9	A
	NBL	0.35	26	C	0.36	26	C
	NBTR	0.21	23	C	0.30	25	C
	SBLTR	0.00	21	C	0.01	21	C
Tenth Line (North Leg) and Main Street (Signalized)	Overall	0.60	16	B	0.67	17	B
	EBL	0.58	8	A	0.71	9	A
	EBT	0.12	6	A	0.17	5	A
	WBT	0.22	12	B	0.29	17	B
	WBR	0.04	11	B	0.11	15	B
	SBL	0.29	21	C	0.31	29	C
	SBR	0.50	23	C	0.35	29	C

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
Main Street and York Durham Line (Unsignalized)	EBL	0.07	23	C	0.31	47	E
	EBR	0.33	15	B	0.26	12	B
	NBL	0.14	9	A	0.25	9	A
	NBT	0.14	0	A	0.24	0	A
	SBTR	0.31	0	A	0.21	0	A
York Durham Line and Bethesda Side Road (Unsignalized)	EBLR	0.21	12	B	0.21	12	B
	NBTL	0.06	3	A	0.09	3	A
	SBTR	0.20	0	A	0.16	0	A
Bethesda Side Road at Tenth Line (Signalized)	Overall	0.44	8	A	0.51	10	A
	EBLTR	0.36	21	C	0.56	22	C
	WBL	0.42	22	C	0.49	21	C
	WBTR	0.28	21	C	0.14	18	B
	NBL	0.22	4	A	0.34	7	A
	NBT	0.38	4	A	0.49	7	A
	NBR	0.04	3	A	0.03	4	A
	SBL	0.06	3	A	0.18	5	A
	SBTR	0.44	5	A	0.50	7	A
Road A & Bethesda Side Road (Unsignalized)	EBTR	0.08	0	A	0.12	0	A
	WBTL	0.00	0	A	0.02	1	A
	NBLR	0.11	10	B	0.11	10	B
Tenth Line & GO Primary Access/Road B (Signalized)	Overall	0.48	9	A	0.90	22	C
	EBL	0.39	20	C	0.78	27	C
	EBTR	0.03	18	B	0.07	21	C
	WBL	0.36	20	B	0.41	30	C
	WBTR	0.01	18	B	0.01	30	C

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
	NBL	0.29	6	A	0.33	15	B
	NBTR	0.50	7	A	0.51	13	B
	SBTL	0.29	6	A	0.87	26	C
	SBR	0.00	4	A	0.02	8	A
Tenth Line & GO Right-in/out (Unsignalized)	EBR	0.01	10	A	0.10	14	B
	NBT	0.38	0	A	0.47	0	A
	SBT	0.18	0	A	0.42	0	A
	SBR	0.21	0	A	0.04	0	A
Tenth Line & GO Bus Only Access (Signalized)	Overall	0.46	2	A	0.52	3	A
	EBLR	0.06	29	C	0.06	30	C
	NBL	0.00	0	A	0.00	0	A
	NBT	0.46	2	A	0.34	2	A
	SBTR	0.26	2	A	0.53	3	A
Tenth Line & North Access Right-in/out (Unsignalized)	WBR	0.04	14	B	0.02	12	B
	NBTR	0.44	0	A	0.32	0	A
	SBT	0.24	0	A	0.50	0	A
Tenth Line & Central Access Right-in/out (Unsignalized)	WBR	0.08	14	B	0.04	12	B
	NBTR	0.42	0	A	0.33	0	A
	SBT	0.24	0	A	0.49	0	A
Tenth Line & Road C (Signalized)	Overall	0.51	11	B	0.64	10	B
	EBL	0.64	22	C	0.66	27	C
	EBTR	0.09	15	B	0.06	19	B
	WBL	0.21	16	B	0.24	20	B
	WBTR	0.02	15	B	0.02	18	B
	NBL	0.12	6	A	0.45	9	A

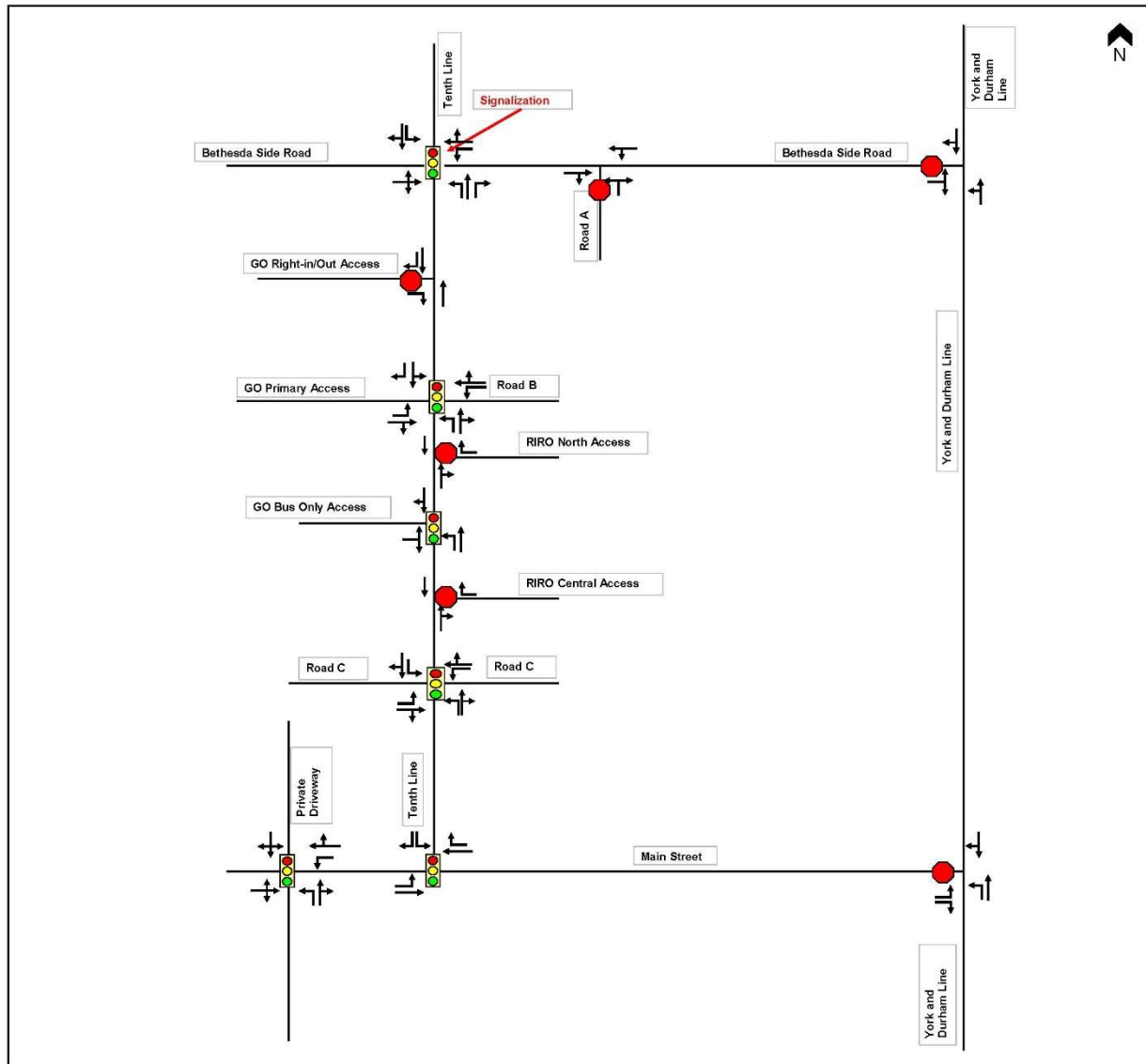
Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
	NBTR	0.44	8	A	0.35	5	A
	SBL	0.05	5	A	0.13	4	A
	SBTR	0.36	7	A	0.64	8	A

Under the 2030 future total conditions, intersections are projected to operate well during both peak hours. Individual movements are expected to operate with reserve capacity and with minimal delays, with most functioning below the v/c threshold of 0.85 and a LOS of 'C' or better, with the following exceptions:

- ▶ The WBL movement at Tenth Line (South Leg) and Main Street intersection operates at a v/c ratio of 0.85 in the p.m. peak hour. However, it experiences an acceptable delay of 26 seconds and LOS C.
- ▶ The EBL movement at the intersection of Main Street and York Durham Line operates with constrained performance in the p.m. peak hour, with delay of 47 seconds and LOS E, but with an acceptable v/c ratio of 0.31.
- ▶ The overall v/c ratio of Tenth Line & GO Primary Access/Road B intersection is 0.90 in the p.m. peak period with acceptable delay of 22 seconds and LOS C.
- ▶ The SBTL movement at Tenth Line & GO Primary Access/Road B operates with acceptable delay of 26 seconds and LOS C in the p.m. peak hour, but with a v/c ratio of 0.87.

The recommended 2030 road network improvements are shown in **Figure 7-1**.

Figure 7-1 Lane Configurations (2030) with recommended improvements



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Figure 7-1
Future Total 2030
Lane Configuration

7.5 Future Total 2035

The proposed improvements suggested under 2030 future total conditions were carried for under 2035 future total conditions. As stated in **Section 6.1**, a traffic signal is warranted at the Tenth Line and Bethesda Side Road intersection under the 2035 horizon. Signal timing plans were also optimized for the following intersections:

- ▶ GO Primary Access/Road B and Tenth Line – protected/permitted EBL and WBL signal phases in the p.m. peak period only
- ▶ Tenth Line & Road C
- ▶ Main Street & Tenth Line (North leg) – split signal phases (SBR and EBL) in the a.m. peak period only
- ▶ Main Street & Tenth Line (South leg)

Additionally, geometric improvements were proposed for this scenario and are presented below:

- ▶ EBR lane at Tenth Line and Bethesda Side Road
- ▶ Another NBL lane at Tenth Line and Bethesda Side Road
- ▶ SBL lane at GO Primary Access/Road B and Tenth Line

The traffic capacity analysis results for the intersections in the study area are summarized in **Table 7-5** for weekday a.m. and weekday p.m. peak hours under 2035 future total traffic conditions.

Table 7-5 Future Total 2035 Capacity Analysis

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
Tenth Line (South Leg) and Main Street (Signalized)	Overall	0.80	31	C	0.94	46	D
	EBLTR	0.66	45	D	0.87	51	D
	WBL	0.86	25	C	0.97	54	D
	WBTR	0.23	6	A	0.30	10	B
	NBL	0.51	50	D	0.37	38	D
	NBTR	0.26	44	D	0.77	53	D
	SBLTR	0.01	40	D	0.01	32	C
Tenth Line (North Leg) and	Overall	0.65	32	C	0.85	28	C
	EBL	0.60	25	C	0.88	18	B

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
Main Street (Signalized)	EBT	0.15	18	B	0.16	4	A
	WBT	0.40	38	D	0.36	30	C
	WBR	0.06	33	C	0.15	27	C
	SBL	0.66	51	D	0.48	44	D
	SBR	0.79	33	C	0.47	44	D
Main Street and York Durham Line (Unsignalized)	EBL	0.08	25	C	0.41	69	F
	EBR	0.44	17	C	0.32	13	B
	NBL	0.16	9	A	0.30	9	A
	NBT	0.15	0	A	0.25	0	A
	SBTR	0.32	0	A	0.23	0	A
York Durham Line and Bethesda Side Road (Unsignalized)	EBLR	0.58	18	C	0.52	18	C
	NBTL	0.13	5	A	0.30	7	A
	SBTR	0.20	0	A	0.17	0	A
Bethesda Side Road at Tenth Line (Signalized)	<i>Overall</i>	<i>0.76</i>	<i>23</i>	<i>C</i>	<i>0.89</i>	<i>36</i>	<i>D</i>
	EBLT	0.85	40	D	1.00	92	F
	EBR	0.44	23	C	0.21	30	C
	WBL	0.34	22	C	0.36	32	C
	WBTR	0.37	22	C	0.64	37	D
	NBL	0.37	13	B	0.79	32	C
	NBT	0.61	19	B	0.67	24	C
	NBR	0.05	11	B	0.03	13	B
	SBL	0.24	11	B	0.40	18	B
	SBTR	0.76	24	C	0.84	36	D
Road A & Bethesda Side	EBTR	0.23	0	A	0.22	0	A
	WBTL	0.00	0	A	0.02	1	A

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
Road (Unsignalized)	NBLR	0.16	13	B	0.16	14	B
Tenth Line & GO Primary Access/Road B (Signalized)	<i>Overall</i>	<i>0.56</i>	<i>10</i>	<i>A</i>	<i>0.97</i>	<i>30</i>	<i>C</i>
	EBL	0.39	20	C	0.78	27	C
	EBTR	0.03	18	B	0.07	21	C
	WBL	0.36	20	B	0.41	30	C
	WBTR	0.01	18	B	0.01	30	C
	NBL	0.42	8	A	0.45	23	C
	NBTR	0.61	9	A	0.88	26	C
	SBL	0.07	5	A	0.57	30	C
	SBT	0.51	7	A	0.97	38	D
	SBR	0.00	4	A	0.02	8	A
Tenth Line & GO Right-in/out (Unsignalized)	EBR	0.02	12	B	0.14	19	C
	NBT	0.45	0	A	0.67	0	A
	SBT	0.35	0	A	0.56	0	A
	SBR	0.21	0	A	0.04	0	A
Tenth Line & GO Bus Only Access (Signalized)	<i>Overall</i>	<i>0.53</i>	<i>3</i>	<i>A</i>	<i>0.64</i>	<i>3</i>	<i>A</i>
	EBLR	0.06	29	C	0.07	34	C
	NBL	0.00	0	A	0.00	0	A
	NBT	0.54	3	A	0.54	3	A
	SBTR	0.45	2	A	0.65	4	A
Tenth Line & North Access Right-in/out (Unsignalized)	WBR	0.04	16	C	0.03	16	C
	NBTR	0.51	0	A	0.52	0	A
	SBT	0.42	0	A	0.63	0	A
Tenth Line & Central Access	WBR	0.09	16	C	0.07	16	C
	NBTR	0.49	0	A	0.53	0	A

Intersection	Movement	Weekday AM			Weekday PM		
		V/C	Delay	LOS	V/C	Delay	LOS
Right-in/out (Unsignalized)	SBT	0.42	0	A	0.63	0	A
Tenth Line & Road C (Signalized)	<i>Overall</i>	<i>0.63</i>	<i>12</i>	<i>B</i>	<i>0.75</i>	<i>14</i>	<i>B</i>
	EBL	0.69	26	C	0.68	38	D
	EBTR	0.09	17	B	0.06	27	C
	WBL	0.23	18	B	0.24	28	C
	WBTR	0.02	17	B	0.02	27	C
	NBL	0.19	7	A	0.68	22	C
	NBTR	0.53	9	A	0.58	8	A
	SBL	0.06	5	A	0.20	5	A
	SBTR	0.61	10	A	0.77	12	B

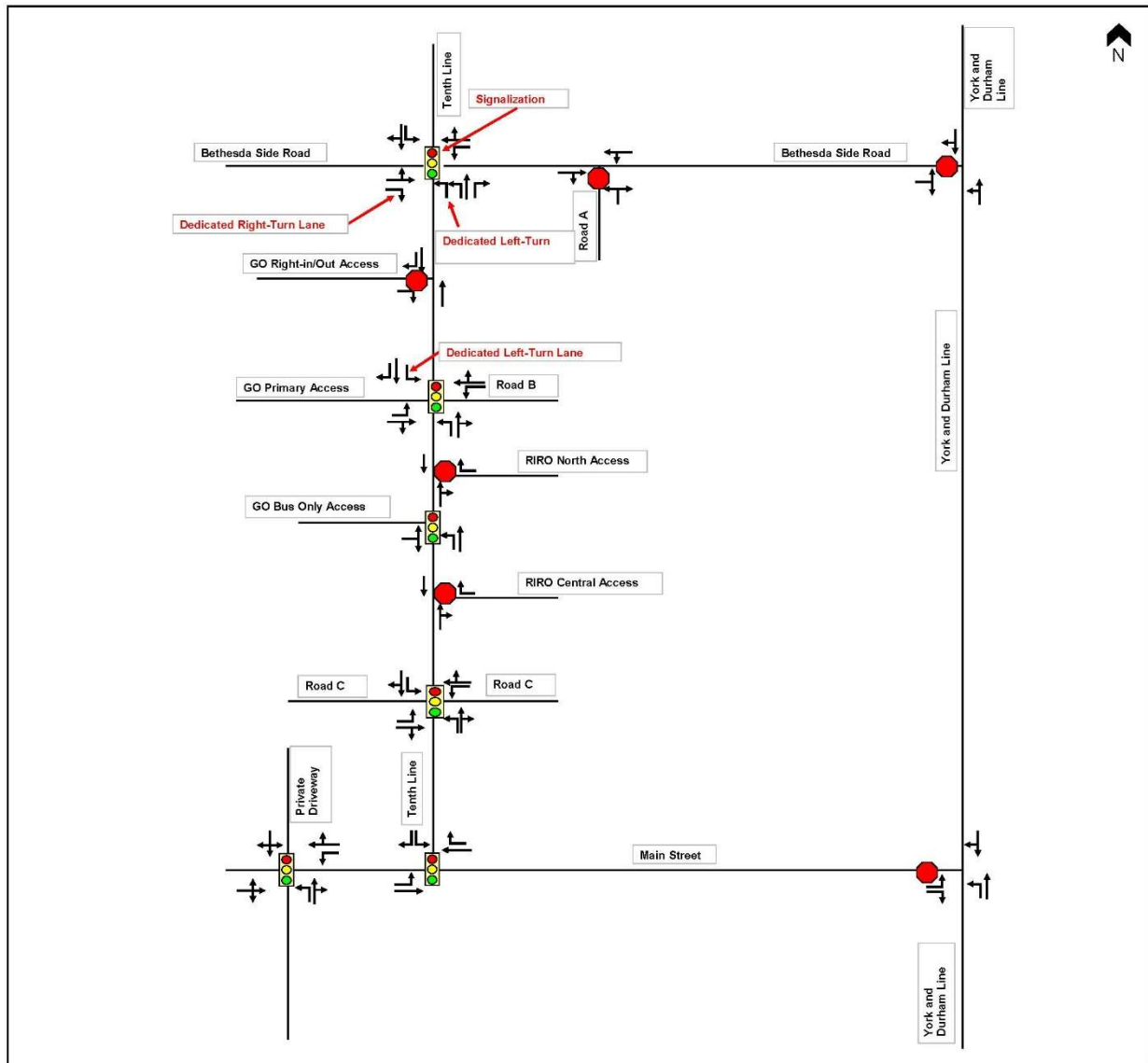
Under the 2035 future total conditions, most intersections are projected to operate well during both peak hours. Individual movements are expected to operate with reserve capacity and with minimal delays, with most functioning below the v/c threshold of 0.85 and a LOS of 'D' or better, with the following exceptions:

- ▶ The overall v/c ratio of Tenth Line (North Leg) and Main Street intersection is 0.85 in the p.m. peak period with acceptable delay of 28 seconds and LOS C.
- ▶ The EBL movement at Tenth Line (North Leg) and Main Street intersections operate at v/c ratio of 0.88 in the p.m. peak hour but with acceptable delay of 18 seconds and LOS B.
- ▶ The overall v/c ratio of Tenth Line (South Leg) and Main Street intersection is 0.94 in the p.m. peak period with acceptable delay of 46 seconds and LOS D.
- ▶ The WBL movement at Tenth Line (South Leg) and Main Street intersection operates at a v/c ratio of 0.86 and 0.97 in the a.m. and p.m. peak hour, respectively. However, it experiences an acceptable delay of 25 and 54 seconds and LOS C and D in the a.m. and p.m. peak periods, respectively.
- ▶ The EBLTR movement at Tenth Line (South Leg) and Main Street intersection operates at a v/c ratio of 0.87 in the p.m. peak hour. However, it experiences an acceptable delay of 51 seconds and LOS D in the p.m. peak hour.

- ▶ The EBL movement at the intersection of Main Street and York Durham Line operates with constrained performance in the p.m. peak hour, with delay of 69 seconds and LOS F, but with an acceptable v/c ratio of 0.41.
- ▶ The overall v/c ratio of Tenth Line (South Leg) and Main Street intersection is 0.89 in the p.m. peak period with acceptable delay of 36 seconds and LOS D.
- ▶ The EBLT movement at Tenth Line and Bethesda Side Road intersection is expected to operate with v/c ratio of 0.85 in the a.m. peak hour but with acceptable delay of 40 seconds and LOS D. In addition, during the p.m. peak hour, the volume-to-capacity ratio is expected to be 1.00 with delay of 92 seconds and LOS F.
- ▶ The overall v/c ratio of Tenth Line & GO Primary Access/Road B intersection is 0.97 in the p.m. peak period with acceptable delay of 30 seconds and LOS C.
- ▶ The SBT movement at Tenth Line & GO Primary Access/Road B operates with acceptable delay of 38 seconds and LOS D in the p.m. peak hour, but with a v/c ratio of 0.97.
- ▶ The NBTR movement at Tenth Line & GO Primary Access/Road B operates with a v/c ratio of 0.88 but with acceptable delay of 26 seconds and LOS C in the p.m. peak hour.

The recommended 2035 road network reflecting the above improvements are shown in **Figure 7-2**.

Figure 7-2 Lane Configurations (2035) with recommended improvements



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Figure 7-2
Future Total 2035
Lane Configuration

8 TRAFFIC QUEUEING OPERATIONS AND STORAGE REQUIREMENTS

8.1 Queuing Analysis

Queueing results were reported from the Sim Traffic software. The 95th percentile queue lengths that are bolded in **Table 8-1** and **Table 8-3** are predicted to extend beyond the available storage of a dedicated turn lane or extend beyond an upstream intersection and/or major access point. Detailed queueing analysis reports are provided in **Appendix F**.

Table 8-1 95th percentile Queues: Existing Conditions

Intersection	Movement	Storage (m)	Queue Length (m)	
			AM	PM
Tenth Line (South Leg) and Main Street (Signalized)	EBLTR	-	54	90
	WBL	20	33	31
	WBTR	-	48	54
	NBL	20	38	39
	NBTR	-	19	18
	SBLTR	-	4	5
Tenth Line (North Leg) and Main Street (Signalized)	EBL	10	22	32
	EBT	-	20	46
	WBT	-	23	34
	WBR	165	9	18
	SBL	70	20	20
	SBR	-	30	43
Main Street and York Durham Line (Unsignalized)	EBL	95	11	16
	EBR	-	5	0
	NBL	30	16	22
	NBT	-	0	0
	SBTR	-	2	0
York Durham Line and Bethesda	EBLR	-	12	18

Intersection	Movement	Storage (m)	Queue Length (m)	
			AM	PM
Side Road (Unsignalized)	NBLT	-	12	14
	SBTR	-	0	0
Bethesda Side Road at Tenth Line (Unsignalized)	EBLTR	-	16	28
	WBL	20	5	6
	WBTR	-	11	12
	NBL	120	3	5
	NBT	-	0	0
	NBR	30	0	4
	SBL	25	3	8
	SBTR	-	0	11
Tenth Line & GO Primary Access (Signalized)	EBL	-	12	21
	EBR	-	5	12
	NBL	40	18	5
	NBT	-	17	20
	SBTR	-	14	29
Tenth Line & GO Right-in/out (Unsignalized)	EBR	-	4	9
	NBT	-	0	0
	SBT	-	0	0
	SBR	30	0	0
Tenth Line & GO Bus Only Access (Signalized)	EBLR	-	3	3
	NBL	50	0	0
	NBT	-	1	0
	SBTR	-	2	5

As shown in **Table 8-1** above, all queue lengths are within the available storage distances under both AM and PM peak hours for the existing conditions, except for certain movements at the intersection of Tenth Line (South Leg) and Main Street, and Tenth Line (North Leg) and Main Street. During the a.m. peak hour, at the intersection of Tenth Line (South Leg) and Main Street, the 95th percentile queue length for the westbound left-turn movement exceeds the available

storage length by 13 m, and the 95th percentile queue length for the northbound left-turn movement exceeds the available storage length by 18 m. During p.m. peak hour, the 95th percentile queue length for the westbound left-turn movement exceeds the available storage length by 11 m, and the 95th percentile queue length for the northbound left-turn movement exceeds the available storage by 19 m.

At the intersection of Tenth Line (North Leg) and Main Street, the 95th percentile queue length for the eastbound left-turn movement exceeds the available storage by 12 m in the a.m. peak hour, and 22 m in the p.m. peak hour.

Table 8-2 95th percentile Queues: 2030 and 2035 Future Background

Intersection	Movement	Storage (m)	2030 FB		2035 FB	
			AM	PM	AM	PM
Tenth Line (South Leg) and Main Street (Signalized)	EBLTR	-	54.7	779.6	74	157.4
	WBL	20	33.2	32.8	32	30.1
	WBTR	-	77.9	68.9	78.4	63.1
	NBL	20	33.1	94.6	43.2	99.8
	NBTR	-	34.2	350.5	57	293.5
	SBLTR	-	6.3	8.1	5.8	7.1
Tenth Line (North Leg) and Main Street (Signalized)	EBL	10	36	29.9	33.1	29.9
	EBT	-	60.2	65.5	78.3	63.9
	WBT	-	33.6	47.6	49	62.3
	WBR	165	14.6	25.5	18.5	40.7
	SBL	70	29.1	27.7	41.8	26.3
	SBR	-	58.3	67.3	66.1	76.5
Main Street and York Durham Line (Unsignalized)	EBL	95	11.4	15.9	10.3	13.2
	EBR	-	8.1	-	12.6	-
	NBL	30	15.9	21.2	18.6	23.4
	SBTR	-	-	-	1.6	-
York Durham Line and Bethesda Side Road (Unsignalized)	EBLR	-	16.7	18	38.7	30.4
	NBLT	-	20.1	27.1	23.9	64.8
	SBTR	-	-	-	0.9	8.8

Intersection	Movement	Storage (m)	2030 FB		2035 FB	
			AM	PM	AM	PM
Bethesda Side Road at Tenth Line (Unsignalized)	EBLTR	-	29.2	44.7	-	-
	EBLT	-	-	-	67.1	215.1
	EBR	-	-	-	53.3	244.6
	WBL	20	18.1	21.3	17.3	53.9
	WBTR	-	19.5	17.6	31	146.5
	NBL	120	18.9	33.8	21.5	50.6
	NBT	-	32.3	51.5	54	76.1
	NBR	30	8.9	11.5	12.7	18.6
	SBL	25	13	21.8	15.8	174.2
	SBTR	-	37.3	53.4	73.7	989.4
Road A & Bethesda Site Road (Unsignalized)	EBTR	-	-	8.3	-	8.4
	WBLT	-	3	7.4	7.7	146.7
	NBLR	-	11.3	11.5	14.4	48.2
Tenth Line & GO Primary Access (Signalized)	EBL	-	20.4	68.7	20.8	67.7
	EBTR	-	11	50.4	11.8	53.1
	WBL	25	20	19	19.8	17.8
	WBTR	-	9.3	9	9.7	9.6
	NBL	40	28.2	18.3	32.4	23.1
	NBTR	-	40	34.7	45.1	45.2
	SBLT	-	31.4	68.4	-	-
	SBL	-	-	-	12	19.2
	SBT	-	-	-	48.8	64.5
	SBR	30	4.5	12	5.5	7
Tenth Line & Road C (Signalized)	EBL	25	42.1	36.1	43.4	36.9
	EBTR	-	30.5	17.8	30.1	19
	WBL	25	16.8	14.1	16.3	15
	WBTR	-	10.4	8.7	10.3	9.6
	NBL	25	16.6	28.1	17.4	35.3

Intersection	Movement	Storage (m)	2030 FB		2035 FB	
			AM	PM	AM	PM
	NBTR	-	34.6	28	40.5	53.3
	SBL	25	8.4	12.4	9.7	13.8
	SBTR	-	31.8	37.4	36.3	36.3
Tenth Line & GO Right-in/out (Unsignalized)	EBR	-	6.7	13	9.5	15.9
	NBT	-	-	-	-	15.1
	SBT	-	-	10.6	-	6.9
Tenth Line & GO Bus Only Access (Signalized)	EBLR	-	4	4.5	2.9	5.1
	NBT	-	8.7	2.2	12.6	16.2
	SBTR	-	6.9	5.5	6.5	11.3

As shown in **Table 8-2**, at the intersection of Tenth Line (South leg) and Main Street intersection, the 95th percentile queue lengths for the westbound left turn movement and northbound left turn movement are expected to exceed the available storage lengths as follows:

- ▶ During the a.m. peak hour, the westbound left movement is expected to exceed the available storage by 13.2 m and 12 m, respectively, under 2030 and 2035 future background conditions.
- ▶ During the p.m. peak hour, the westbound left turn movement is expected to exceed the available storage by 12.8 m and 10.1 m, respectively, under 2030 and 2035 future background conditions.
- ▶ During the a.m. peak hour, the northbound left movement is expected to exceed the available storage by 13.1 m and 23.2 m, respectively, under the 2030 and 2035 future background conditions.
- ▶ During the p.m. peak hour, the northbound left movement is expected to exceed the available storage by 74.6 m and 79.8 m, respectively, under the 2030 and 2035 future background conditions.

At the intersection of Tenth Line (North leg) and Main Street, 95th percentile queue lengths for the eastbound left turn movement are expected to exceed the available storage lengths as follows:

- ▶ During the a.m. peak hour, the eastbound left movement is expected to exceed the available storage by 26 m and 23.1 m, respectively, under 2030 and 2035 future background conditions.

- ▶ During the p.m. peak hour, the eastbound left and northbound left movements are expected to exceed the available storage by 19.9 m under both 2030 and 2035 future background conditions.

At the intersection of Tenth Line and Bethesda Side Road, the 95th percentile queue lengths for the westbound left, northbound left, and southbound left turn movements are expected to exceed the available storage lengths as follows:

- ▶ During the p.m. peak hour, the westbound left movement is expected to exceed the available storage by 1.3 m and 33.9 m, respectively, under the 2030 and 2035 future background conditions.
- ▶ During the p.m. peak hour, the northbound left movement is expected to exceed the available storage by 15.6 m under 2035 future background conditions.
- ▶ During the p.m. peak hour, the southbound left movement is expected to exceed the available storage by 149.2 m under 2035 future background conditions.

As stated in **Section 7.5** and **Table 8-3**, with the suggested improvements at the Tenth Line and Bethesda Side Road intersection, the 95th percentile queue lengths for the northbound left turn movements are expected to be within the recommended storage length.

At the intersection of Tenth Line and Road C, the 95th percentile queue lengths for the eastbound left and northbound left turn movements are expected to exceed the available storage lengths as follows:

- ▶ During the a.m. peak hour, the eastbound left movement is expected to exceed the available storage by 17.1 m and 18.4 m, respectively, under the 2030 and 2035 future background conditions.
- ▶ During the p.m. peak hour, the eastbound left movement is expected to exceed the available storage by 11.1 m and 11.9 m, respectively, under the 2030 and 2035 future background conditions.
- ▶ During the p.m. peak hour, the northbound left movement is expected to exceed the available storage by 3.1 m and 10.3 m, respectively, under the 2030 and 2035 future background conditions.

Table 8-3 95th percentile Queues: 2030 and 2035 Future Total

Intersection	Movement	Storage (m)	2030 FT		2035 FT	
			AM	PM	AM	PM
Tenth Line (South Leg) and Main Street	EBLTR	-	68.1	688	79.1	223.7
	WBL	20	32.1	32.7	31.8	30.2

Intersection	Movement	Storage (m)	2030 FT		2035 FT	
			AM	PM	AM	PM
(Signalized)	WBTR	-	76.1	70.7	79.3	63.7
	NBL	20	32.9	91.5	45.1	100.2
	NBTR	-	34.7	357.6	57.9	293.4
	SBLTR	-	6.2	9.4	4.8	12.6
Tenth Line (North Leg) and Main Street (Signalized)	EBL	10	35.9	30	36.4	30.1
	EBT	-	61.4	64.2	77.5	63.9
	WBT	-	35.6	50.5	48.5	55.1
	WBR	165	16	28	19.2	40.4
	SBL	70	27.7	27.1	45.4	36.5
	SBR	-	58.9	66.5	66.5	79.6
Main Street and York Durham Line (Unsignalized)	EBL	95	10.3	16.2	9.9	14.4
	EBR	-	6.6	-	20.3	-
	NBL	30	17.5	20.1	17.9	24.9
	SBTR	-	1.6	-	-	-
York Durham Line and Bethesda Side Road (Unsignalized)	EBLR	-	15	17.3	40.1	36.6
	NBLT	-	18.7	20	23.7	63
	SBTR	-	-	-	1.3	12.5
Bethesda Side Road at Tenth Line (Signalized)	EBLTR	-	30.4	44.3	-	-
	EBLT	-	-	-	66	213.1
	EBR	-	-	-	54.2	240.8
	WBL	20	15.6	24.1	18.5	56.7
	WBTR		20.4	16.2	33.2	149.9
	NBL	120	20.9	31	28.1	79.8
	NBT		34.3	52.5	72	91.9
	NBR	30	9.1	11.1	19.1	35.6
	SBL	25	13.2	23	17.9	167.5
	SBTR	-	41	52.3	96.9	669.2
Road A & Bethesda	EBTR	-	-	8.8	-	8.4

Intersection	Movement	Storage (m)	2030 FT		2035 FT	
			AM	PM	AM	PM
Side Road (Unsignalized)	WBLT	-	3.3	7	3.5	121.8
	NBLR	-	12.3	13.3	13.2	35
Tenth Line & GO Primary Access/Road B (Signalized)	EBL	-	19.3	69.1	22.2	68
	EBTR	-	11.3	46.6	11.5	54.5
	WBL	25	18.6	18.7	20.1	19.8
	WBTR	-	11.4	9.4	9.9	8.4
	NBL	40	27.1	16.3	35.3	23.7
	NBTR	-	41.7	36.2	45.9	46.9
	SBLT	-	33.3	71.5	-	-
	SBL	-	-	-	12.7	20.7
	SBT	-	-	-	49.9	73.4
	SBR	30	3.8	19.6	3.9	16.9
Tenth Line & Road C (Signalized)	EBL	25	37	31.7	39.7	39.2
	EBTR	-	20.6	16.5	22.3	18.7
	WBL	25	17.6	17.8	19.5	19.1
	WBTR	-	12.7	11.9	11.2	12.7
	NBL	25	14.3	27.3	19.1	35.3
	NBTR	-	35.6	28.4	47.2	6.5
	SBL	25	10.5	18.2	10.1	19.4
	SBTR	-	31.3	38.2	37.1	41.3
Tenth Line & GO Right-in/out (Unsignalized)	EBR	-	6.6	13.6	9.8	16.2
	NBT	-	-	1.2	6.5	69.5
	SBT	-	-	19.4	-	18.4
Tenth Line & GO Bus Only Access (Signalized)	EBLR	-	3.9	4.1	2.8	5.8
	NBT	-	4.9	3.9	19.7	19.5
	SBTR	-	4.8	6.1	5.3	15.5

As shown in **Table 8-3** above, at the intersection of Tenth Line (South leg) and Main Street, the 95th percentile queue lengths for the westbound left turn movement and northbound left turn movement are expected to exceed the available storage lengths as follows:

- ▶ During the a.m. peak hour, the westbound left movement is expected to exceed the available storage by 12.1 m and 11.8 m, respectively, under 2030 and 2035 future total conditions.
- ▶ During the p.m. peak hour, the westbound left turn movement is expected to exceed the available storage by 12.7 m and 10.2 m, respectively, under 2030 and 2035 future total conditions.
- ▶ During the a.m. peak hour, the northbound left movement is expected to exceed the available storage by 12.9 m and 25.1 m, respectively, under 2030 and 2035 future total conditions.
- ▶ During the p.m. peak hour, the northbound left turn movement is expected to exceed the available storage by 71.5 m and 80.2 m, respectively, under 2030 and 2035 future total conditions.

At the intersection of Tenth Line (North leg) and Main Street intersection, 95th percentile queue lengths for the eastbound left turn movement are expected to exceed the available storage lengths as follows:

- ▶ During the a.m. peak hour, the eastbound left movement is expected to exceed the available storage by 25.9 m and 26.4 m, respectively, under 2030 and 2035 future total conditions.
- ▶ During the p.m. peak hour, the eastbound left turn movement is expected to exceed the available storage by 20 m and 20.1 m, respectively, under 2030 and 2035 future total conditions.

As stated in the **Section 4.1.1**, jog elimination at the intersection of Main Street and Tenth Line is proposed as a road network improvement measure in the Town's TMP. Implementation of jog elimination is expected to potentially improve traffic operations and reduce the 95th percentile queue lengths at this intersection in the future. However, the future operations of this intersection are to be confirmed through future studies, with the jog elimination accounted for at this intersection.

At the intersection of Tenth Line and Bethesda Side Road, 95th percentile queue lengths for the westbound left, northbound left, and southbound left turn movements are expected to exceed the available storage lengths as follows:

- ▶ During the p.m. peak hour, the westbound left turn movement is expected to exceed the available storage by 4.1 m and 36.7 m, respectively, under 2030 and 2035 future total conditions.
- ▶ During the p.m. peak hour, the northbound left turn movement is expected to exceed the available storage by 44.8 m under 2035 future total conditions.
- ▶ During the p.m. peak hour, the southbound left turn movement is expected to exceed the available storage by 142.5 m under 2035 future total conditions.

At the intersection of Tenth Line and Road C, 95th percentile queue lengths for the eastbound left and northbound left turn movements are expected to exceed the available storage lengths as follows:

- ▶ During the a.m. peak hour, the eastbound left turn movement is expected to exceed the available storage by 12 m and 14.7 m, respectively, under 2030 and 2035 future total conditions.
- ▶ During the p.m. peak hour, the eastbound left turn movement is expected to exceed the available storage by 6.7 m and 14.2 m, respectively, under 2030 and 2035 future total conditions.
- ▶ During the p.m. peak hour, the northbound left turn movement is expected to exceed the available storage by 2.3 m and 10.3 m, respectively, under 2030 and 2035 future total conditions.

8.2 Recommended Storage Lengths

Based on the 95th percentile queue lengths for the future traffic conditions shown in **Table 8-3**, storage length requirements for intersections along Tenth Line and Bethesda Side Road are recommended. The storage length requirements based on the projected queues are shown in **Table 8-4** below.

Table 8-4 Recommended Storage Lengths

Intersections	EBL	EBR	WBL	WBR	NBL	NBR	SBL	SBR
Tenth Line and Bethesda Side Road	-	30	240	-	120	30	165	-
Tenth Line and GO RIRO	-	-	-	-	-	-	-	30
Tenth Line and Road B/ GO Access	70	-	25	-	40	-	30	30
Tenth Line and GO Bus Only Access	-	-	-	-	75	-	-	-
Tenth Line and Road C	45	-	25	-	45	-	25	-
Bethesda Side Road and Road A	-	-	-	-	-	-	-	-
Main Street/ Tenth Line (North leg)	10*	-	-	165	-	-	70	-
Main Street/ Tenth Line (South leg)	-	-	20*	-	100	-	-	-

Note: Grey shading indicates new road or no existing storage; orange indicates modification from existing storage conditions and no shading indicates that storage length is the same as existing conditions for those individual movements.

**There is insufficient geometric space to accommodate lane lengthening.*

9 CONCEPTUAL DESIGN AND BLOCK PLAN REVIEW

9.1 Cross-Section

The proposed roadway cross-sections for Tenth Line, Bethesda Side Road, and Collector Roads are described in detail below:

- ▶ Tenth Line is proposed to be widened to a 31.0 m right-of-way with a two-lane cross-section. The typical section includes a 3.5 m through lane in each direction and a 4.5 m median. At intersections, the median accommodates a left-turn lane (3.0 to 3.3 m) and a median island (1.2 m to 1.5 m). A 4.1 to 4.2 m boulevard is provided between the vehicular travel lanes and the active transportation facilities for street trees and landscaping. Active transportation facilities are provided on both sides of the corridor, including a 2.0 m cycle track and a 2.0 m sidewalk located at the outer limits of the right-of-way, separated by a 1.0 m furnishing zone for street furniture (e.g., pedestrian lighting) and additional landscaping. This configuration maintains separation from traffic and preserves space for potential future widening.

While the operational analysis conducted for this study does not indicate a need for 4 to 5 lanes on Tenth Line, future development and evolving travel patterns may necessitate additional capacity. The 31.0 m right-of-way is sufficient to accommodate an expansion to four or five lanes, subject to further study and justification, while maintaining adequate boulevard space.

- ▶ Bethesda Side Road is based on the 27.0 m right-of-way identified in the 2020 MTSA Study and is planned to accommodate a two-lane cross-section. This includes 3.5 m through lanes in each direction and a 5.0 m median, which accommodates a 3.3 m left-turn lane and a 1.7 m median island at intersections. Active transportation facilities are provided on both sides of the corridor, including a 2.0 m sidewalk on the north side and a 4.0 m multi-use path on the south side. The remaining space is for street furniture and street trees/landscaping.
- ▶ The collector roads within the study area are based on the Lincolnville Urban Design Guidelines (2023) for collector road right-of-way 23.0 m, and scaled down for the proposed collector road right-of-way width of 20 m.
- ▶ Road A is proposed as 20.0 m collector road with a two-lane cross section. This includes a 3.5 m through lane in each direction, and a 2.4 m lay-by / parking lane on the east side. Active transportation facilities are provided on both sides of the corridor, consisting of a

3.0 m multi-use path on the west side of the corridor and a 2.0 m sidewalk on the east side of the corridor. The remaining space is for street furniture and street trees/landscaping.

- ▶ Road C is proposed as 20.0 m collector road with a two-lane cross section. This includes a 3.5 m through lane in each direction, and a 2.4 m lay-by / parking lane on the north side. Active transportation facilities are provided on both sides of the corridor, consisting of a 3.0 m multi-use path on the south side of the corridor and a 2.0 m sidewalk on the north side of the corridor. The remaining space is for street furniture and street trees/landscaping.

The proposed cross-sections for Tenth Line, Bethesda Side Road, and Collector Roads are shown in **Appendix G**. These designs build upon the cross-sections identified in the previous MTSA Study, Lincolnville Urban Design Guidelines, and the Town's engineering design standards.

9.2 Block Plan Review

The transportation road network within the broader Phase 3 block plan has also been assessed at a high-level based on the currently available data and the traffic analysis conducted above.

Based on the queueing analysis conducted in **Section 8**, the queues extending from the study area intersections are not expected to exceed the intersection spacing proposed from the current block plans. This has been shown in **Appendix G**, where the identified storage lengths and intersection spacings are expected to permit sufficient storage to accommodate the future queues for the development. This also shows an assessment of the overall block plan, proposed road network, identifies the active-transportation connectivity, and confirms the adequacy of the road geometry/intersection spacing.

It is our understanding that there is a road bend within the block plan. The road bend risk can be mitigated based on the following measures:

- ▶ Provision of adequate illumination.
- ▶ Provision of curb line and pavement markings to provide sufficient delineation to convey the nature of the curve.
- ▶ Provision of traffic calming measures.
- ▶ To eliminate the eastbound tangent line of sight into the park area, it is recommended to plant coniferous trees on the outside of the curve.
- ▶ Installation of turn warning signs with advisory speed tab signs approaching the bend.
- ▶ Road Bend to be designed as per the previously approved (December 2, 2021) WS-118 Typical Road Bend Engineering Standards.

9.2.1 Intersection Spacing

The proposed access configuration was reviewed against the guidelines of the Transportation Association of Canada (TAC) Geometric Design Guide (2017), as neither the Whitchurch-Stouffville nor York Region provides applicable spacing criteria for this non-regional arterial roadway.

Based on TAC *Figure 8.8.2*, the minimum corner clearance from a signalized intersection to the nearest driveway on an arterial roadway is 70 m. The proposed Right-in/Right-out Central Access is located approximately 150 m north of the Tenth Line and Road C planned signalized intersection. Therefore, the recommended TAC corner clearance requirement is satisfied. Similarly, the proposed Right-in/Right-out North Access is located approximately 100 m south of the Tenth Line and GO Primary Access/Road B intersection. Therefore, the recommended TAC corner clearance requirement is also satisfied.

TAC *Figure 8.8.2* also identifies a minimum driveway spacing of 35 m on arterial roadways under stop control conditions at the crossroad. The separation between the Right-in/Right-out North Access and Central Access is approximately 90 m. As this exceeds the 35 m guideline, the proposed spacing between the two right-in/right-out accesses meets TAC recommendations.

In addition, TAC Section 9.4.2.1 recommends a minimum intersection spacing of 200 m along arterial roadways. The planned signalized intersection is located more than 200 m from the nearest existing signalized or stop-controlled intersection along the corridor. Accordingly, the proposed intersection configuration conforms to TAC arterial intersection spacing guidance.

10 TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) strategies play a critical role in optimizing the performance of the transportation system by influencing how, when, and why people travel. As part of this study, TDM measures are considered to reduce reliance on single-occupant vehicles, reduce traffic congestion, and encourage more sustainable travel behaviours. These strategies complement infrastructure investments by maximizing the use of existing capacity, enhancing travel options such as transit, carpooling, cycling, and walking, and helping to mitigate congestion impacts associated with future growth. TDM strategies have multiple benefits, including:

- ▶ **Improved mobility and accessibility:** TDM provides more travel options and makes it easy for people to access jobs, services, and amenities
- ▶ **Decreased traffic congestion:** Shifting trips away from peak periods, single-occupancy vehicles, and high-demand corridors, TDM helps ease roadway congestion and improve travel time reliability.
- ▶ **Reduced environmental impact:** Encouraging alternative modes of transportation reduces greenhouse gas emissions, air pollution, and overall energy consumption.
- ▶ **Cost savings:** Individuals have the option to spend less on fuel, parking, and vehicle maintenance.

The combined benefits assist in creating a more active, connected, and livable community by encouraging greater use of active transportation modes. These strategies not only support healthier, more sustainable travel choices but also enhance the value of ongoing investments in transportation infrastructure. In doing so, they contribute to improved mobility, accessibility, and overall quality of life for residents, businesses, and the surrounding community.

TDM measures can be categorized into five categories:

1. Introduction of Alternative Travel Modes
2. Core Commuter Information and Assistance
3. Financial Incentives
4. Supporting Infrastructure
5. TDM Program Support

10.1 Introduction of Alternative Travel Modes

This category focuses on expanding and promoting viable alternatives to single-occupancy vehicle travel. It includes initiatives that encourage the use of public transit, carpooling, cycling, walking, and emerging shared mobility options, such as bike share programs. By improving the availability, convenience, and attractiveness of these modes, TDM strategies can shift travel behaviour toward more sustainable and space-efficient transportation choices.

Encouraging single-occupant vehicle drivers to shift toward alternative travel modes can be achieved through targeted marketing and communication strategies. These efforts should focus on increasing awareness of available options, such as walking, cycling, carpooling, and transit. This can be achieved through the following measures:

- ▶ **TDM Marketing materials:** TDM marketing materials can be distributed to employees and customers. Materials should also be visually engaging and easy to understand to maximize accessibility. Marketing material should be prepared and provided by the Town of Whitchurch-Stouffville and York Region Transit (YRT) staff to ensure that the information provided is up to date.
- ▶ **Infrastructure updates:** Display information regarding transit and active transportation improvements at high-traffic pedestrian locations to encourage early adoption.
- ▶ **TDM Outreach Events:** Organize events based on anticipated demand to promote TDM measures and available facilities. Outreach events should take place in communal areas such as any of the proposed parks/parkettes, as well as institutional buildings (e.g., community centres or schools) within the neighbourhood.
 - ▶ The Town of Whitchurch-Stouffville and YRT staff should be invited to attend the events, answer any questions, and provide information on the existing and planned transportation infrastructure improvements. Should the attendance of a TDM outreach event be insufficient to justify attendance of Town of Whitchurch-Stouffville and/or YRT staff, the marketing materials should be provided or emailed to all staff.

10.2 Core Commuter Information and Assistance

Providing clear, accessible, and timely information is central to influencing travel decisions. This category includes trip planning tools, real-time travel updates, commuter outreach programs, and personalized travel assistance. Effective TDM requires more than just communication; it requires providing the practical information and tools needed to support long-term behavioural changes. Improving the ease of access to information on alternative travel modes increases the likelihood of behavioural change amongst commuters. The following measures are recommended to provide accessible information for users of alternative transportation modes:

- ▶ **Trip planning tools:** Provide digital platforms or apps that help users compare routes, modes, travel times, and costs to identify the most efficient travel options.
- ▶ **Real-time information displays:** Digital screens in centralized, high-traffic building locations (e.g., lobbies or transit hubs) to provide up-to-date transit schedules and travel alerts.
- ▶ **Active transportation resources:** Maps of the local active transportation network readily available for those looking to travel to or from the site.
- ▶ **Carpooling tools:** Ride-matching tools, such as www.ridesharing.com, and carpool networking can be promoted by employers to help employees from similar areas connect and commute together.

The information should be prepared by the Region and YRT staff and distributed at TDM outreach events.

10.3 Financial Incentives

Financial incentives are designed to reduce the cost barrier of alternative transportation and encourage long-term shifts in commuting habits. These measures may include subsidized transit passes, parking pricing strategies, rewards for carpooling, or congestion pricing. The following measures are recommended for consideration by project stakeholders:

- ▶ **Subsidized Transit Passes:** Pre-loaded transit passes or PRESTO cards for new employees can encourage the use of public transportation.
- ▶ **Carpool Incentives:** An incentive program for carpool drivers, with rewards or subsidies scaled based on the number of passengers transported (e.g., preferred parking or fuel stipends) can encourage more people to carpool.
- ▶ **Transit partnerships:** Coordination with YRT to explore options, such as corporate transit subsidy programs or bulk-purchase discounts for employees, in line with current YRT policies and eligibility requirements.

10.4 Supporting Infrastructure

Physical infrastructure is essential to support transit and active transportation modes. The infrastructure should be integrated into the design of each site and coordinated with the Town and Region. This includes facilities such as bike lanes, sidewalks, park-and-ride lots, carpool parking spaces, and transit amenities. Well-designed infrastructure ensures that alternative modes are not only available but also safe, convenient, and appealing to users. For the proposed development, some examples of supportive infrastructure include:

- ▶ Direct pedestrian connections to transit
- ▶ Protected or separated cycling facilities along key travel corridors to improve comfort and safety
- ▶ Sufficient, high-quality long-term and short-term bicycle parking, exceeding minimum by-law requirements where feasible.
- ▶ Sheltered, well-maintained transit stops to improve user experience
- ▶ Clear wayfinding signage for transit and active transportation facilities
- ▶ Dedicated car-share spaces on site

These infrastructure improvements should be evaluated and refined during the Site Plan Application process for each individual development block.

10.5 TDM Program Support

Policies, partnerships, and administrative frameworks are needed to implement and sustain TDM initiatives. This includes employer-based programs, regional coordination, funding mechanisms, and monitoring and evaluation efforts. Effective program support ensures that TDM strategies are delivered successfully, continuously refined, and aligned with broader transportation and land use objectives.

For the development of these lands, a coordinated TDM program is crucial to promote sustainable transportation options and mitigate traffic impacts.

To align the development with broader regional transportation goals, the following coordination and partnerships structures are recommended:

- ▶ **TDM Coordinator:** The appointment of a dedicated TDM coordinator can help facilitate the implementation and management of site-specific TDM measures. This individual will be responsible for executing, managing, and monitoring programs customized to the development's unique needs. It is recommended that the Region assigns or facilitates this role to ensure the long-term success of the TDM plan.
- ▶ **Transportation Management Associations (TMAs):** Engaging with TMAs, such as Smart Commute, can provide valuable support through promotional materials, event coordination, and recommendations for effective measures. Membership should be evaluated based on future demand and occupant needs.

Additionally, continuous improvement of TDM strategies relies on data-driven insights. To measure effectiveness and identify areas for optimization, the following monitoring framework is proposed:

1. **Baseline Surveys:** Conducted at the full build-out of the development to establish an initial profile of employee and occupant travel behaviours.
2. **Regular Monitoring:** Follow-up surveys should be conducted every two years to track shifts in mode share and program participation.

The provision of these surveys and future TDM programming remains at the discretion of the Owner. This ensures the strategy remains adaptable, allowing for adjustments that reflect the evolving needs of the development and its occupants.

10.6 TDM Checklist

Based on the previously defined TDM classifications, a checklist has been developed in **Table 10-1** which summarizes the proposed TDM measures and provides a brief description of each. Note that the table below identifies recommendations that are to be considered for implementation for each individual site plan application and are subject to the discretion of each landowner.

Table 10-1 TDM Measures Checklist

TDM Measures Recommended	Description
Transit incentives	Consider providing pre-loaded PRESTO cards to employees, distributed at TDM outreach events (value to be determined). The provision of subsidized transit passes is subject to the discretion of the Owner.
Information packages (YRT, GO schedules, Active trail and cycling maps)	Provide engaging brochures with accessible information on transit routes and stops, active transportation infrastructure, and TDM programs within the respective development. Information should be provided by YRT staff and distributed at a TDM outreach event or by mail.
Communication strategy and physical location to deliver PRESTO cards and information packages	Organize a dedicated TDM outreach event for new employees. YRT staff can provide information on available and upcoming transit/AT infrastructure and distribute TDM material such as subsidized transit passes and brochures. Marketing material should be visually appealing and informative.
Outreach programs	Implement outreach programs to encourage participation in TDM initiatives.
Pedestrian connections	Ensure existing paved shoulders can be utilized by pedestrians and cyclists for transit connections. Assess and improve cycling connections to/from the site.
Cycling connections	
Internal ped/cycling circulation	Ensure pedestrians and cyclists have safe access within the site.
Active transportation network/Fine-Grid	Utilize existing paved shoulders for pedestrian and cyclist access to transit connections.

Bicycle parking/shelter	Bicycle parking should be provided on-site.
Carpool parking	Carpool parking will be considered on site.
Membership with Smart Commute	Promote online carpool ride-matching platforms or host carpool networking events. Include information about Smart Commute in the TDM information package. Membership with Smart Commute or other TMAs should be based on employee demand and at the discretion of the Owner/Tenant.
Monitoring program/report	Conduct TDM monitoring surveys to track changes in travel patterns and program effectiveness. Conduct a baseline survey when the site is fully occupied, followed by surveys every two years. Provision of monitoring surveys is subject to the Owner's discretion.

11 CONCLUSIONS AND RECOMMENDATIONS

Under short-term (2030) development scenario, the following modification to existing accesses or new accesses are proposed along the Tenth Line between Forsyth Farm Drive and Bethesda Side Road (beginning from north):

- ▶ **Collector Road B:** A 26.5 m wide access is proposed on the east end of the street, opposite the existing GO Station full-movement access. This access will serve the developments located east of Tenth Line.
- ▶ **Collector Road C:** A 26.5 m wide access is proposed on the east end of the street at Tenth Line, south of the GO Station bus-only access. This access is proposed to be signalized.
- ▶ **Right-in/Right-out Accesses:** Two right-in/right-out accesses are proposed on the east side of Tenth Line, south of the intersection with GO Primary Access and Road B. These accesses will primarily serve the developments located east of Tenth Line.

Along Bethesda Side Road, the following accesses are proposed:

- ▶ **Collector Road A:** A stop-controlled access is proposed along Bethesda Side Road, east of Tenth Line and on the south side of the roadway.

The study area will generally have residual capacity and study intersections will be operating well. To support the 2030 horizon year, TYLin recommends signalization of Bethesda Side Road at Tenth Line and Road C at Tenth Line intersection, in addition to signal timing improvements at Main Street, Tenth Line (North leg) and Main Street and Tenth Line (South leg) and Tenth Line and GO Primary Access/Road B intersection.

The intersection of Tenth Line and Bethesda Side Road is currently under two-way stop control on eastbound and westbound approaches of the intersections and is bisected by the rail corridor on the west and north legs. Special consideration will be needed to account for this when designing signal to accommodate the railway including barriers and calculating appropriate clearance times. TYLin recommends considering implementing no right turn on red on the west and north legs at this intersection from safety perspective as it is bisected by rail corridor.

Based on MTO left turn warrants analysis, left turn lanes are warranted at the following intersections:

- ▶ Southbound left-turn lane at Tenth Line and GO Primary Access/Road B.

Under long-term (2035) development scenario, some study area intersections will be operating at capacity. The signalized intersection of Tenth Line and Bethesda Side Road will have some movements approaching capacity during weekday p.m. peak hour. This is due to the traffic generated by the long-term development areas adopted from the MTSA Study and not because of the site traffic. The 95th percentile queue lengths for some of the movements exceed the available storage

length at the intersection of Tenth Line and Main Street, Bethesda Side Road and Tenth Line and Tenth Line and Road C. It is expected that jog elimination would mitigate some of the deficiencies as they are associated with the jogged traffic movements along the Tenth Line.

To support the traffic operations under 2035 horizon years, TYLin recommends the following improvements:

- ▶ A dedicated eastbound right turn lane at Tenth Line and Bethesda Side Road.
- ▶ A dedicated northbound left turn lane at Tenth Line and Bethesda Side Road converting the movement into a dual left-turn movement.
- ▶ A dedicated southbound left turn lane is recommended at the intersection of Tenth Line and GO Primary Access/Road B to improve traffic operations at this intersection.

These forecasts are long-term and generally demonstrate that long-term development scenario can be supported. A well-connected collector road network is recommended to mitigate the traffic congestion along Tenth Line and Bethesda Side Road.

Cross Sections

Widening of Tenth Line to four lanes (two through-lanes per direction) is not required to accommodate future total traffic volumes. Currently, the Tenth Line cross section is one through-lane per direction within the study area but increases to two lanes per direction beginning north of Forsyth Farm Drive and extending southerly to Main Street. Although four lanes on Tenth Line are not required based on this analysis, the Town should monitor traffic operations and conduct further study to confirm the ultimate needs for Tenth Line south of the development lands to Main Street.

For Tenth Line, the 31.0 m cross section allows for wider boulevards and cycle tracks, and to ultimately protect for a roadway widening to a 4 to 5 lane cross section. The Town may, at its discretion, provide the 4 to 5 lane cross section initially or protect for future widening but the findings of this study do not indicate a need for this. Further study is required to justify the need for a 4 to 5 lane cross section.

As previously identified in the MTSA Study, Bethesda Side Road is to be designed with 27.0 m right-of-way which would accommodate a two-lane cross section. It would also provide a 2.0 m sidewalk on the north edge of the road and a 4.0 m multi-use path on the south edge of the road to accommodate the active transportation facilities.

The collector roads within the study area are based on the Lincolnville Urban Design Guidelines (2023) for collector road right-of-way 23.0 m, and scaled down for the proposed collector road right-of-way width of 20 m. Road A includes two 3.5 m through lanes, a 2.4 m lay-by/parking lane on the east side, a 2.0 m sidewalk on the east side, and a 3.0 m multi-use path on the west side, with remaining space for street furniture, landscaping, and street trees.

Road C includes two 3.5 m through lanes, a 2.4 m lay-by/parking lane on the north side, a 2.0 m

sidewalk on the north side, and a 3.0m multi-use path on the south side, with remaining space for street furniture, landscaping, and street trees.

Based on the review of the transportation road network within the proposed development, the queues extending from the study area intersections are not expected to exceed the intersection spacing proposed from the current block plans. Additionally, review confirms the adequacy of the road geometry / intersection spacing and provides ways in which road bend risk can be mitigated.

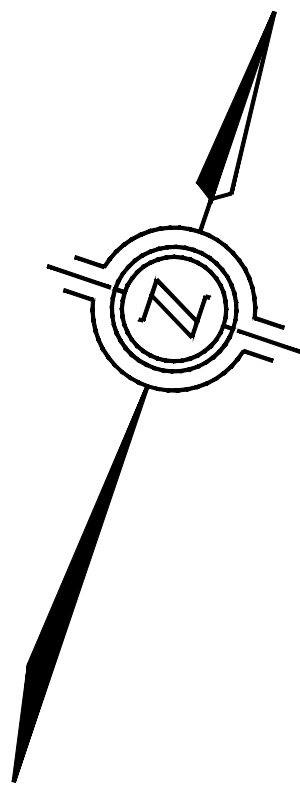
The overall recommendations are summarized in **Table 11-1**.

Table 11-1 Recommendation Summary

Year	Scenario	Recommendation
2030/2035	Future Background/ Future Total	Signalization of Tenth Line and Bethesda Side Road
2030/2035	Future Background/ Future Total	Signalization of Tenth Line and Road C
2035	Future Background/ Future Total	Recommended to provide exclusive southbound left turn lane at Tenth Line and Road B/ GO Primary Access
2035	Future Background/ Future Total	Recommended to provide exclusive eastbound right turn lane at Tenth Line and Bethesda Side Road
2035	Future Background/ Future Total	Recommended to provide exclusive northbound left turn lane at Tenth Line and Bethesda Side Road converting into a dual northbound left turn lane

APPENDIX A

Site Plan and Preliminary Unit Count Information



Key Plan Subject Property

ACORN SOUTH - Conceptual Demonstration Plan

ESTIMATED UNIT COUNT	18360 - 134cp	March 23, 2026
4.5m On-Street Towns	8%	12
4.5m Rear Lane Towns	21%	33
6.4m Back-to-Back Towns	48%	76
5.6m Stacked Towns	23%	36
Total	100%	157 units

- Back-to-Back Townhouses
- Rear Lane Townhouses
- On-Street Townhouses
- Stacked Townhouses
- School
- Environmental Lands
- Open Space
- Stormwater Management Pond
- Future Development
- PMTSA Boundary
(2.19 ha within PMTSA Boundary)

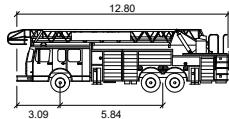
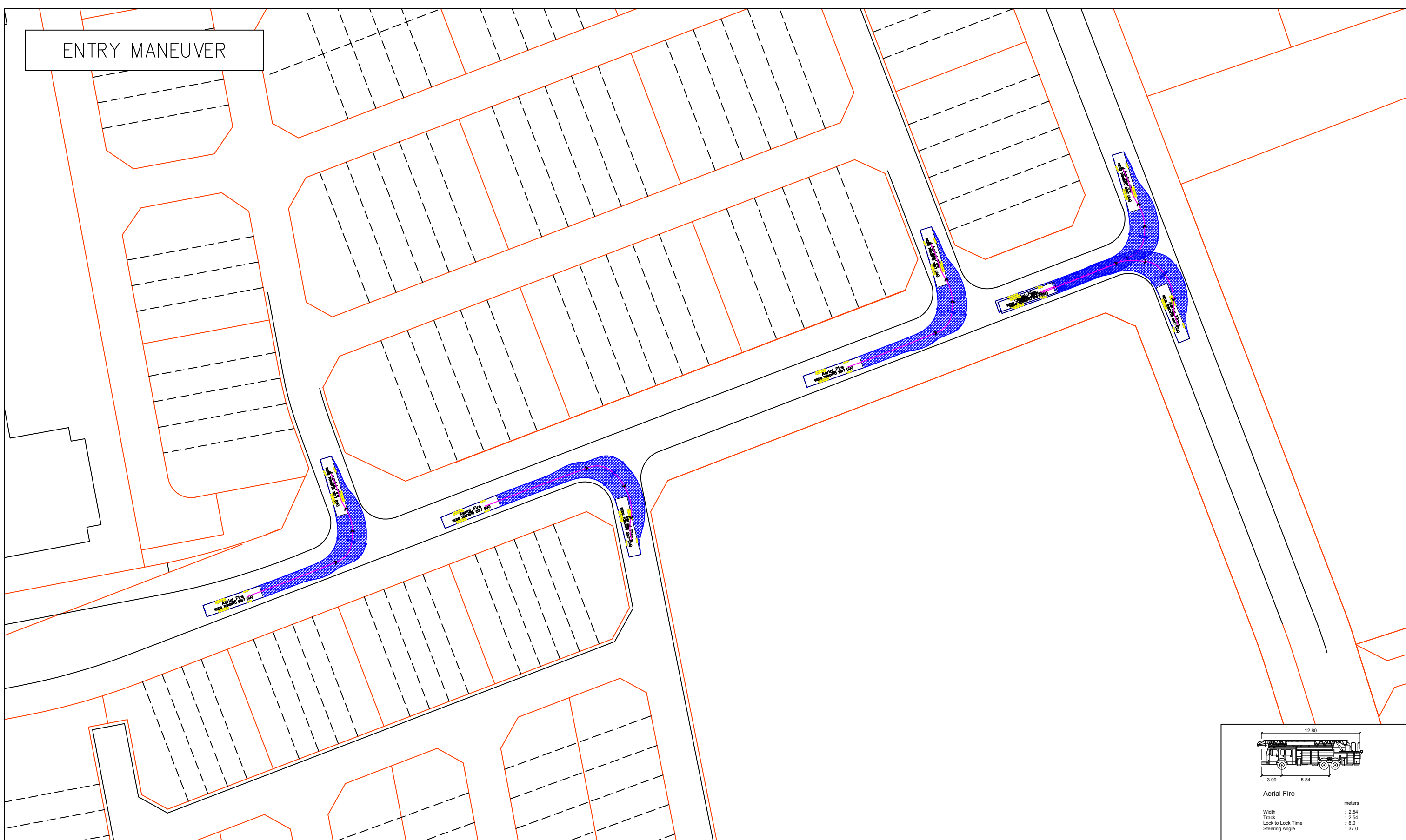


3 Church Street, Suite 200, Toronto, Ontario M5E 1M2
P (416) 947-9744 | F (416) 947-0781 | E bousfields@bousfields.ca

APPENDIX B

Site Circulation

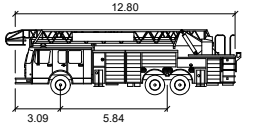
ENTRY MANEUVER



Aerial Fire

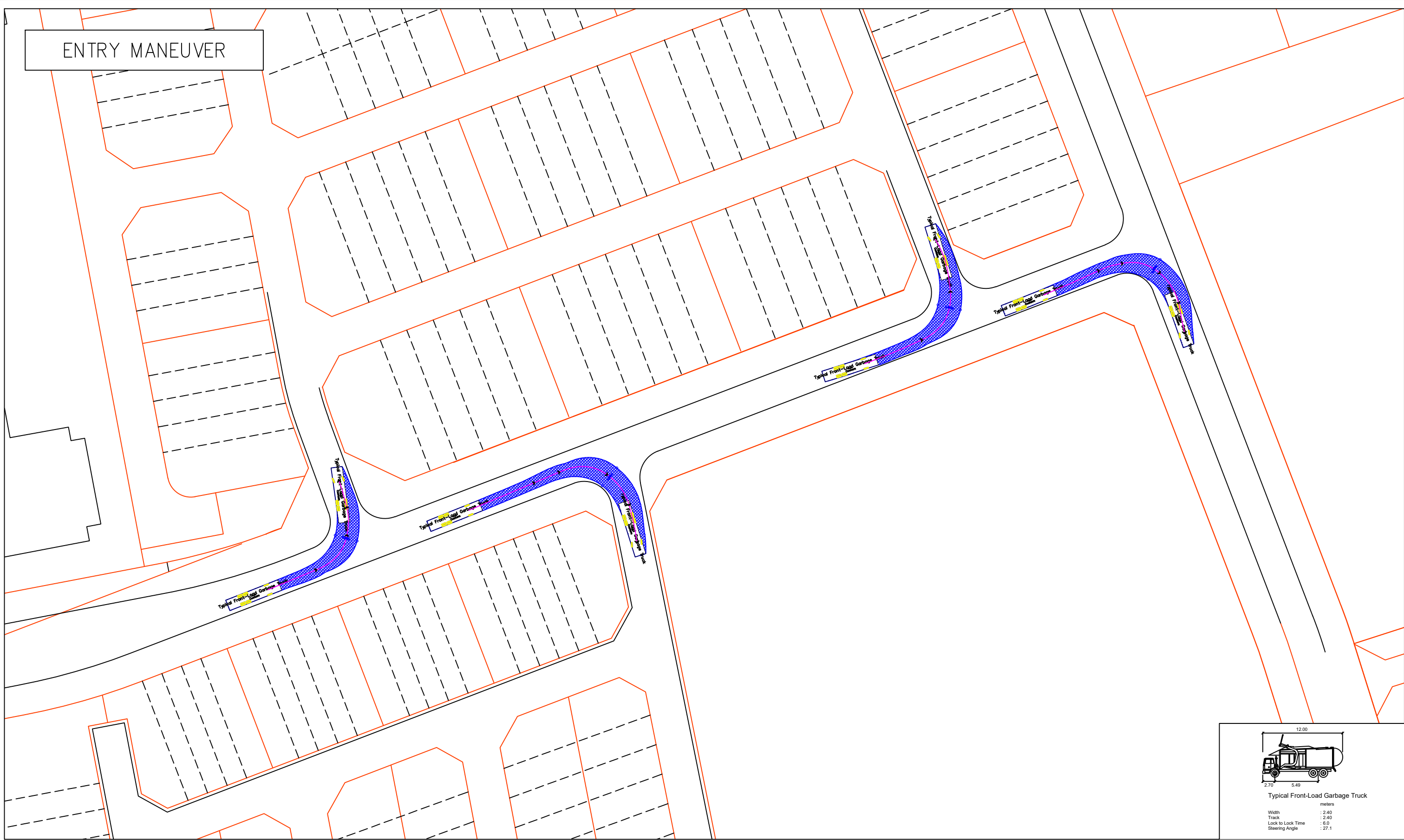
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Track	: 2.54
Lock to Lock Time	: 6.0
Steering Angle	: 37.0

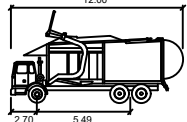




Aerial Fire	
	meters
Width	: 2.54
Track	: 2.54
Lock to Lock Time	: 6.0
Steering Angle	: 37.0

ENTRY MANEUVER





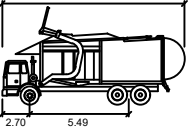
Typical Front-Load Garbage Truck

meters

Width	: 2.40
Track	: 2.40
Lock to Lock Time	: 6.0
Steering Angle	: 27.1

EXIT MANEUVER





Typical Front-Load Garbage Truck

Width	: 2.40
Track	: 2.40
Lock to Lock Time	: 6.0
Steering Angle	: 27.1

APPENDIX C

Turning Movement Counts and Signal Timing Plans

Morning Peak Diagram		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 8:00:00 To: 9:00:00
Municipality: Whitchurch-Stouffville Site #: 2324300001 Intersection: Tenth Line & Bethesda Side Rd TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: Tenth Line runs N/S	

North Leg Total: 401 North Entering: 228 North Peds: 0 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>2</td><td>1</td><td>3</td></tr> <tr><td>Trucks</td><td>0</td><td>3</td><td>0</td><td>3</td></tr> <tr><td>Cars</td><td>41</td><td>172</td><td>9</td><td>222</td></tr> <tr><td>Totals</td><td>41</td><td>177</td><td>10</td><td></td></tr> </table>	Heavys	0	2	1	3	Trucks	0	3	0	3	Cars	41	172	9	222	Totals	41	177	10		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>4</td></tr> <tr><td>Trucks</td><td>4</td></tr> <tr><td>Cars</td><td>165</td></tr> <tr><td>Totals</td><td>173</td></tr> </table>	Heavys	4	Trucks	4	Cars	165	Totals	173	East Leg Total: 91 East Entering: 47 East Peds: 0 Peds Cross:
Heavys	0	2	1	3																											
Trucks	0	3	0	3																											
Cars	41	172	9	222																											
Totals	41	177	10																												
Heavys	4																														
Trucks	4																														
Cars	165																														
Totals	173																														

Heavys	Trucks	Cars	Totals
1	2	76	79

Tenth Line

Bethesda Side Rd

Cars	Trucks	Heavys	Totals
12	2	2	16
22	2	1	25
6	0	0	6
40	4	3	

Heavys	Trucks	Cars	Totals
0	1	17	18
0	3	28	31
2	1	9	12
2	5	54	

Tenth Line

Bethesda Side Rd

Cars	Trucks	Heavys	Totals
40	3	1	44

Peds Cross: West Peds: 0 West Entering: 61 West Leg Total: 140	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>187</td></tr> <tr><td>Trucks</td><td>4</td></tr> <tr><td>Heavys</td><td>4</td></tr> <tr><td>Totals</td><td>195</td></tr> </table>	Cars	187	Trucks	4	Heavys	4	Totals	195	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>13</td><td>136</td><td>3</td><td>152</td></tr> <tr><td>Trucks</td><td>0</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Heavys</td><td>0</td><td>2</td><td>0</td><td>2</td></tr> <tr><td>Totals</td><td>13</td><td>139</td><td>3</td><td></td></tr> </table>	Cars	13	136	3	152	Trucks	0	1	0	1	Heavys	0	2	0	2	Totals	13	139	3		Peds Cross: South Peds: 0 South Entering: 155 South Leg Total: 350
Cars	187																														
Trucks	4																														
Heavys	4																														
Totals	195																														
Cars	13	136	3	152																											
Trucks	0	1	0	1																											
Heavys	0	2	0	2																											
Totals	13	139	3																												

Comments

Afternoon Peak Diagram		Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 16:45:00 To: 17:45:00
Municipality: Whitchurch-Stouffville Site #: 2324300001 Intersection: Tenth Line & Bethesda Side Rd TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: Tenth Line runs N/S	

North Leg Total: 460 North Entering: 233 North Peds: 1 Peds Cross:	<table style="margin: auto;"> <tr><td>Heavys</td><td>0</td><td>3</td><td>1</td><td>4</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>28</td><td>185</td><td>16</td><td>229</td></tr> <tr><td>Totals</td><td>28</td><td>188</td><td>17</td><td></td></tr> </table>	Heavys	0	3	1	4	Trucks	0	0	0	0	Cars	28	185	16	229	Totals	28	188	17		<table style="margin: auto;"> <tr><td>Heavys</td><td>2</td></tr> <tr><td>Trucks</td><td>1</td></tr> <tr><td>Cars</td><td>224</td></tr> <tr><td>Totals</td><td>227</td></tr> </table>	Heavys	2	Trucks	1	Cars	224	Totals	227	East Leg Total: 107 East Entering: 45 East Peds: 0 Peds Cross:
Heavys	0	3	1	4																											
Trucks	0	0	0	0																											
Cars	28	185	16	229																											
Totals	28	188	17																												
Heavys	2																														
Trucks	1																														
Cars	224																														
Totals	227																														

Heavys	Trucks	Cars	Totals
1	0	59	60

Tenth Line
 Bethesda Side Rd

Cars	Trucks	Heavys	Totals
23	0	0	23
16	0	1	17
5	0	0	5
44	0	1	

Heavys	Trucks	Cars	Totals
0	0	47	47
1	1	36	38
0	0	27	27
1	1	110	

Tenth Line
 Bethesda Side Rd

Cars	Trucks	Heavys	Totals
59	1	2	62

Peds Cross: West Peds: 1 West Entering: 112 West Leg Total: 172	<table style="margin: auto;"> <tr><td>Cars</td><td>217</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Heavys</td><td>3</td></tr> <tr><td>Totals</td><td>220</td></tr> </table>	Cars	217	Trucks	0	Heavys	3	Totals	220	<table style="margin: auto;"> <tr><td>Cars</td><td>15</td><td>154</td><td>7</td><td>176</td></tr> <tr><td>Trucks</td><td>0</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Heavys</td><td>0</td><td>2</td><td>0</td><td>2</td></tr> <tr><td>Totals</td><td>15</td><td>157</td><td>7</td><td></td></tr> </table>	Cars	15	154	7	176	Trucks	0	1	0	1	Heavys	0	2	0	2	Totals	15	157	7		Peds Cross: South Peds: 0 South Entering: 179 South Leg Total: 399
Cars	217																														
Trucks	0																														
Heavys	3																														
Totals	220																														
Cars	15	154	7	176																											
Trucks	0	1	0	1																											
Heavys	0	2	0	2																											
Totals	15	157	7																												

Comments

Total Count Diagram

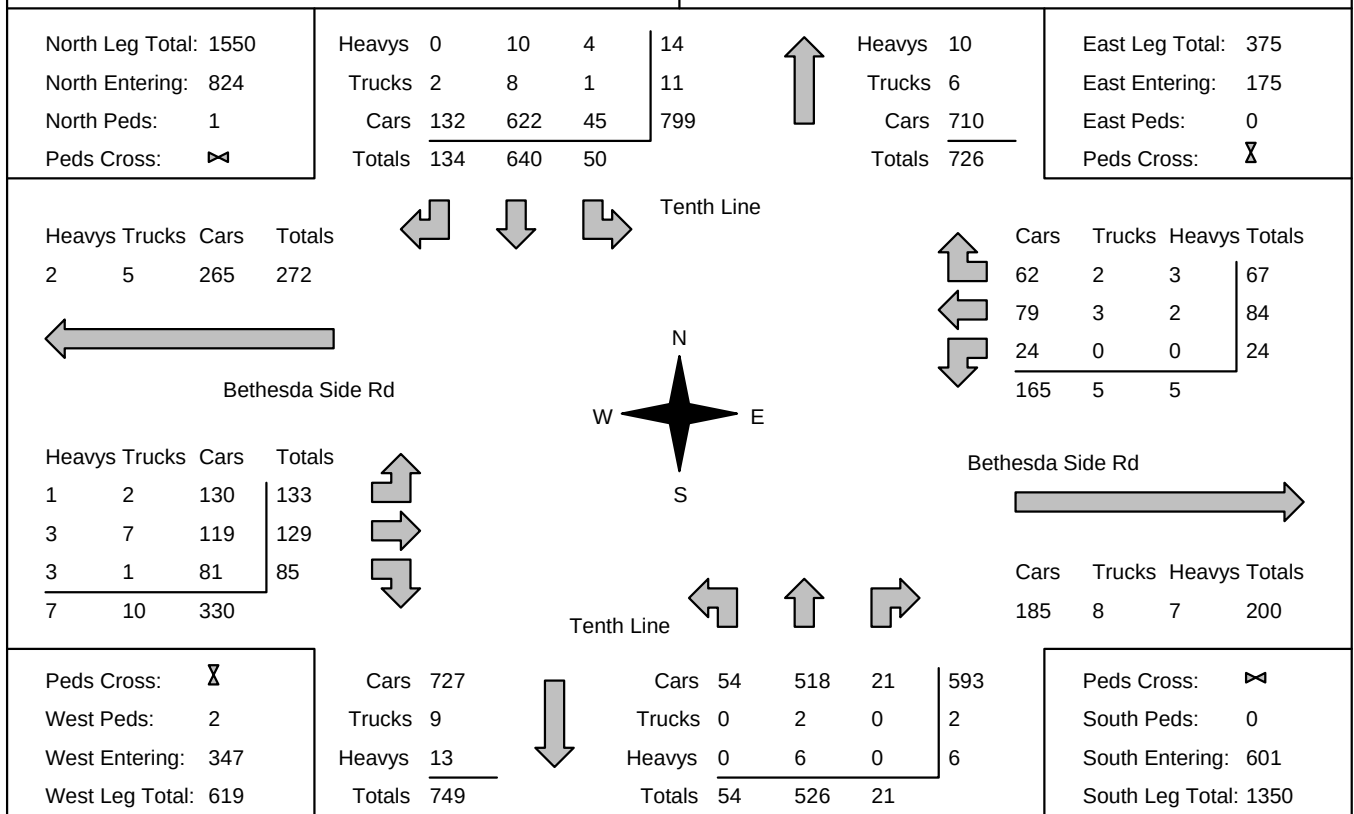
Municipality: Whitchurch-Stouffville
Site #: 2324300001
Intersection: Tenth Line & Bethesda Side Rd
TFR File #: 1
Count date: 1-Nov-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Tenth Line runs N/S



Comments

Traffic Count Summary

Intersection: Tenth Line & Bethesda Side Rd

Count Date: 1-Nov-23

Municipality: Whitchurch-Stouffville

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	8	126	37	171	0	279	8:00:00	12	93	3	108	0
9:00:00	10	177	41	228	0	383	9:00:00	13	139	3	155	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	21	172	33	226	0	387	17:00:00	17	137	7	161	0
18:00:00	11	165	23	199	1	376	18:00:00	12	157	8	177	0

Morning Peak Diagram		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 8:00:00 To: 9:00:00
Municipality: Whitchurch-Stouffville Site #: 2324300002 Intersection: York Durham Line & Bethesda Side TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: York Durham Line runs N/S	

North Leg Total: 471 North Entering: 314 North Peds: 0 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>13</td><td style="border-left: 1px solid black; padding-left: 5px;">13</td></tr> <tr><td>Trucks</td><td>0</td><td>4</td><td style="border-left: 1px solid black; padding-left: 5px;">4</td></tr> <tr><td>Cars</td><td>2</td><td>295</td><td style="border-left: 1px solid black; padding-left: 5px;">297</td></tr> <tr><td>Totals</td><td>2</td><td>312</td><td style="border-left: 1px solid black;"></td></tr> </table>	Heavys	0	13	13	Trucks	0	4	4	Cars	2	295	297	Totals	2	312			<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>10</td></tr> <tr><td>Trucks</td><td>5</td></tr> <tr><td>Cars</td><td>142</td></tr> <tr><td>Totals</td><td>157</td></tr> </table>	Heavys	10	Trucks	5	Cars	142	Totals	157
Heavys	0	13	13																								
Trucks	0	4	4																								
Cars	2	295	297																								
Totals	2	312																									
Heavys	10																										
Trucks	5																										
Cars	142																										
Totals	157																										

York Durham Line

Bethesda Side Rd

<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td style="border-left: 1px solid black; padding-left: 5px;">Totals</td></tr> <tr><td>0</td><td>0</td><td>2</td><td style="border-left: 1px solid black; padding-left: 5px;">2</td></tr> <tr><td>0</td><td>3</td><td>31</td><td style="border-left: 1px solid black; padding-left: 5px;">34</td></tr> <tr><td>0</td><td>3</td><td>33</td><td style="border-left: 1px solid black;"></td></tr> </table>	Heavys	Trucks	Cars	Totals	0	0	2	2	0	3	31	34	0	3	33		 	York Durham Line 	
Heavys	Trucks	Cars	Totals																
0	0	2	2																
0	3	31	34																
0	3	33																	

Peds Cross: West Peds: 0 West Entering: 36 West Leg Total: 80	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>326</td></tr> <tr><td>Trucks</td><td>7</td></tr> <tr><td>Heavys</td><td>13</td></tr> <tr><td>Totals</td><td>346</td></tr> </table>	Cars	326	Trucks	7	Heavys	13	Totals	346		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>37</td><td>140</td><td style="border-left: 1px solid black; padding-left: 5px;">177</td></tr> <tr><td>Trucks</td><td>4</td><td>5</td><td style="border-left: 1px solid black; padding-left: 5px;">9</td></tr> <tr><td>Heavys</td><td>1</td><td>10</td><td style="border-left: 1px solid black; padding-left: 5px;">11</td></tr> <tr><td>Totals</td><td>42</td><td>155</td><td style="border-left: 1px solid black;"></td></tr> </table>	Cars	37	140	177	Trucks	4	5	9	Heavys	1	10	11	Totals	42	155		Peds Cross: South Peds: 0 South Entering: 197 South Leg Total: 543
Cars	326																											
Trucks	7																											
Heavys	13																											
Totals	346																											
Cars	37	140	177																									
Trucks	4	5	9																									
Heavys	1	10	11																									
Totals	42	155																										

Comments

Afternoon Peak Diagram		Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 16:45:00 To: 17:45:00
Municipality: Whitchurch-Stouffville Site #: 2324300002 Intersection: York Durham Line & Bethesda Side TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: York Durham Line runs N/S	

North Leg Total: 487 North Entering: 237 North Peds: 0 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>4</td><td>4</td></tr> <tr><td>Trucks</td><td>0</td><td>6</td><td>6</td></tr> <tr><td>Cars</td><td>1</td><td>226</td><td>227</td></tr> <tr><td>Totals</td><td>1</td><td>236</td><td></td></tr> </table>	Heavys	0	4	4	Trucks	0	6	6	Cars	1	226	227	Totals	1	236			<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>7</td></tr> <tr><td>Trucks</td><td>3</td></tr> <tr><td>Cars</td><td>240</td></tr> <tr><td>Totals</td><td>250</td></tr> </table>	Heavys	7	Trucks	3	Cars	240	Totals	250
Heavys	0	4	4																								
Trucks	0	6	6																								
Cars	1	226	227																								
Totals	1	236																									
Heavys	7																										
Trucks	3																										
Cars	240																										
Totals	250																										

York Durham Line

<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>1</td><td>0</td><td>38</td><td>39</td></tr> </table>	Heavys	Trucks	Cars	Totals	1	0	38	39		Bethesda Side Rd
Heavys	Trucks	Cars	Totals							
1	0	38	39							

<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>0</td><td>0</td><td>4</td><td>4</td></tr> <tr><td>0</td><td>1</td><td>54</td><td>55</td></tr> <tr><td>0</td><td>1</td><td>58</td><td></td></tr> </table>	Heavys	Trucks	Cars	Totals	0	0	4	4	0	1	54	55	0	1	58		 	York Durham Line
Heavys	Trucks	Cars	Totals															
0	0	4	4															
0	1	54	55															
0	1	58																

Peds Cross: West Peds: 0 West Entering: 59 West Leg Total: 98	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>280</td></tr> <tr><td>Trucks</td><td>7</td></tr> <tr><td>Heavys</td><td>4</td></tr> <tr><td>Totals</td><td>291</td></tr> </table>	Cars	280	Trucks	7	Heavys	4	Totals	291		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>37</td><td>236</td><td>273</td></tr> <tr><td>Trucks</td><td>0</td><td>3</td><td>3</td></tr> <tr><td>Heavys</td><td>1</td><td>7</td><td>8</td></tr> <tr><td>Totals</td><td>38</td><td>246</td><td></td></tr> </table>	Cars	37	236	273	Trucks	0	3	3	Heavys	1	7	8	Totals	38	246		Peds Cross: South Peds: 0 South Entering: 284 South Leg Total: 575
Cars	280																											
Trucks	7																											
Heavys	4																											
Totals	291																											
Cars	37	236	273																									
Trucks	0	3	3																									
Heavys	1	7	8																									
Totals	38	246																										

Comments

Total Count Diagram

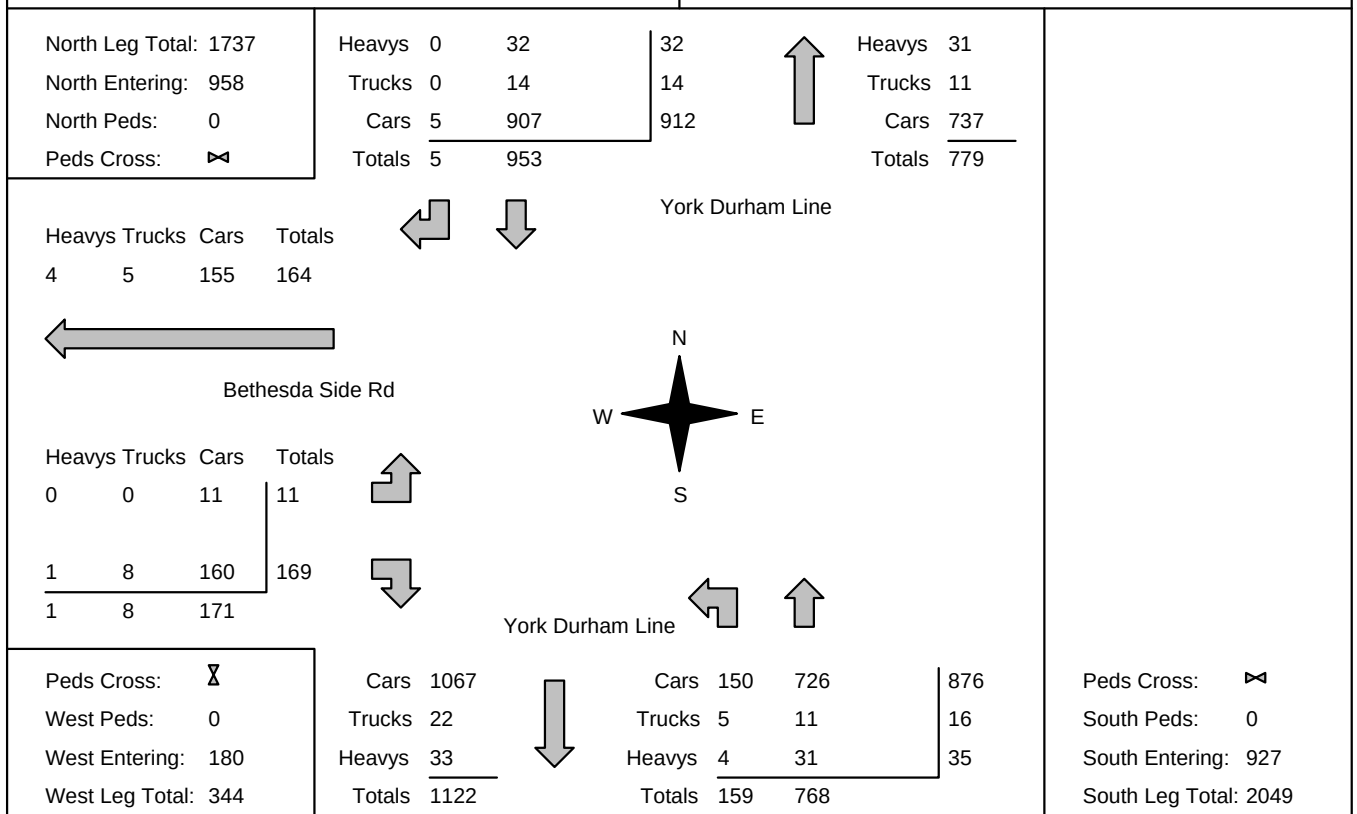
Municipality: Whitchurch-Stouffville
Site #: 2324300002
Intersection: York Durham Line & Bethesda Side
TFR File #: 1
Count date: 1-Nov-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: York Durham Line runs N/S



Comments

Traffic Count Summary

Intersection: York Durham Line & Bethesda Sid						Count Date: 1-Nov-23		Municipality: Whitchurch-Stouffville					
North Approach Totals						North/South Total Approaches	South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0	
8:00:00	0	210	0	210	0	398	8:00:00	36	152	0	188	0	
9:00:00	0	312	2	314	0	511	9:00:00	42	155	0	197	0	
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0	
17:00:00	0	205	3	208	0	482	17:00:00	35	239	0	274	0	
18:00:00	0	226	0	226	0	494	18:00:00	46	222	0	268	0	
						</							

Morning Peak Diagram		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 8:00:00 To: 9:00:00																																																																																																																								
Municipality: Whitchurch-Stouffville Site #: 2324300003 Intersection: Ninth Line & Bethesda Side Rd TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:																																																																																																																									
** Non-Signalized Intersection **		Major Road: Ninth Line runs N/S																																																																																																																									
North Leg Total: 395 North Entering: 242 North Peds: 0 Peds Cross: ☒	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; vertical-align: top;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td style="text-align: right;">2</td><td style="text-align: right;">1</td><td style="border-left: 1px solid black; text-align: right;">3</td></tr> <tr><td>Trucks</td><td style="text-align: right;">4</td><td style="text-align: right;">0</td><td style="border-left: 1px solid black; text-align: right;">4</td></tr> <tr><td>Cars</td><td style="text-align: right; border-bottom: 1px solid black;">223</td><td style="text-align: right; border-bottom: 1px solid black;">12</td><td style="border-left: 1px solid black; text-align: right; border-bottom: 1px solid black;">235</td></tr> <tr><td>Totals</td><td style="text-align: right;">229</td><td style="text-align: right;">13</td><td style="border-left: 1px solid black;"></td></tr> </table> </td> <td style="width: 10%; 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Total Count Diagram

Municipality: Whitchurch-Stouffville
Site #: 2324300003
Intersection: Ninth Line & Bethesda Side Rd
TFR File #: 1
Count date: 1-Nov-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

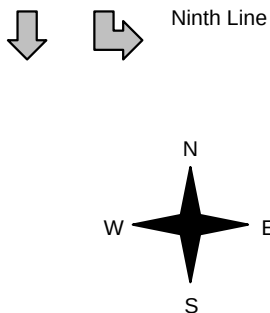
Major Road: Ninth Line runs N/S

North Leg Total: 1563
 North Entering: 828
 North Peds: 0
 Peds Cross: 

Heavys	15	3	18
Trucks	23	4	27
Cars	723	60	783
Totals	761	67	

Heavys	9
Trucks	23
Cars	703
Totals	735

East Leg Total: 639
 East Entering: 281
 East Peds: 0
 Peds Cross: 



Cars	Trucks	Heavys	Totals
52	2	0	54
223	3	1	227
275	5	1	

Bethesda Side Rd



Cars	Trucks	Heavys	Totals
339	11	8	358

Cars	946
Trucks	26
Heavys	16
Totals	988

Cars	651	279	930
Trucks	21	7	28
Heavys	9	5	14
Totals	681	291	

Peds Cross: 
 South Peds: 0
 South Entering: 972
 South Leg Total: 1960

Comments

Traffic Count Summary

Intersection: Ninth Line & Bethesda Side Rd

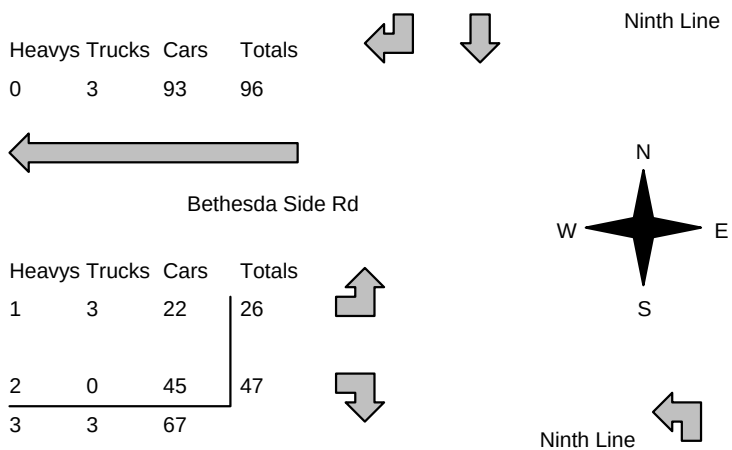
Count Date: 1-Nov-23

Municipality: Whitchurch-Stouffville

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	15	164	0	179	0	294	8:00:00	0	76	39	115	0
9:00:00	13	229	0	242	0	430	9:00:00	0	132	56	188	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	20	189	0	209	0	545	17:00:00	0	228	108	336	0
18:00:00	19	179	0	198	0	531	18:00:00	0	245	88	333	0

Morning Peak Diagram		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 8:00:00 To: 9:00:00
Municipality: Whitchurch-Stouffville Site #: 2324300004 Intersection: Ninth Line & Bethesda Side Rd TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: Ninth Line runs N/S	

North Leg Total: 487 North Entering: 300 North Peds: 0 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>2</td><td>2</td></tr> <tr><td>Trucks</td><td>2</td><td>4</td><td>6</td></tr> <tr><td>Cars</td><td>36</td><td>256</td><td>292</td></tr> <tr><td>Totals</td><td>38</td><td>262</td><td></td></tr> </table>	Heavys	0	2	2	Trucks	2	4	6	Cars	36	256	292	Totals	38	262			<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>5</td></tr> <tr><td>Trucks</td><td>7</td></tr> <tr><td>Cars</td><td>175</td></tr> <tr><td>Totals</td><td>187</td></tr> </table>	Heavys	5	Trucks	7	Cars	175	Totals	187
Heavys	0	2	2																								
Trucks	2	4	6																								
Cars	36	256	292																								
Totals	38	262																									
Heavys	5																										
Trucks	7																										
Cars	175																										
Totals	187																										



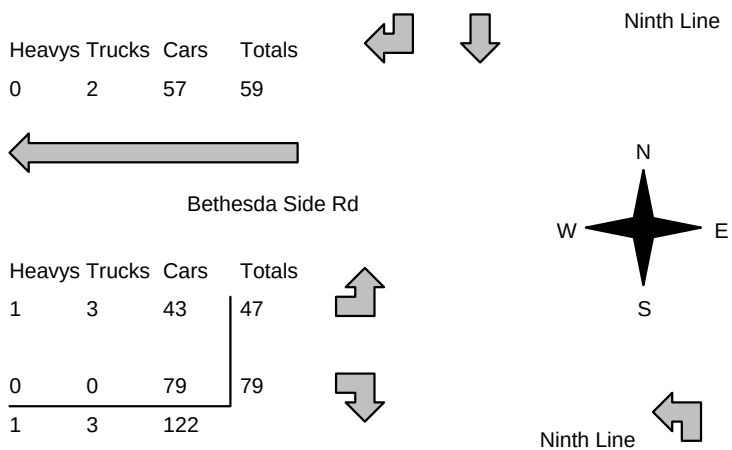
<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>0</td><td>3</td><td>93</td><td>96</td></tr> </table>	Heavys	Trucks	Cars	Totals	0	3	93	96	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>1</td><td>3</td><td>22</td><td>26</td></tr> <tr><td>2</td><td>0</td><td>45</td><td>47</td></tr> <tr><td>3</td><td>3</td><td>67</td><td></td></tr> </table>	Heavys	Trucks	Cars	Totals	1	3	22	26	2	0	45	47	3	3	67		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>301</td></tr> <tr><td>Trucks</td><td>4</td></tr> <tr><td>Heavys</td><td>4</td></tr> <tr><td>Totals</td><td>309</td></tr> </table>	Cars	301	Trucks	4	Heavys	4	Totals	309	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>57</td><td>153</td><td>210</td></tr> <tr><td>Trucks</td><td>1</td><td>4</td><td>5</td></tr> <tr><td>Heavys</td><td>0</td><td>4</td><td>4</td></tr> <tr><td>Totals</td><td>58</td><td>161</td><td></td></tr> </table>	Cars	57	153	210	Trucks	1	4	5	Heavys	0	4	4	Totals	58	161	
Heavys	Trucks	Cars	Totals																																																
0	3	93	96																																																
Heavys	Trucks	Cars	Totals																																																
1	3	22	26																																																
2	0	45	47																																																
3	3	67																																																	
Cars	301																																																		
Trucks	4																																																		
Heavys	4																																																		
Totals	309																																																		
Cars	57	153	210																																																
Trucks	1	4	5																																																
Heavys	0	4	4																																																
Totals	58	161																																																	

Peds Cross: West Peds: 0 West Entering: 73 West Leg Total: 169	Peds Cross: South Peds: 0 South Entering: 219 South Leg Total: 528
---	---

Comments

Afternoon Peak Diagram		Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 16:45:00 To: 17:45:00
Municipality: Whitchurch-Stouffville Site #: 2324300004 Intersection: Ninth Line & Bethesda Side Rd TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: Ninth Line runs N/S	

North Leg Total: 577 North Entering: 234 North Peds: 0 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Heavys</td> <td style="width: 10%;">0</td> <td style="width: 10%;">1</td> <td style="width: 10%; border-left: 1px solid black;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>Trucks</td> <td>0</td> <td>2</td> <td style="border-left: 1px solid black;"></td> <td></td> <td></td> </tr> <tr> <td>Cars</td> <td>19</td> <td>212</td> <td style="border-left: 1px solid black;"></td> <td></td> <td></td> </tr> <tr> <td>Totals</td> <td>19</td> <td>215</td> <td style="border-left: 1px solid black;"></td> <td></td> <td></td> </tr> </table>	Heavys	0	1				Trucks	0	2				Cars	19	212				Totals	19	215					<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Heavys</td> <td style="width: 10%;">2</td> <td style="width: 10%;"></td> <td style="width: 10%; border-left: 1px solid black;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>Trucks</td> <td>9</td> <td></td> <td style="border-left: 1px solid black;"></td> <td></td> <td></td> </tr> <tr> <td>Cars</td> <td>332</td> <td></td> <td style="border-left: 1px solid black;"></td> <td></td> <td></td> </tr> <tr> <td>Totals</td> <td>343</td> <td></td> <td style="border-left: 1px solid black;"></td> <td></td> <td></td> </tr> </table>	Heavys	2					Trucks	9					Cars	332					Totals	343				
Heavys	0	1																																																	
Trucks	0	2																																																	
Cars	19	212																																																	
Totals	19	215																																																	
Heavys	2																																																		
Trucks	9																																																		
Cars	332																																																		
Totals	343																																																		



Ninth Line

Bethesda Side Rd

Ninth Line

<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Heavys</td> <td style="width: 10%;">Trucks</td> <td style="width: 10%;">Cars</td> <td style="width: 10%; border-left: 1px solid black;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>0</td> <td>2</td> <td>57</td> <td style="border-left: 1px solid black;"></td> <td></td> </tr> <tr> <td colspan="4"></td> <td></td> </tr> <tr> <td colspan="4"></td> <td></td> </tr> </table>	Heavys	Trucks	Cars			0	2	57													<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Heavys</td> <td style="width: 10%;">Trucks</td> <td style="width: 10%;">Cars</td> <td style="width: 10%; border-left: 1px solid black;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>1</td> <td>3</td> <td>43</td> <td style="border-left: 1px solid black;"></td> <td></td> </tr> <tr> <td colspan="4"></td> <td></td> </tr> <tr> <td colspan="4"></td> <td></td> </tr> </table>	Heavys	Trucks	Cars			1	3	43														<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Heavys</td> <td style="width: 10%;">Trucks</td> <td style="width: 10%;">Cars</td> <td style="width: 10%; border-left: 1px solid black;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>0</td> <td>0</td> <td>79</td> <td style="border-left: 1px solid black;"></td> <td></td> </tr> <tr> <td colspan="4"></td> <td></td> </tr> <tr> <td colspan="4"></td> <td></td> </tr> </table>	Heavys	Trucks	Cars			0	0	79												
Heavys	Trucks	Cars																																																													
0	2	57																																																													
Heavys	Trucks	Cars																																																													
1	3	43																																																													
Heavys	Trucks	Cars																																																													
0	0	79																																																													

Peds Cross:
West Peds: 0
West Entering: 126
West Leg Total: 185

Cars 291	Cars 38	289		
Trucks 2	Trucks 2	6		
Heavys 1	Heavys 0	1		
Totals 294	Totals 40	296		

Peds Cross:
South Peds: 0
South Entering: 336
South Leg Total: 630

Comments

Total Count Diagram

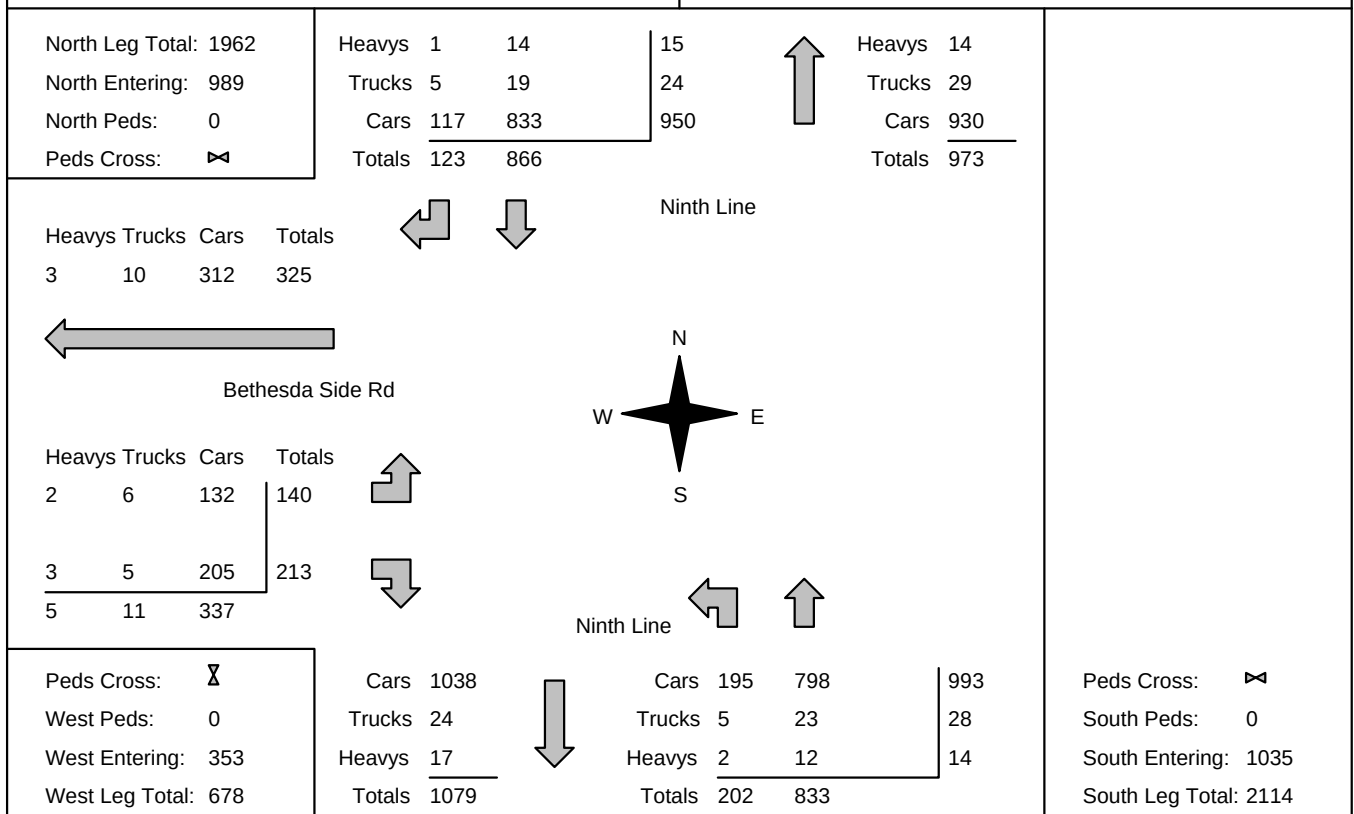
Municipality: Whitchurch-Stouffville
Site #: 2324300004
Intersection: Ninth Line & Bethesda Side Rd
TFR File #: 1
Count date: 1-Nov-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Ninth Line runs N/S



Comments

Traffic Count Summary

Intersection: Ninth Line & Bethesda Side Rd					Count Date: 1-Nov-23		Municipality: Whitchurch-Stouffville					
North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	181	38	219	0	391	8:00:00	68	104	0	172	0
9:00:00	0	262	38	300	0	519	9:00:00	58	161	0	219	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	217	29	246	0	564	17:00:00	37	281	0	318	0
18:00:00	0	206	18	224	0	550	18:00:00	39	287	0	326	0
						</						



Count Date: 1-Nov-23 Site #: 2324300004

[illegible]

[illegible]

Morning Peak Diagram		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 8:00:00 To: 9:00:00
Municipality: Whitchurch-Stouffville Site #: 2324300005 Intersection: Main St & Tenth Line TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Signalized Intersection **		Major Road: Main St runs W/E	

North Leg Total: 8 North Entering: 3 North Peds: 5 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px;">Heavys</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Trucks</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Cars</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">3</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Totals</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;"></td> </tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	2	0	1	3	Totals	2	0	1		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px;">Heavys</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Trucks</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Cars</td> <td style="padding: 2px;">5</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Totals</td> <td style="padding: 2px;">5</td> </tr> </table>	Heavys	0	Trucks	0	Cars	5	Totals	5	East Leg Total: 672 East Entering: 390 East Peds: 0 Peds Cross:
Heavys	0	0	0	0																											
Trucks	0	0	0	0																											
Cars	2	0	1	3																											
Totals	2	0	1																												
Heavys	0																														
Trucks	0																														
Cars	5																														
Totals	5																														

Heavys	Trucks	Cars	Totals
1	1	364	366

Driveway

Cars	Trucks	Heavys	Totals
2	0	0	2
240	1	0	241
144	0	3	147
386	1	3	

Main St

Main St

Heavys	Trucks	Cars	Totals
0	0	2	2
0	0	159	159
0	1	116	117
0	1	277	

Tenth Line

Cars	Trucks	Heavys	Totals
279	2	1	282

Peds Cross: West Peds: 3 West Entering: 278 West Leg Total: 644	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px;">Cars</td> <td style="padding: 2px;">260</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Trucks</td> <td style="padding: 2px;">1</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Heavys</td> <td style="padding: 2px;">3</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Totals</td> <td style="padding: 2px;">264</td> </tr> </table>	Cars	260	Trucks	1	Heavys	3	Totals	264	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px;">Cars</td> <td style="padding: 2px;">122</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">119</td> <td style="padding: 2px;">242</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Trucks</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">2</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Heavys</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">2</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Totals</td> <td style="padding: 2px;">123</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">122</td> <td style="padding: 2px;"></td> </tr> </table>	Cars	122	1	119	242	Trucks	0	0	2	2	Heavys	1	0	1	2	Totals	123	1	122		Peds Cross: South Peds: 14 South Entering: 246 South Leg Total: 510
Cars	260																														
Trucks	1																														
Heavys	3																														
Totals	264																														
Cars	122	1	119	242																											
Trucks	0	0	2	2																											
Heavys	1	0	1	2																											
Totals	123	1	122																												

Comments

Afternoon Peak Diagram		Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 17:00:00 To: 18:00:00
Municipality: Whitchurch-Stouffville Site #: 2324300005 Intersection: Main St & Tenth Line TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Signalized Intersection **		Major Road: Main St runs W/E	

North Leg Total: 6 North Entering: 3 North Peds: 13 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>2</td><td>0</td><td>1</td><td>3</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>2</td><td>0</td><td>1</td><td></td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	2	0	1	3	Totals	2	0	1			<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>3</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>3</td></tr> </table>	Heavys	0	Trucks	0	Cars	3	Totals	3	East Leg Total: 809 East Entering: 411 East Peds: 0 Peds Cross:
Heavys	0	0	0	0																												
Trucks	0	0	0	0																												
Cars	2	0	1	3																												
Totals	2	0	1																													
Heavys	0																															
Trucks	0																															
Cars	3																															
Totals	3																															

Heavys	Trucks	Cars	Totals
0	3	412	415

Driveway

Cars	Trucks	Heavys	Totals
1	0	0	1
286	3	0	289
120	1	0	121
407	4	0	

Main St

 Main St

Heavys	Trucks	Cars	Totals
0	0	2	2
0	2	290	292
0	0	162	162
0	2	454	

Tenth Line

Cars	Trucks	Heavys	Totals
394	4	0	398

Main St

 Main St

Peds Cross: West Peds: 6 West Entering: 456 West Leg Total: 871	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>282</td></tr> <tr><td>Trucks</td><td>1</td></tr> <tr><td>Heavys</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>283</td></tr> </table>	Cars	282	Trucks	1	Heavys	0	Totals	283		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>124</td><td>0</td><td>103</td><td>227</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>2</td><td>2</td></tr> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>124</td><td>0</td><td>105</td><td></td></tr> </table>	Cars	124	0	103	227	Trucks	0	0	2	2	Heavys	0	0	0	0	Totals	124	0	105		Peds Cross: South Peds: 7 South Entering: 229 South Leg Total: 512
Cars	282																															
Trucks	1																															
Heavys	0																															
Totals	283																															
Cars	124	0	103	227																												
Trucks	0	0	2	2																												
Heavys	0	0	0	0																												
Totals	124	0	105																													

Comments

Total Count Diagram

Municipality: Whitchurch-Stouffville

Site #: 2324300005

Intersection: Main St & Tenth Line

TFR File #: 1

Count date: 1-Nov-23

Weather conditions:

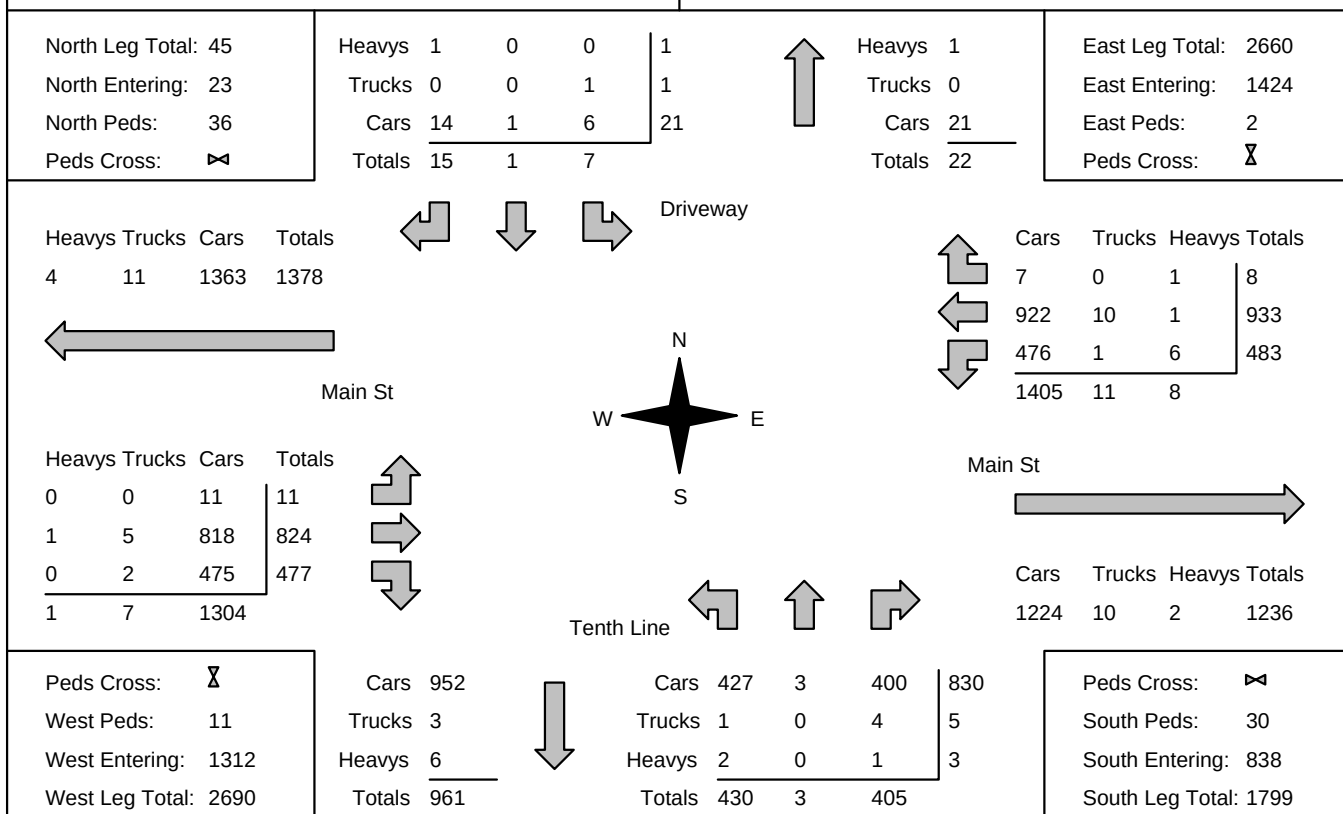
Person counted:

Person prepared:

Person checked:

**** Signalized Intersection ****

Major Road: Main St runs W/E



Comments

Traffic Count Summary

Intersection: Main St & Tenth Line					Count Date: 1-Nov-23		Municipality: Whitchurch-Stouffville					
North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	0	2	2	7	149	8:00:00	82	2	63	147	3
9:00:00	1	0	2	3	5	249	9:00:00	123	1	122	246	14
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	5	1	9	15	11	231	17:00:00	101	0	115	216	6
18:00:00	1	0	2	3	13	232	18:00:00	124	0	105	229	7
						</						

[illegible]

Morning Peak Diagram		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 8:00:00 To: 9:00:00																																																
Municipality: Whitchurch-Stouffville Site #: 2324300006 Intersection: Main St & Tenth Line TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:																																																	
** Signalized Intersection **		Major Road: Main St runs W/E																																																	
North Leg Total: 459 North Entering: 284 North Peds: 3 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">3</td> <td style="text-align: right;">0</td> <td style="text-align: right;">3</td> <td rowspan="5" style="text-align: center; vertical-align: middle;"> </td> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">2</td> </tr> <tr> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">0</td> <td style="text-align: right;">1</td> <td style="text-align: right;">1</td> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">2</td> </tr> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: right;">233</td> <td style="text-align: right;">47</td> <td style="text-align: right;">280</td> <td style="text-align: right;">Cars</td> <td style="text-align: right;">171</td> </tr> <tr> <td style="text-align: right;">Totals</td> <td style="text-align: right;">236</td> <td style="text-align: right;">48</td> <td></td> <td style="text-align: right;">Totals</td> <td style="text-align: right;">175</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Heavys	3	0	3		Heavys	2	Trucks	0	1	1	Trucks	2	Cars	233	47	280	Cars	171	Totals	236	48		Totals	175							East Leg Total: 341 East Entering: 178 East Peds: 3 Peds Cross:																		
Heavys	3	0	3		Heavys		2																																												
Trucks	0	1	1		Trucks		2																																												
Cars	233	47	280		Cars		171																																												
Totals	236	48			Totals		175																																												
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">Cars</td> <td style="text-align: right;">Totals</td> </tr> <tr> <td style="text-align: right;">3</td> <td style="text-align: right;">1</td> <td style="text-align: right;">383</td> <td style="text-align: right;">387</td> </tr> </table> Tenth Line <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: left;">Cars</td> <td style="text-align: left;">Trucks</td> <td style="text-align: left;">Heavys</td> <td style="text-align: left;">Totals</td> </tr> <tr> <td style="text-align: left;">26</td> <td style="text-align: left;">0</td> <td style="text-align: left;">1</td> <td style="text-align: left;">27</td> </tr> <tr> <td style="text-align: left;">150</td> <td style="text-align: left;">1</td> <td style="text-align: left;">0</td> <td style="text-align: left;">151</td> </tr> <tr> <td style="text-align: left;">176</td> <td style="text-align: left;">1</td> <td style="text-align: left;">1</td> <td></td> </tr> </table> N S Main St <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">Cars</td> <td style="text-align: right;">Totals</td> </tr> <tr> <td style="text-align: right;">1</td> <td style="text-align: right;">2</td> <td style="text-align: right;">145</td> <td style="text-align: right;">148</td> </tr> <tr> <td style="text-align: right;">0</td> <td style="text-align: right;">1</td> <td style="text-align: right;">114</td> <td style="text-align: right;">115</td> </tr> <tr> <td style="text-align: right;">1</td> <td style="text-align: right;">3</td> <td style="text-align: right;">259</td> <td></td> </tr> </table> Main St <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: left;">Cars</td> <td style="text-align: left;">Trucks</td> <td style="text-align: left;">Heavys</td> <td style="text-align: left;">Totals</td> </tr> <tr> <td style="text-align: left;">161</td> <td style="text-align: left;">2</td> <td style="text-align: left;">0</td> <td style="text-align: left;">163</td> </tr> </table>				Heavys	Trucks	Cars	Totals	3	1	383	387	Cars	Trucks	Heavys	Totals	26	0	1	27	150	1	0	151	176	1	1		Heavys	Trucks	Cars	Totals	1	2	145	148	0	1	114	115	1	3	259		Cars	Trucks	Heavys	Totals	161	2	0	163
Heavys	Trucks	Cars	Totals																																																
3	1	383	387																																																
Cars	Trucks	Heavys	Totals																																																
26	0	1	27																																																
150	1	0	151																																																
176	1	1																																																	
Heavys	Trucks	Cars	Totals																																																
1	2	145	148																																																
0	1	114	115																																																
1	3	259																																																	
Cars	Trucks	Heavys	Totals																																																
161	2	0	163																																																
Peds Cross: West Peds: 0 West Entering: 263 West Leg Total: 650																																																			
Comments																																																			

Afternoon Peak Diagram		Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 17:00:00 To: 18:00:00
Municipality: Whitchurch-Stouffville Site #: 2324300006 Intersection: Main St & Tenth Line TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Signalized Intersection **		Major Road: Main St runs W/E	

North Leg Total: 522

North Entering: 252

North Peds: 5

Peds Cross:

Heavys	0	1	1
Trucks	3	0	3
Cars	206	42	248
Totals	209	43	

Heavys	0
Trucks	2
Cars	268
Totals	270

East Leg Total: 537

East Entering: 286

East Peds: 1

Peds Cross:

Heavys	Trucks	Cars	Totals
0	4	403	407

Main St

Heavys	Trucks	Cars	Totals
0	1	181	182
0	2	206	208
0	3	387	

Tenth Line

W N E
 S

Cars	Trucks	Heavys	Totals
87	1	0	88
197	1	0	198
284	2	0	

Main St

Cars	Trucks	Heavys	Totals
248	2	1	251

Peds Cross:

West Peds: 2

West Entering: 390

West Leg Total: 797

Comments

Total Count Diagram

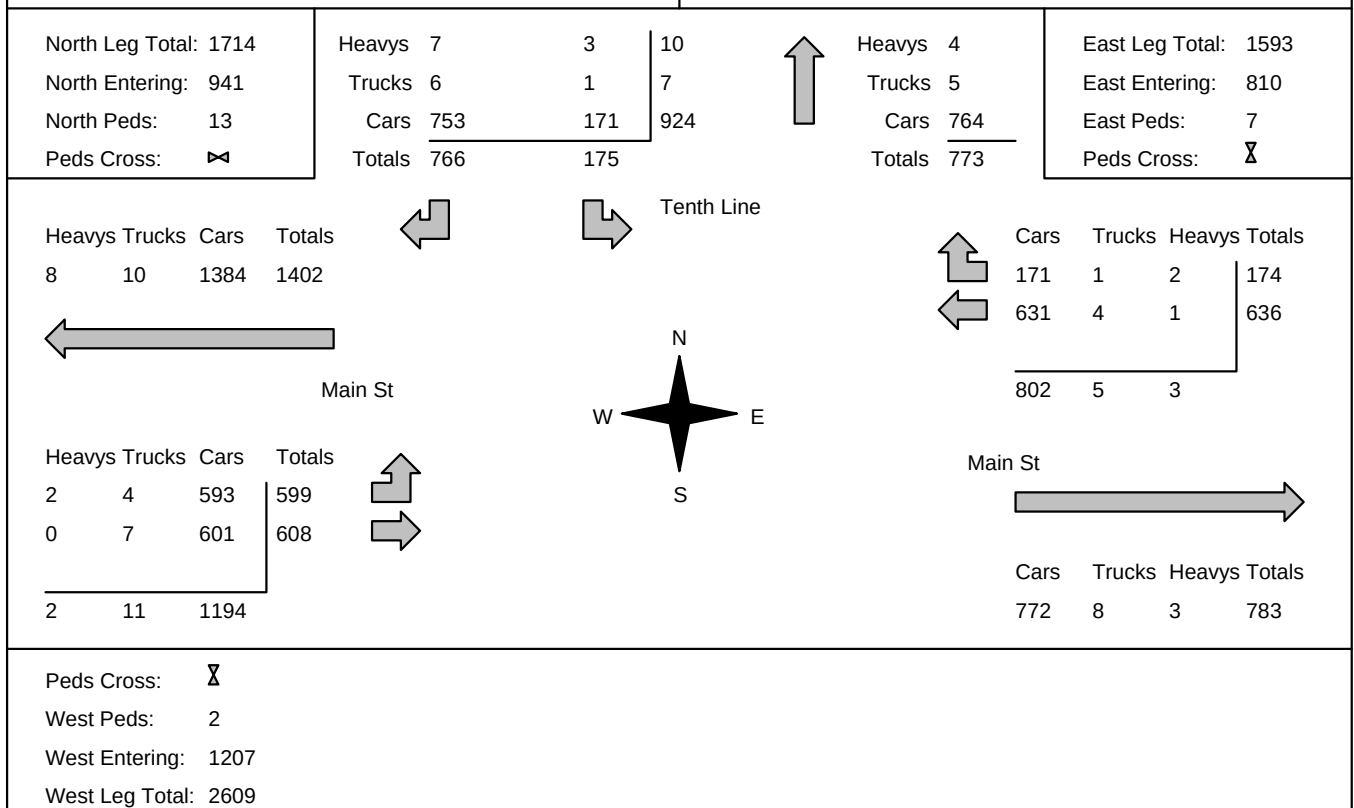
Municipality: Whitchurch-Stouffville
Site #: 2324300006
Intersection: Main St & Tenth Line
TFR File #: 1
Count date: 1-Nov-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Main St runs W/E



Comments

Traffic Count Summary

Intersection: Main St & Tenth Line					Count Date: 1-Nov-23		Municipality: Whitchurch-Stouffville					
North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	50	0	149	199	3	199	8:00:00	0	0	0	0	0
9:00:00	48	0	236	284	3	284	9:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	34	0	172	206	2	206	17:00:00	0	0	0	0	0
18:00:00	43	0	209	252	5	252	18:00:00	0	0	0	0	0

[illegible]

[illegible]

Morning Peak Diagram		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 8:00:00 To: 9:00:00
Municipality: Whitchurch-Stouffville Site #: 2324300007 Intersection: York Durham Line & Main St TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: York Durham Line runs N/S	

North Leg Total: 621 North Entering: 414 North Peds: 0 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>12</td></tr> <tr><td>Trucks</td><td>0</td><td>3</td></tr> <tr><td>Cars</td><td>22</td><td>377</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>22</td><td>392</td></tr> </table>	Heavys	0	12	Trucks	0	3	Cars	22	377	Totals	22	392	12 3 399		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>12</td></tr> <tr><td>Trucks</td><td>7</td></tr> <tr><td>Cars</td><td>188</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>207</td></tr> </table>	Heavys	12	Trucks	7	Cars	188	Totals	207	
Heavys	0	12																							
Trucks	0	3																							
Cars	22	377																							
Totals	22	392																							
Heavys	12																								
Trucks	7																								
Cars	188																								
Totals	207																								

York Durham Line

<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>2</td><td>0</td><td>129</td><td>131</td></tr> </table>	Heavys	Trucks	Cars	Totals	2	0	129	131				
Heavys	Trucks	Cars	Totals									
2	0	129	131									

Main St

<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>0</td><td>0</td><td>14</td><td>14</td></tr> <tr style="border-top: 1px solid black;"><td>1</td><td>2</td><td>131</td><td>134</td></tr> <tr><td>1</td><td>2</td><td>145</td><td></td></tr> </table>	Heavys	Trucks	Cars	Totals	0	0	14	14	1	2	131	134	1	2	145					
Heavys	Trucks	Cars	Totals																	
0	0	14	14																	
1	2	131	134																	
1	2	145																		

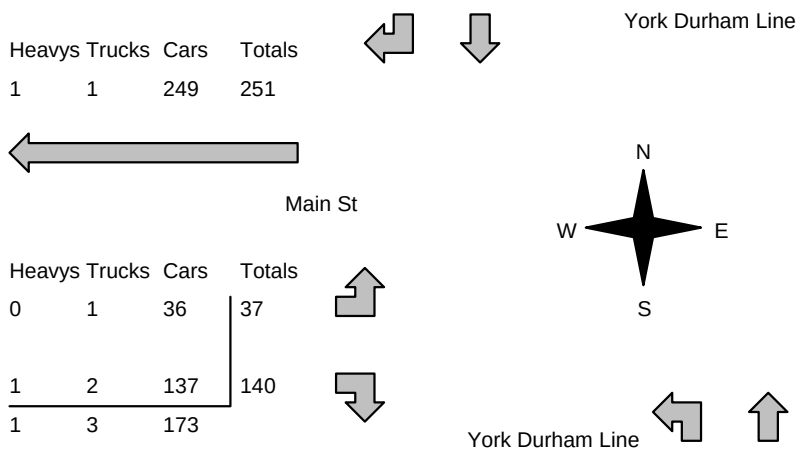
Main St

Peds Cross: West Peds: 0 West Entering: 148 West Leg Total: 279	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>508</td></tr> <tr><td>Trucks</td><td>5</td></tr> <tr><td>Heavys</td><td>13</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>526</td></tr> </table>	Cars	508	Trucks	5	Heavys	13	Totals	526			<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>107</td><td>174</td></tr> <tr><td>Trucks</td><td>0</td><td>7</td></tr> <tr><td>Heavys</td><td>2</td><td>12</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>109</td><td>193</td></tr> </table>	Cars	107	174	Trucks	0	7	Heavys	2	12	Totals	109	193	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>107</td><td>174</td></tr> <tr><td>Trucks</td><td>0</td><td>7</td></tr> <tr><td>Heavys</td><td>2</td><td>12</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>109</td><td>193</td></tr> </table>	Cars	107	174	Trucks	0	7	Heavys	2	12	Totals	109	193	Peds Cross: South Peds: 0 South Entering: 302 South Leg Total: 828
Cars	508																																					
Trucks	5																																					
Heavys	13																																					
Totals	526																																					
Cars	107	174																																				
Trucks	0	7																																				
Heavys	2	12																																				
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Cars	107	174																																				
Trucks	0	7																																				
Heavys	2	12																																				
Totals	109	193																																				

Comments

Afternoon Peak Diagram		Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 16:30:00 To: 17:30:00
Municipality: Whitchurch-Stouffville Site #: 2324300007 Intersection: York Durham Line & Main St TFR File #: 1 Count date: 1-Nov-23		Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: York Durham Line runs N/S	

North Leg Total: 663 North Entering: 301 North Peds: 0 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Heavys 1 8 Trucks 1 5 Cars 20 266 Totals 22 279 </td> <td style="width: 10%; text-align: center; vertical-align: middle;"> </td> <td style="width: 40%;"> 9 6 286 </td> </tr> </table>	Heavys 1 8 Trucks 1 5 Cars 20 266 Totals 22 279		9 6 286	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Heavys 12 Trucks 3 Cars 347 Totals 362 </td> <td style="width: 10%; text-align: center; vertical-align: middle;"> </td> <td style="width: 40%;"> 9 6 286 </td> </tr> </table>	Heavys 12 Trucks 3 Cars 347 Totals 362		9 6 286	
Heavys 1 8 Trucks 1 5 Cars 20 266 Totals 22 279		9 6 286							
Heavys 12 Trucks 3 Cars 347 Totals 362		9 6 286							



York Durham Line

Main St

N
W —+— E
S

York Durham Line

<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Heavys Trucks Cars Totals 1 1 249 251 </td> <td style="width: 10%; text-align: center; vertical-align: middle;"> </td> <td style="width: 40%;"> 9 6 286 </td> </tr> </table>	Heavys Trucks Cars Totals 1 1 249 251		9 6 286	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Heavys Trucks Cars Totals 0 1 36 37 </td> <td style="width: 10%; text-align: center; vertical-align: middle;"> </td> <td style="width: 40%;"> 9 6 286 </td> </tr> </table>	Heavys Trucks Cars Totals 0 1 36 37		9 6 286	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Heavys Trucks Cars Totals 1 2 137 140 </td> <td style="width: 10%; text-align: center; vertical-align: middle;"> </td> <td style="width: 40%;"> 9 6 286 </td> </tr> </table>	Heavys Trucks Cars Totals 1 2 137 140		9 6 286	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Heavys Trucks Cars Totals 1 3 173 184 </td> <td style="width: 10%; text-align: center; vertical-align: middle;"> </td> <td style="width: 40%;"> 9 6 286 </td> </tr> </table>	Heavys Trucks Cars Totals 1 3 173 184		9 6 286
Heavys Trucks Cars Totals 1 1 249 251		9 6 286													
Heavys Trucks Cars Totals 0 1 36 37		9 6 286													
Heavys Trucks Cars Totals 1 2 137 140		9 6 286													
Heavys Trucks Cars Totals 1 3 173 184		9 6 286													

Peds Cross: West Peds: 0 West Entering: 177 West Leg Total: 428	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Cars 403 Trucks 7 Heavys 9 Totals 419 </td> <td style="width: 10%; text-align: center; vertical-align: middle;"> </td> <td style="width: 40%;"> 9 6 286 </td> </tr> </table>	Cars 403 Trucks 7 Heavys 9 Totals 419		9 6 286
Cars 403 Trucks 7 Heavys 9 Totals 419		9 6 286		

Peds Cross: South Peds: 0 South Entering: 554 South Leg Total: 973	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> Cars 229 Trucks 0 Heavys 0 Totals 229 </td> <td style="width: 10%; text-align: center; vertical-align: middle;"> </td> <td style="width: 40%;"> 311 2 12 325 </td> </tr> </table>	Cars 229 Trucks 0 Heavys 0 Totals 229		311 2 12 325
Cars 229 Trucks 0 Heavys 0 Totals 229		311 2 12 325		

Comments

Total Count Diagram

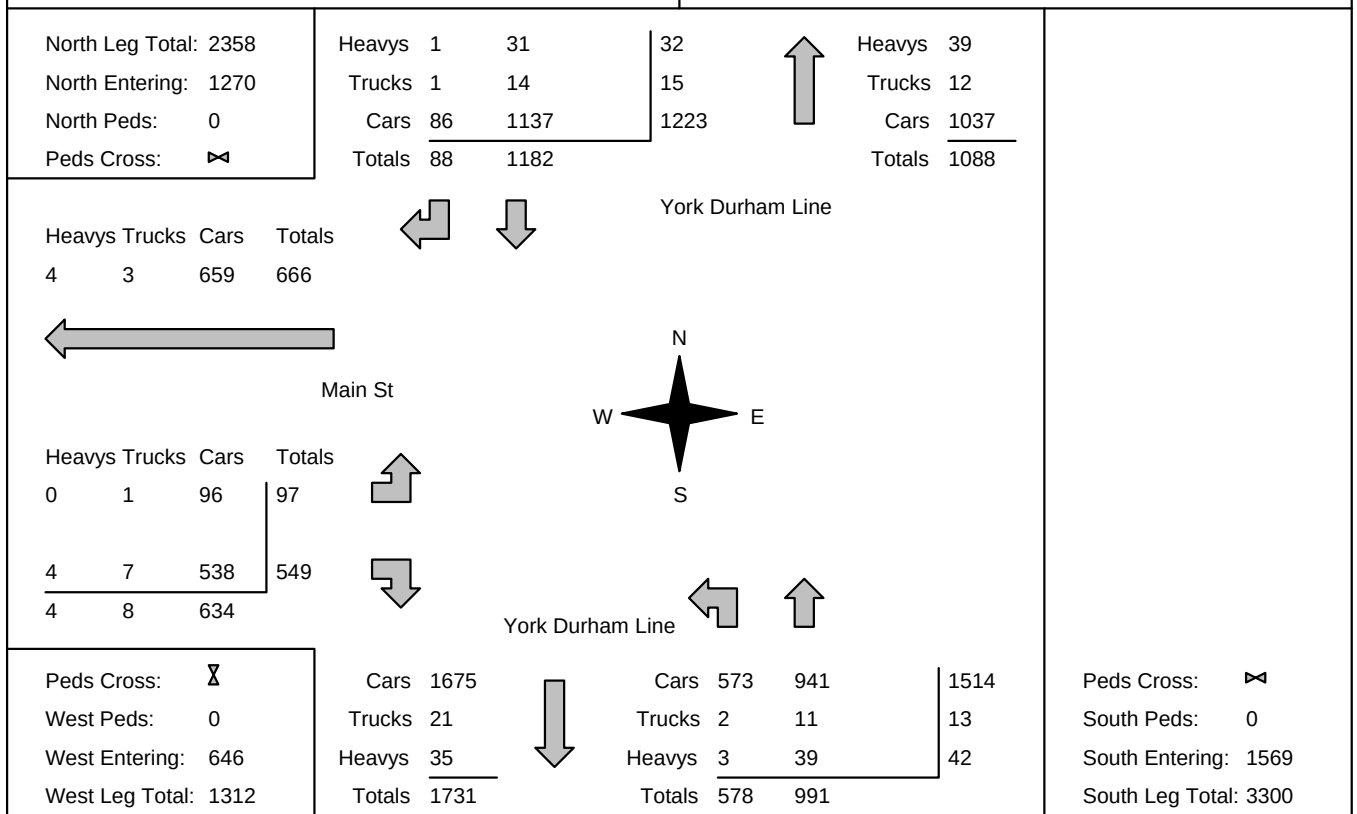
Municipality: Whitchurch-Stouffville
Site #: 2324300007
Intersection: York Durham Line & Main St
TFR File #: 1
Count date: 1-Nov-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: York Durham Line runs N/S



Comments

Traffic Count Summary

Intersection: York Durham Line & Main St						Count Date: 1-Nov-23		Municipality: Whitchurch-Stouffville					
North Approach Totals						North/South Total Approaches	South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0	
8:00:00	0	273	15	288	0	533	8:00:00	61	184	0	245	0	
9:00:00	0	392	22	414	0	716	9:00:00	109	193	0	302	0	
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0	
17:00:00	0	261	28	289	0	777	17:00:00	179	309	0	488	0	
18:00:00	0	256	23	279	0	813	18:00:00	229	305	0	534	0	



INTERSECTION NAME: **Main St & Tenth Line North**

PROGRAMMED BY: _____

CONTROLLER SERIAL #: _____

CTCS #: _____

ADDRESS: _____

SECURITY CODE: **1000**

PROGRAM DATE: **Oct 21/19**

INSTALLATION DATE: _____

MEMORY/RECALL/CNA (MM-2-2-1)

	1	2	3	4	5	6	7	8
MEMORY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
EXT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
MAX RECALL	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
PED RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
CNA I	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
CNA II	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FL WALK	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SOFT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
WALK REST	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
COND PED	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FWTPCL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

- | | |
|-----------------------|-----------------------|
| 1 - Not Used | 5 - EBLT Arrow |
| 2 - Eastbound | 6 - Westbound |
| 3 - Not Used | 7 - Not Used |
| 4 - Southbound | 8 - Northbound |

PHASE TIMINGS (MM-2-2-2)

	1	2	3	4	5	6	7	8
MIN GREEN	0	10	0	10	6	10	0	10
PASSAGE	0	0	0	2.0	2.0	0	0	2.0
YELLOW	0	3.3	0	3.3	3.0	3.3	0	3.3
RED	0	2.7	0	2.4	1.5	2.7	0	2.4
MAX I	0	42	0	26	6	42	0	26
MAX II	0	42	0	32	11	42	0	32
WALK	0	7	0	7	0	7	0	7
PED CLEAR	0	19	0	19	0	19	0	19
S/A	0	0	0	0	0	0	0	0
TBR	0	0	0	0	0	0	0	0
TTR	0	0	0	0	0	0	0	0
MIN GAP	0	0	0	0	0	0	0	0
MAX VI	0	0	0	0	0	0	0	0
MAX EXT	0	0	0	0	0	0	0	0
AUTO MAX	0	0	0	0	0	0	0	0
AMR	0	0	0	0	0	0	0	0

Range: 0-9.9 or 127 except max times and auto max which are 0 -255 secs.

PHASES USED (MM-2-2-3-1)

PHASE	1	2	3	4	5	6	7	8
ON/OFF	off	ON	off	ON	ON	ON	off	ON

SEQUENCE (MM-2-2-3-2)

2	1=Sequential, 2= Dual Ring, 3-7= Spec, 8=Lead/Lag
----------	---

LEAD/LAG MODES (MM-2-2-3-2-PGDN....only if Seq = Lead/Lag)

PAIRS	1 AND 2	3 AND 4	5 AND 6	7 AND 8
CODE				

Codes: 1 = No Reversal, 2 = Always Reverse, 3 = Rev. by CSO or Clock

LEAD/LAG BARRIERS (MM-2-2-3-2-PGDN-PGDN...only if lead/lag)

LEAD/LAG BARRIERS ARE:		ON/OFF
------------------------	--	--------

On = Barriers after each ring 1 and 2 phase pair in a vertical column

SPECIAL INCOMPATIBILITIES (MM-2-2-3-3)

PHASE	1	2	3	4	5	6	7	8
INCOMPAT PH 1-8								
INCOMPAT PH 1-8								

INITIALIZE / FLASH (MM-2-2-4)

1 =RED, 2 = YEL., 3 = GRN

	INITIALIZE	ENTER FL	EXIT FL
RING 1 PHASE	2	2	2
RING 2 PHASE	6	6	6
INTERVAL	2	1	2

NOTE: Enter flash interval is permanently set to 1 (RED)

POWER-UP RESTART TIMINGS (MM-2-2-4-PGDN)

MINIMUM FLASH		(0-9.9 or 127 SECONDS)
1ST ALL RED AFTER FLASH		(0-9.9 or 127 SECONDS)

NOTE: Blanks = 0, OFF, or controller default values



INTERSECTION NAME: **Main St & Tenth Line South**

PROGRAMMED BY: _____

CONTROLLER SERIAL #: _____

CTCS #: _____

ADDRESS: _____

SECURITY CODE: **1000**

PROGRAM DATE: **Oct 21/19**

INSTALLATION DATE: _____

MEMORY/RECALL/CNA (MM-2-2-1)

	1	2	3	4	5	6	7	8
MEMORY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
EXT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
MAX RECALL	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
PED RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
CNA I	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
CNA II	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FL WALK	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SOFT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
WALK REST	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
COND PED	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FWTPCL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

- | | |
|-----------------------|-----------------------|
| 1 - WBLT Arrow | 5 - Not Used |
| 2 - Eastbound | 6 - Westbound |
| 3 - Not Used | 7 - Not Used |
| 4 - Southbound | 8 - Northbound |

PHASE TIMINGS (MM-2-2-2)

	1	2	3	4	5	6	7	8
MIN GREEN	5	10	0	10	0	10	0	10
PASSAGE	2.0	0.0	0	2.0	0	0.0	0	2.0
YELLOW	3.0	3.3	0	3.3	0	3.3	0	3.3
RED	1.5	2.2	0	2.2	0	2.2	0	2.2
MAX I	10	45	0	25	0	45	0	25
MAX II	11	45	0	32	0	45	0	32
WALK	0	7	0	7	0	7	0	7
PED CLEAR	0	17	0	15	0	17	0	15
S/A	0	0	0	0	0	0	0	0
TBR	0	0	0	0	0	0	0	0
TTR	0	0	0	0	0	0	0	0
MIN GAP	0	0	0	0	0	0	0	0
MAX VI	0	0	0	0	0	0	0	0
MAX EXT	0	0	0	0	0	0	0	0
AUTO MAX	0	0	0	0	0	0	0	0
AMR	0	0	0	0	0	0	0	0

Range: 0-9.9 or 127 except max times and auto max which are 0 -255 secs.

PHASES USED (MM-2-2-3-1)

PHASE	1	2	3	4	5	6	7	8
ON/OFF	ON	ON	off	ON	off	ON	off	ON

SEQUENCE (MM-2-2-3-2)

2	1=Sequential, 2= Dual Ring, 3-7= Spec, 8=Lead/Lag
----------	---

LEAD/LAG MODES (MM-2-2-3-2-PGDN....only if Seq = Lead/Lag)

PAIRS	1 AND 2	3 AND 4	5 AND 6	7 AND 8
CODE				

Codes: 1 = No Reversal, 2 = Always Reverse, 3 = Rev. by CSO or Clock

LEAD/LAG BARRIERS (MM-2-2-3-2-PGDN-PGDN...only if lead/lag)

LEAD/LAG BARRIERS ARE:		ON/OFF
------------------------	--	--------

On = Barriers after each ring 1 and 2 phase pair in a vertical column

SPECIAL INCOMPATIBILITIES (MM-2-2-3-3)

PHASE	1	2	3	4	5	6	7	8
INCOMPAT PH 1-8								
INCOMPAT PH 1-8								

INITIALIZE / FLASH (MM-2-2-4)

1 =RED, 2 = YEL., 3 = GRN

	INITIALIZE	ENTER FL	EXIT FL
RING 1 PHASE	2	2	2
RING 2 PHASE	6	6	6
INTERVAL	2	1	2

NOTE: Enter flash interval is permanently set to 1 (RED)

POWER-UP RESTART TIMINGS (MM-2-2-4-PGDN)

MINIMUM FLASH		(0-9.9 or 127 SECONDS)
1ST ALL RED AFTER FLASH		(0-9.9 or 127 SECONDS)

NOTE: Blanks = 0, OFF, or controller default values

APPENDIX D

Existing Travel Pattern and Multi-Modal Split

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of household - gta06_hhld
Column: Primary travel mode of trip - mode_prime

Filters:
2006 GTA zone of household - gta06_hhld In 2708,2709,2711,2712,2714,2709,2710,2713
and
Start time of trip - start_time In 700-900
and
2006 GTA zone of origin - gta06_orig In 2708,2709,2711,2712,2714,2709,2710,2713

Trip 2016
Table:

	Transit exc	Cycle	Auto drive	GO rail onl	Joint GO r	Auto passe	School bus	Walk	
2708	0	0	1786	17	0	225	58	217	2303
2709	0	0	1086	4	39	129	16	334	1608
2710	87	104	3067	154	20	637	204	656	4929
2711	0	0	341	0	19	61	78	29	528
2712	0	96	1163	0	26	75	0	291	1651
2713	0	0	1621	41	0	608	0	10	2280
2714	0	0	141	0	0	0	14	0	155
	87	200	9205	216	104	1735	370	1537	13454
	0%	0%	78%	1%	0%	10%	3%	9%	100%
	0%	0%	68%	0%	2%	8%	1%	21%	100%
	2%	2%	62%	3%	0%	13%	4%	13%	100%
	0%	0%	65%	0%	4%	12%	15%	5%	100%
	0%	6%	70%	0%	2%	5%	0%	18%	100%
	0%	0%	71%	2%	0%	27%	0%	0%	100%
	0%	0%	91%	0%	0%	0%	9%	0%	100%
	1%	1%	68%	2%	1%	13%	3%	11%	100%

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of household - gta06_hhld
Column: Primary travel mode of trip - mode_prime

Filters:
2006 GTA zone of household - gta06_hhld In 2708,2709,2711,2712,2714,2709,2710,2713
and
Start time of trip - start_time In 1600-1800
and
2006 GTA zone of destination - gta06_dest In 2708,2709,2711,2712,2714,2709,2710,2713

Trip 2016
Table:

	Transit exc	Cycle	Auto drive	GO rail onl	Joint GO r	Auto passe	School bus	Taxi passer	Walk	
2708	30	0	1356	25	27	128	0	5	0	1571
2709	0	0	1159	19	39	144	16	0	15	1392
2710	72	81	2596	280	25	434	25	0	262	3775
2711	19	0	384	64	0	127	0	0	0	594
2712	0	96	1395	5	26	389	0	0	184	2095
2713	0	0	1111	193	0	355	0	0	0	1659
2714	0	0	283	0	0	0	0	0	0	283
	121	177	8284	586	117	1577	41	5	461	11369
	2%	0%	86%	2%	2%	8%	0%	0%	0%	100%
	0%	0%	83%	1%	3%	10%	1%	0%	1%	100%
	2%	2%	69%	7%	1%	11%	1%	0%	7%	100%
	3%	0%	65%	11%	0%	21%	0%	0%	0%	100%
	0%	5%	67%	0%	1%	19%	0%	0%	9%	100%
	0%	0%	67%	12%	0%	21%	0%	0%	0%	100%
	0%	0%	100%	0%	0%	0%	0%	0%	0%	100%
	1%	2%	73%	5%	1%	14%	0%	0%	4%	100%

Mon Mar 09 2020 13:40:56 GMT-0400 (Eastern Daylight Time) - Run Time: 2598ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of destination - gta06_dest

Column: Primary travel mode of trip - mode_prime

Filters:

Trip purpose of destination - purp_dest In W

and

Start time of trip - start_time In 700-900

and

2006 GTA zone of destination - gta06_dest In 2708,2709,2711,2712,2714,2709,2710,2713

Trip 2016

Table:

	Auto drive	Walk	
2708	661	0	661
2709	1006	0	1006
2710	513	0	513
2711	21	0	21
2712	169	11	180
2713	34	0	34
2714	61	0	61
	2465	11	2476
	100%	0%	100%
	100%	0%	100%
	100%	0%	100%
	100%	0%	100%
	94%	6%	100%
	100%	0%	100%
	100%	0%	100%
	100%	0%	100%

Mon Mar 09 2020 13:42:45 GMT-0400 (Eastern Daylight Time) - Run Time: 2923ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig

Column: Primary travel mode of trip - mode_prime

Filters:

Trip purpose of origin - purp_orig In W

and

Start time of trip - start_time In 1600-1800

and

2006 GTA zone of origin - gta06_orig In 2708,2709,2711,2712,2714,2709,2710,2713

Trip 2016

Table:

	Cycle	Auto drive	Auto passe	School bus	Walk	
2708	0	606	0	0	0	606
2709	29	807	126	0	33	995
2710	0	283	0	0	0	283
2711	0	158	0	0	96	254
2712	0	172	0	0	0	172
2713	0	9	0	16	0	25
2714	0	29	0	0	0	29
	29	2064	126	16	129	2364
	0%	100%	0%	0%	0%	100%
	3%	81%	13%	0%	3%	100%
	0%	100%	0%	0%	0%	100%
	0%	62%	0%	0%	38%	100%
	0%	100%	0%	0%	0%	100%
	0%	36%	0%	64%	0%	100%
	0%	100%	0%	0%	0%	100%
	1%	87%	5%	1%	5%	100%

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: Planning district of destination - pd_dest

Filters:
2006 GTA zone of origin - gta06_orig In 2708,2709,2711,2712,2714,2709,2710,2713
and
Start time of trip - start_time In 700-900
and
2006 GTA zone of household - gta06_hhld In 2708,2709,2711,2712,2714,2709,2710,2713

Trip 2016
Table:

	PD 1 of Toronto	PD 2 of Toronto	PD 4 of Toronto	PD 5 of Toronto	PD 6 of Toronto	PD 8 of Toronto	PD 9 of Toronto	PD 10 of Toronto	PD 11 of Toronto	PD 12 of Toronto	PD 13 of Toronto	PD 14 of Toronto	PD 15 of Toronto	PD 16 of Toronto	Uxbridge	Pickering	Ajax	Whitby	Oshawa	Clarington	Newmarket	Aurora	Richmond Hill	Whitchurch-Stouffville	Markham	Vaughan	Brampton	Mississauga	Oakville	Innisfil	Rest of Peterborough							
2708	110	0	30	0	0	0	0	0	96	30	169	0	0	223	0	0	27	0	0	0	0	87	165	592	715	42	0	0	0	0	0							
2709	146	0	60	37	28	0	0	0	19	73	62	0	0	109	0	0	0	0	0	0	59	0	69	930	214	0	0	0	25	0	0							
2710	221	95	128	0	0	0	31	0	63	83	113	32	70	320	0	20	0	9	0	0	51	55	164	2106	1076	100	0	55	0	0	0							
2711	0	0	0	0	0	0	0	51	0	0	0	0	0	63	0	0	0	0	23	0	49	0	84	93	143	0	0	0	0	0	31							
2712	16	0	7	0	0	0	11	0	0	10	9	0	0	77	43	0	92	0	21	0	118	0	30	1040	302	69	34	5	0	0	0							
2713	41	0	0	53	0	69	0	0	158	10	5	0	7	142	0	12	0	10	32	0	0	7	240	931	168	7	0	53	0	12	0							
2714	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	7	0	0	53	84	14	0	0	0	0	0	0	0							
	534	95	225	90	28	69	42	51	336	206	358	32	77	934	43	32	119	19	90	7	277	149	402.5	402.5	2888	2888	1316	1316	109	109	17	17	56.5	56.5	25	12	31	13459
	S	S	S	S	S	S	S	S	S	S	S	S	S	S	N	E	E	E	E	E	N	W	S	W	S	W	S	W	S	W	S	N	S					
	4%	1%	2%	1%	0%	1%	0%	0%	2%	2%	3%	0%	1%	7%	0%	0%	1%	0%	1%	0%	2%	1%	3%	3%	21%	21%	10%	10%	1%	1%	0%	0%	0%	0%	0%	0%		

North	2%
South	59%
East	2%
West	37%

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of destination - gta06_dest
Column: Planning district of origin - pd_orig

Filters:
2006 GTA zone of destination - gta06_dest In 2708,2709,2711,2712,2714,2709,2710,2713
and
Start time of trip - start_time In 1600-1800
and
2006 GTA zone of household - gta06_hhld In 2708,2709,2711,2712,2714,2709,2710,2713

Trip 2016
Table:

	PD 1 of Toronto	PD 2 of Toronto	PD 3 of Toronto	PD 4 of Toronto	PD 5 of Toronto	PD 6 of Toronto	PD 8 of Toronto	PD 9 of Toronto	PD 10 of Toronto	PD 11 of Toronto	PD 12 of Toronto	PD 13 of Toronto	PD 15 of Toronto	PD 16 of Toronto	Uxbridge	Pickering	Ajax	Whitby	Oshawa	East Gwillimbury	Newmarket	Aurora	Richmond Hill	Whitchurch-Stouffville	Markham	Vaughan	Mississauga	Hastings	External						
2708	196	0	0	66	0	0	30	0	0	18	0	69	0	195	0	11	0	0	0	64	60	78	43	838	344	13	12	0	0						
2709	227	0	24	60	42	28	21	0	0	0	0	89	0	121	0	0	0	0	23	0	0	58	0	673	436	0	0	0	23						
2710	260	71	60	128	22	5	5	31	41	47	113	45	0	193	0	20	11	9	0	0	92	60	140	1000	768	47	111	24	0						
2711	48	0	0	0	0	0	0	0	23	0	0	0	0	32	0	0	0	0	0	0	31	84	126	60	101	0	0	0	0						
2712	21	0	0	7	0	0	0	11	0	0	0	9	0	71	43	0	92	36	21	0	113	0	30	831	375	64	5	0	0						
2713	169	0	0	0	53	0	0	0	0	68	10	5	7	310	0	12	0	0	80	0	0	7	392	311	179	7	53	0	0						
2714	0	0	0	0	26	0	0	0	0	0	30	0	0	0	0	0	0	0	14	0	0	0	53	121	22	43	0	0	0						
	921	71	84	261	143	33	56	42	64	133	153	217	7	922	43	43	103	45	138	64	265	234	371	371	1950	1950	1092	1092	65.5	65.5	162.5	162.5	24	23	11371
	S	S	S	S	S	S	S	S	S	S	S	S	S	S	N	E	E	E	N	N	W	S	W	S	S	W	S	W	S	W	E	S	S		
	8%	1%	1%	2%	1%	0%	0%	0%	1%	1%	1%	2%	0%	8%	0%	0%	1%	0%	1%	1%	2%	3%	3%	17%	17%	10%	10%	1%	1%	0%	0%				

North	3%
South	60%
East	3%
West	34%

[illegible]

North	28%
South	48%
East	0%
West	24%

APPENDIX E

MTO Left-Turn Lane Warrants and Traffic Signal Warrants

Traffic Signal Warrant - Input Sheet Justification 7 - Projected Volumes

Based Ontario Traffic Manual Book 12 - Traffic Signals (March 2012)

Project and Scenario Summary

Project:	12749 - Acorn South	Project No.:	100939
Horizon:	Future Total	Horizon Year:	2035
		Date:	2026-03-31
		Analyst:	MN

Study Intersection Summary

Major Street:	York Durham Line	Direction:	North/South
Minor Street:	Main Street	Direction:	East/West

Intersection Details for Warrant Parameters

Flow Conditions:	Free Flow (Rural)	Number of Lanes:	1
Number of Legs:	Three ("T" Intersection)	Intersection Type:	Existing

Notes: "Free Flow" is used when the operating speed is greater than or equal to 70km/h, "Restricted Flow" otherwise.

The Number of Lanes greater than 1 only needs to be for one direction along the major road.

An intersection is considered "New" if at least 1-leg is added to an existing intersection.

Input Volumes and Average Hourly Volume Determination

Peak Hour	Major: York Durham Line						Minor: Main Street						Pedestrians Crossing Major
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
AM	154	238	0	0	492	22	14	0	226	0	0	0	0
PM	348	423	0	0	358	22	37	0	210	0	0	0	0
AHV ¹	126	165	0	0	213	11	13	0	109	0	0	0	0

1. The AHV is determined by the availability of the peak hour estimates. If both the AM and PM Peak Hour Volume estimate is available then $AHV = (AM_{PHV} + PM_{PHV}) / 4$. In the case that only one estimate is available then

$AHV = AM_{PHV} / 2$ or $AHV = PM_{PHV} / 2$.

Determination of Justification Volumes (Based on AHV)

Justification 1A: All Approach Lanes	637	Justification 2A: Major Street Both Approaches	515
Justification 1B: Minor Street Both Approaches	122	Justification 2B: Traffic Crossing Major Street	13

Note: The crossing volume is defined as the sum of:

(1) Left turns from both minor street approaches:	13
(2) The heaviest through volume from the minor street:	0
(3) 50% of the heavier left turn movement from major street when both of the following criteria are met:	0
(a) The left turn volume > 120 vph	126 TRUE
(b) The left turn volume plus the opposing volume > 720 vph	339 FALSE
(4) Pedestrians crossing the major street:	0

Total	13
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Traffic Signal Warrant - Output Sheet

Justification 7 - Projected Volumes

Based Ontario Traffic Manual Book 12 - Traffic Signals (March 2012)

Project and Scenario Summary

Project:	12749 - Acorn South			Project No.:	100939
				Date:	2026-03-31
Horizon:	Future Total	Horizon Year:	2035	Analyst:	MN

Study Intersection Summary

Major Street:	York Durham Line	Direction:	North/South
Minor Street:	Main Street	Direction:	East/West

Summary of Base Justification Thresholds

Justification	1 Approach Lane		2 or More Approach Lanes	
	Free Flow	Restricted Flow	Free Flow	Restricted Flow
1A: All Approach Lanes	480	720	600	900
1B: Minor Street Both Approaches	120	170	120	170
2A: Major Street Both Approaches	480	720	600	900
2B: Traffic Crossing Major Street	50	75	50	75

The above values are taken from Table 12 and Table 13 from OTM Book 12 (March 2012).

The grey shaded values are provided for reference only, and are not applicable to the study intersection.

Adjusted Justification Thresholds for Study Intersection Conditions

Justification	Base Threshold	Existing Intersection	"T" Intersection	Final Threshold
1A: All Approach Lanes	480	120%	-	576
1B: Minor Street Both Approaches	120	120%	150%	216
2A: Major Street Both Approaches	480	120%	-	576
2B: Traffic Crossing Major Street	50	120%	-	60

The above adjustments are taken from OTM Book 12 (March 2012) the "T" Intersection adjustment only applies to Justification 1B, and is a 50% increase on the threshold when the study intersection is a "T" intersection. Otherwise a value of 100% is used.

Warrant Calculation

Justification	Study Intersection Justification Volume	Justification Threshold	Percentage Warrant	Warrant Met?
1A: All Approach Lanes	637	576	100%	No
1B: Minor Street Both Approaches	122	216	56%	
2A: Major Street Both Approaches	515	576	89%	No
2B: Traffic Crossing Major Street	13	60	22%	

Notes: In the case of Justification 7 based on AHV both Warrant 1 and 2 must be met 100%, which requires both the A and B part of each warrant being equal to 100%.

When calculating the percentage, any value greater than 100% is expressed as 100%.

Based on OTM Book 12's Signal Warrant Justification 7 and the estimated AHV for the subject study intersection a signal is:

Not Warranted

Traffic Signal Warrant - Input Sheet Justification 7 - Projected Volumes

Based Ontario Traffic Manual Book 12 - Traffic Signals (March 2012)

Project and Scenario Summary

Project:	12749 - Acorn South	Project No.:	100939
Horizon:	Future Total	Horizon Year:	2035
		Date:	2026-03-31
		Analyst:	MN

Study Intersection Summary

Major Street:	Bethesda Road	Direction:	East/West
Minor Street:	Road A	Direction:	North/South

Intersection Details for Warrant Parameters

Flow Conditions:	Restricted Flow (Urban)	Number of Lanes:	1
Number of Legs:	Three ("T" Intersection)	Intersection Type:	New

Notes: "Free Flow" is used when the operating speed is greater than or equal to 70km/h, "Restricted Flow" otherwise.

The Number of Lanes greater than 1 only needs to be for one direction along the major road.

An intersection is considered "New" if at least 1-leg is added to an existing intersection.

Input Volumes and Average Hourly Volume Determination

Peak Hour	Major: Bethesda Road						Minor: Road A						Pedestrians Crossing Major
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
AM	0	344	15	7	213	0	44	0	35	0	0	0	0
PM	0	292	46	20	394	0	30	0	42	0	0	0	0
AHV ¹	0	159	15	7	152	0	19	0	19	0	0	0	0

1. The AHV is determined by the availability of the peak hour estimates. If both the AM and PM Peak Hour Volume estimate is available then $AHV = (AM_{PHV} + PM_{PHV}) / 4$. In the case that only one estimate is available then

$AHV = AM_{PHV} / 2$ or $AHV = PM_{PHV} / 2$.

Determination of Justification Volumes (Based on AHV)

Justification 1A: All Approach Lanes	371	Justification 2A: Major Street Both Approaches	333
Justification 1B: Minor Street Both Approaches	38	Justification 2B: Traffic Crossing Major Street	19

Note: The crossing volume is defined as the sum of:

(1) Left turns from both minor street approaches:	19
(2) The heaviest through volume from the minor street:	0
(3) 50% of the heavier left turn movement from major street when both of the following criteria are met:	0
(a) The left turn volume > 120 vph	7 FALSE
(b) The left turn volume plus the opposing volume > 720 vph	166 FALSE
(4) Pedestrians crossing the major street:	0

Total	19
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Traffic Signal Warrant - Output Sheet

Justification 7 - Projected Volumes

Based Ontario Traffic Manual Book 12 - Traffic Signals (March 2012)

Project and Scenario Summary

Project:	12749 - Acorn South			Project No.:	100939
				Date:	2026-03-31
Horizon:	Future Total	Horizon Year:	2035	Analyst:	MN

Study Intersection Summary

Major Street:	Bethesda Road	Direction:	East/West
Minor Street:	Road A	Direction:	North/South

Summary of Base Justification Thresholds

Justification	1 Approach Lane		2 or More Approach Lanes	
	Free Flow	Restricted Flow	Free Flow	Restricted Flow
1A: All Approach Lanes	480	720	600	900
1B: Minor Street Both Approaches	120	170	120	170
2A: Major Street Both Approaches	480	720	600	900
2B: Traffic Crossing Major Street	50	75	50	75

The above values are taken from Table 12 and Table 13 from OTM Book 12 (March 2012).

The grey shaded values are provided for reference only, and are not applicable to the study intersection.

Adjusted Justification Thresholds for Study Intersection Conditions

Justification	Base Threshold	New Intersection	"T" Intersection	Final Threshold
1A: All Approach Lanes	720	150%	-	1080
1B: Minor Street Both Approaches	170	150%	150%	382.5
2A: Major Street Both Approaches	720	150%	-	1080
2B: Traffic Crossing Major Street	75	150%	-	113

The above adjustments are taken from OTM Book 12 (March 2012) the "T" Intersection adjustment only applies to Justification 1B, and is a 50% increase on the threshold when the study intersection is a "T" intersection. Otherwise a value of 100% is used.

Warrant Calculation

Justification	Study Intersection Justification Volume	Justification Threshold	Percentage Warrant	Warrant Met?
1A: All Approach Lanes	371	1080	34%	No
1B: Minor Street Both Approaches	38	383	10%	
2A: Major Street Both Approaches	333	1080	31%	No
2B: Traffic Crossing Major Street	19	113	17%	

Notes: In the case of Justification 7 based on AHV both Warrant 1 and 2 must be met 100%, which requires both the A and B part of each warrant being equal to 100%.

When calculating the percentage, any value greater than 100% is expressed as 100%.

Based on OTM Book 12's Signal Warrant Justification 7 and the estimated AHV for the subject study intersection a signal is:

Not Warranted

Traffic Signal Warrant - Input Sheet Justification 7 - Projected Volumes

Based Ontario Traffic Manual Book 12 - Traffic Signals (March 2012)

Project and Scenario Summary

Project:	12749 - Acorn South			Project No.:	100939
				Date:	2026-03-31
Horizon:	Future Total	Horizon Year:	2035	Analyst:	MN

Study Intersection Summary

Major Street:	Tenth Line	Direction:	North/South
Minor Street:	Road C	Direction:	East/West

Intersection Details for Warrant Parameters

Flow Conditions:	Restricted Flow (Urban)	Number of Lanes:	1
Number of Legs:	Four	Intersection Type:	New

Notes: "Free Flow" is used when the operating speed is greater than or equal to 70km/h, "Restricted Flow" otherwise.

The Number of Lanes greater than 1 only needs to be for one direction along the major road.

An intersection is considered "New" if at least 1-leg is added to an existing intersection.

Input Volumes and Average Hourly Volume Determination

Peak Hour	Major: Tenth Line						Minor: Road C						Pedestrians Crossing Major
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
AM	57	525	20	22	535	93	214	0	126	64	0	33	0
PM	133	643	63	68	689	224	156	0	94	52	0	28	0
AHV ¹	48	292	21	23	306	79	93	0	55	29	0	15	0

1. The AHV is determined by the availability of the peak hour estimates. If both the AM and PM Peak Hour Volume estimate is available then $AHV = (AM_{PHV} + PM_{PHV}) / 4$. In the case that only one estimate is available then

$AHV = AM_{PHV} / 2$ or $AHV = PM_{PHV} / 2$.

Determination of Justification Volumes (Based on AHV)

Justification 1A: All Approach Lanes	961	Justification 2A: Major Street Both Approaches	769
Justification 1B: Minor Street Both Approaches	192	Justification 2B: Traffic Crossing Major Street	122

Note: The crossing volume is defined as the sum of:

(1) Left turns from both minor street approaches:	122
(2) The heaviest through volume from the minor street:	0
(3) 50% of the heavier left turn movement from major street when both of the following criteria are met:	0
(a) The left turn volume > 120 vph	48 FALSE
(b) The left turn volume plus the opposing volume > 720 vph	354 FALSE
(4) Pedestrians crossing the major street:	0
Total	122

Traffic Signal Warrant - Output Sheet

Justification 7 - Projected Volumes

Based Ontario Traffic Manual Book 12 - Traffic Signals (March 2012)

Project and Scenario Summary

Project:	12749 - Acorn South			Project No.:	100939
				Date:	2026-03-31
Horizon:	Future Total	Horizon Year:	2035	Analyst:	MN

Study Intersection Summary

Major Street:	Tenth Line	Direction:	North/South
Minor Street:	Road C	Direction:	East/West

Summary of Base Justification Thresholds

Justification	1 Approach Lane		2 or More Approach Lanes	
	Free Flow	Restricted Flow	Free Flow	Restricted Flow
1A: All Approach Lanes	480	720	600	900
1B: Minor Street Both Approaches	120	170	120	170
2A: Major Street Both Approaches	480	720	600	900
2B: Traffic Crossing Major Street	50	75	50	75

The above values are taken from Table 12 and Table 13 from OTM Book 12 (March 2012).

The grey shaded values are provided for reference only, and are not applicable to the study intersection.

Adjusted Justification Thresholds for Study Intersection Conditions

Justification	Base Threshold	New Intersection	"T" Intersection	Final Threshold
1A: All Approach Lanes	720	150%	-	1080
1B: Minor Street Both Approaches	170	150%	100%	255
2A: Major Street Both Approaches	720	150%	-	1080
2B: Traffic Crossing Major Street	75	150%	-	113

The above adjustments are taken from OTM Book 12 (March 2012) the "T" Intersection adjustment only applies to Justification 1B, and is a 50% increase on the threshold when the study intersection is a "T" intersection. Otherwise a value of 100% is used.

Warrant Calculation

Justification	Study Intersection Justification Volume	Justification Threshold	Percentage Warrant	Warrant Met?
1A: All Approach Lanes	961	1080	89%	No
1B: Minor Street Both Approaches	192	255	75%	
2A: Major Street Both Approaches	769	1080	71%	No
2B: Traffic Crossing Major Street	122	113	100%	

Notes: In the case of Justification 7 based on AHV both Warrant 1 and 2 must be met 100%, which requires both the A and B part of each warrant being equal to 100%.

When calculating the percentage, any value greater than 100% is expressed as 100%.

Based on OTM Book 12's Signal Warrant Justification 7 and the estimated AHV for the subject study intersection a signal is:

Not Warranted

Traffic Signal Warrant - Input Sheet Justification 7 - Projected Volumes

Based Ontario Traffic Manual Book 12 - Traffic Signals (March 2012)

Project and Scenario Summary

Project:	12749 - Acorn South	Project No.:	100939
Horizon:	Future Total	Horizon Year:	2035
		Date:	2026-03-31
		Analyst:	MN

Study Intersection Summary

Major Street:	Tenth Line	Direction:	North/South
Minor Street:	Bethesda Road	Direction:	East/West

Intersection Details for Warrant Parameters

Flow Conditions:	Restricted Flow (Urban)	Number of Lanes:	1
Number of Legs:	Four	Intersection Type:	Existing

Notes: "Free Flow" is used when the operating speed is greater than or equal to 70km/h, "Restricted Flow" otherwise.

The Number of Lanes greater than 1 only needs to be for one direction along the major road.

An intersection is considered "New" if at least 1-leg is added to an existing intersection.

Input Volumes and Average Hourly Volume Determination

Peak Hour	Major: Tenth Line						Minor: Bethesda Road						Pedestrians Crossing Major
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
AM	172	472	58	74	515	57	86	227	308	54	109	94	0
PM	381	615	50	109	585	103	79	179	273	81	234	110	0
AHV ¹	138	272	27	46	275	40	41	102	145	34	86	51	0

1. The AHV is determined by the availability of the peak hour estimates. If both the AM and PM Peak Hour Volume estimate is available then $AHV = (AM_{PHV} + PM_{PHV}) / 4$. In the case that only one estimate is available then

$AHV = AM_{PHV} / 2$ or $AHV = PM_{PHV} / 2$.

Determination of Justification Volumes (Based on AHV)

Justification 1A: All Approach Lanes	1257	Justification 2A: Major Street Both Approaches	798
Justification 1B: Minor Street Both Approaches	459	Justification 2B: Traffic Crossing Major Street	177

Note: The crossing volume is defined as the sum of:

(1) Left turns from both minor street approaches:	75
(2) The heaviest through volume from the minor street:	102
(3) 50% of the heavier left turn movement from major street when both of the following criteria are met:	0
(a) The left turn volume > 120 vph	138 TRUE
(b) The left turn volume plus the opposing volume > 720 vph	413 FALSE
(4) Pedestrians crossing the major street:	0

Total	177
--------------	------------

Traffic Signal Warrant - Output Sheet

Justification 7 - Projected Volumes

Based Ontario Traffic Manual Book 12 - Traffic Signals (March 2012)

Project and Scenario Summary

Project:	12749 - Acorn South			Project No.:	100939
				Date:	2026-03-31
Horizon:	Future Total	Horizon Year:	2035	Analyst:	MN

Study Intersection Summary

Major Street:	Tenth Line	Direction:	North/South
Minor Street:	Bethesda Road	Direction:	East/West

Summary of Base Justification Thresholds

Justification	1 Approach Lane		2 or More Approach Lanes	
	Free Flow	Restricted Flow	Free Flow	Restricted Flow
1A: All Approach Lanes	480	720	600	900
1B: Minor Street Both Approaches	120	170	120	170
2A: Major Street Both Approaches	480	720	600	900
2B: Traffic Crossing Major Street	50	75	50	75

The above values are taken from Table 12 and Table 13 from OTM Book 12 (March 2012).

The grey shaded values are provided for reference only, and are not applicable to the study intersection.

Adjusted Justification Thresholds for Study Intersection Conditions

Justification	Base Threshold	Existing Intersection	"T" Intersection	Final Threshold
1A: All Approach Lanes	720	120%	-	864
1B: Minor Street Both Approaches	170	120%	100%	204
2A: Major Street Both Approaches	720	120%	-	864
2B: Traffic Crossing Major Street	75	120%	-	90

The above adjustments are taken from OTM Book 12 (March 2012) the "T" Intersection adjustment only applies to Justification 1B, and is a 50% increase on the threshold when the study intersection is a "T" intersection. Otherwise a value of 100% is used.

Warrant Calculation

Justification	Study Intersection Justification Volume	Justification Threshold	Percentage Warrant	Warrant Met?
1A: All Approach Lanes	1257	864	100%	Yes
1B: Minor Street Both Approaches	459	204	100%	
2A: Major Street Both Approaches	798	864	92%	No
2B: Traffic Crossing Major Street	177	90	100%	

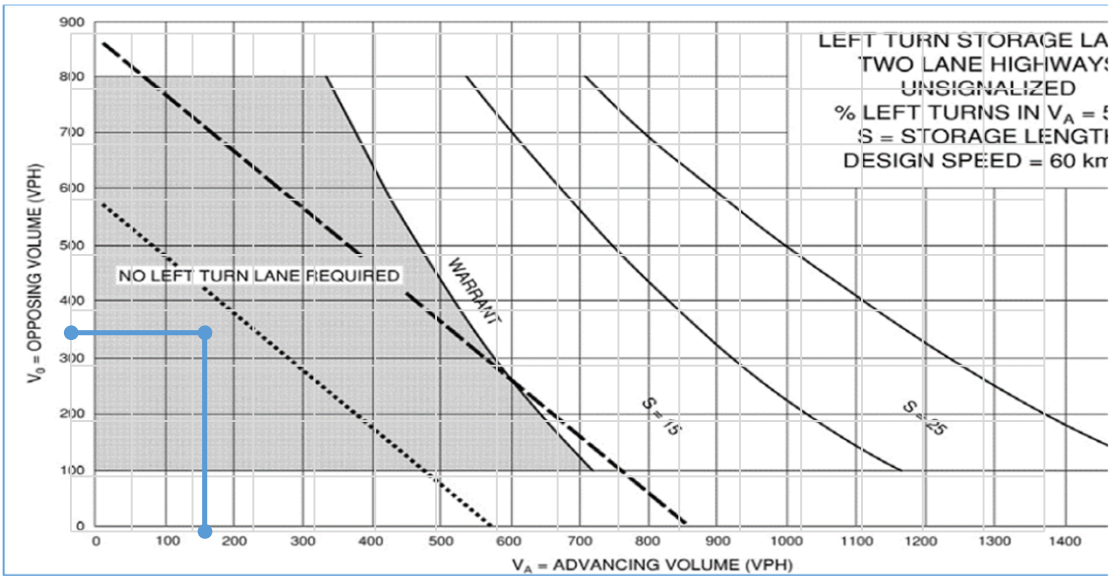
Notes: In the case of Justification 7 based on AHV both Warrant 1 and 2 must be met 100%, which requires both the A and B part of each warrant being equal to 100%.

When calculating the percentage, any value greater than 100% is expressed as 100%.

Based on OTM Book 12's Signal Warrant Justification 7 and the estimated AHV for the subject study intersection a signal is:

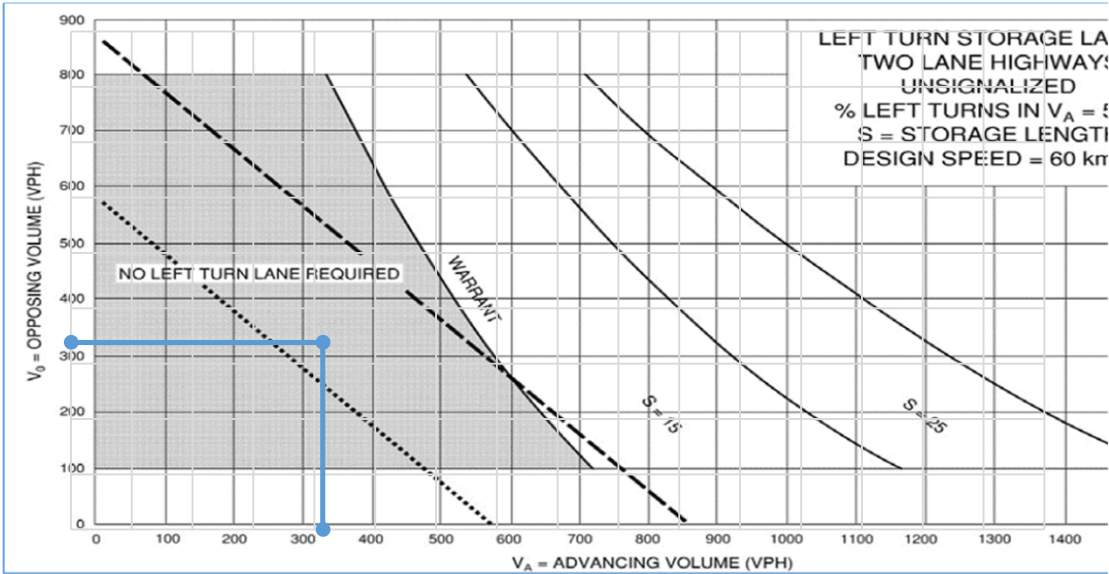
Warranted

2035 AM Peak - Bethesda Road & Road A



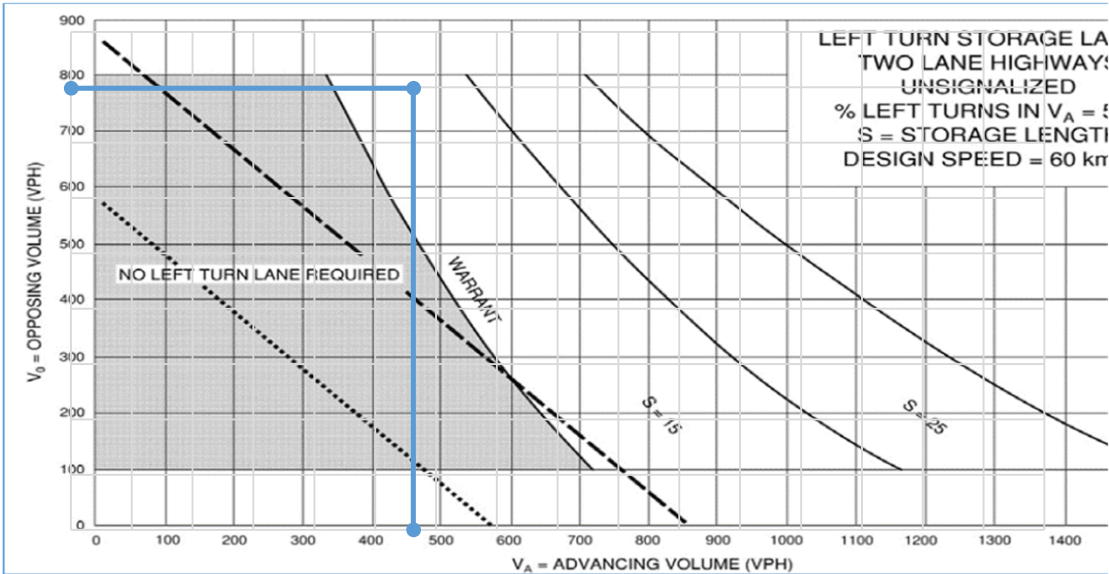
AM	Peak Period
WB	Analysis Approach
5	%LT
60_5	Scenario
220	Advancing Volumes
359	Opposing Volumes

2035 PM Peak - Bethesda Road & Road A



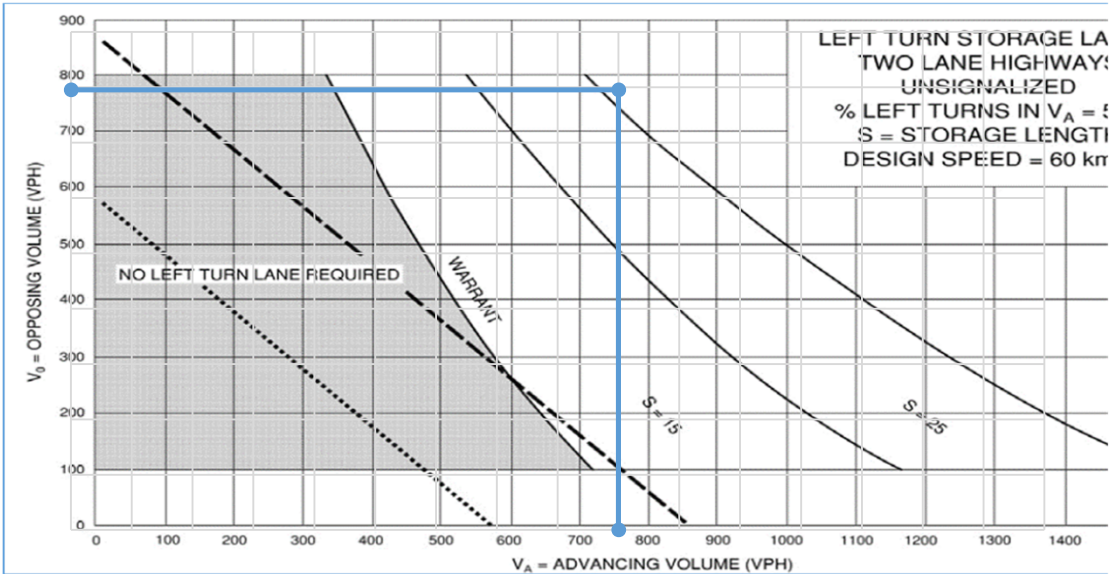
PM	Peak Period
WB	Analysis Approach
5	%LT
60_5	Scenario
414	Advancing Volumes
338	Opposing Volumes

2035 AM Peak - Tenth Line and Road B/GO Primary Access



AM	Peak Period
SB	Analysis Approach
5	%LT
60_5	Scenario
563	Advancing Volumes
798	Opposing Volumes

2035 PM Peak - Tenth Line and Road B/GO Primary Access



PM	Peak Period
SB	Analysis Approach
5	%LT
60_5	Scenario
900	Advancing Volumes
795	Opposing Volumes

APPENDIX F

Synchro Capacity and Queueing Analysis

Timings

3: Tenth Line (South Leg)/Private Driveway & Main Street

Future Background 2030 Section E - AM Peak

03/27/2026

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	7	173	474	273	126	1	1	0
Future Volume (vph)	7	173	474	273	126	1	1	0
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	29.5	29.5	9.5	29.5	27.5	27.5	27.5	27.5
Total Split (s)	29.5	29.5	18.0	47.5	27.5	27.5	27.5	27.5
Total Split (%)	39.3%	39.3%	24.0%	63.3%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	1.5	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.5	4.5	5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Max	Max	None	Max	Max	Max	Max	Max
Act Effect Green (s)		24.0	43.0	42.0	22.0	22.0		22.0
Actuated g/C Ratio		0.32	0.57	0.56	0.29	0.29		0.29
v/c Ratio		0.57	0.85	0.28	0.32	0.46		0.01
Control Delay (s/veh)		22.2	26.5	9.4	23.4	5.1		0.0
Queue Delay		0.0	9.0	2.4	0.0	0.0		0.0
Total Delay (s/veh)		22.2	35.4	11.8	23.4	5.1		0.0
LOS		C	D	B	C	A		A
Approach Delay (s/veh)		22.2		26.7		10.5		
Approach LOS		C		C		B		

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay (s/veh): 21.0

Intersection LOS: C

Intersection Capacity Utilization 78.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Tenth Line (South Leg)/Private Driveway & Main Street

 Ø1	 Ø2	 Ø4
18 s	29.5 s	27.5 s
 Ø6		 Ø8
47.5 s		27.5 s

HCM Signalized Intersection Capacity Analysis Future Background 2030 Section E - AM Peak 3: Tenth Line (South Leg)/Private Driveway & Main Street 03/27/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	173	131	474	273	7	126	1	300	1	0	5
Future Volume (vph)	7	173	131	474	273	7	126	1	300	1	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.98		1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes		1.00		1.00	1.00		0.99	1.00			1.00	
Frt		0.94		1.00	1.00		1.00	0.85			0.89	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)		1778		1819	1912		1816	1634			1656	
Flt Permitted		0.99		0.37	1.00		0.75	1.00			0.96	
Satd. Flow (perm)		1763		704	1912		1441	1634			1597	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	188	142	515	297	8	137	1	326	1	0	5
RTOR Reduction (vph)	0	35	0	0	1	0	0	230	0	0	4	0
Lane Group Flow (vph)	0	303	0	515	304	0	137	97	0	0	2	0
Confl. Peds. (#/hr)	5		14	14		5	3					3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		24.0		42.0	42.0		22.0	22.0			22.0	
Effective Green, g (s)		24.0		42.0	42.0		22.0	22.0			22.0	
Actuated g/C Ratio		0.32		0.56	0.56		0.29	0.29			0.29	
Clearance Time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		564		594	1070		422	479			468	
v/s Ratio Prot				c0.16	0.16			0.06				
v/s Ratio Perm		0.17		c0.33			c0.10				0.00	
v/c Ratio		0.54		0.87	0.28		0.32	0.20			0.00	
Uniform Delay, d1		20.9		12.1	8.6		20.7	19.9			18.7	
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		3.6		12.7	0.7		2.0	0.9			0.0	
Delay (s)		24.6		24.8	9.3		22.7	20.9			18.8	
Level of Service		C		C	A		C	C			B	
Approach Delay (s/veh)		24.6			19.0			21.4			18.8	
Approach LOS		C			B			C			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			20.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)			15.5			
Intersection Capacity Utilization			78.6%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Timings
4: Main Street & Tenth Line (North Leg)

Future Background 2030 Section E - AM Peak

03/27/2026

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	343	115	151	58	91	580
Future Volume (vph)	343	115	151	58	91	580
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.5	32.0	32.0	32.0	31.7	31.7
Total Split (s)	15.5	63.5	48.0	48.0	37.7	37.7
Total Split (%)	15.3%	62.7%	47.4%	47.4%	37.3%	37.3%
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.5	2.7	2.7	2.7	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Max	Max	Max	None	None
Act Effect Green (s)	59.3	57.8	42.9	42.9	13.9	13.9
Actuated g/C Ratio	0.71	0.69	0.51	0.51	0.17	0.17
v/c Ratio	0.46	0.10	0.18	0.08	0.36	0.81
Control Delay (s/veh)	7.4	5.6	13.0	4.1	33.5	11.5
Queue Delay	2.9	0.7	0.0	0.0	0.0	0.0
Total Delay (s/veh)	10.4	6.3	13.0	4.1	33.5	11.5
LOS	B	A	B	A	C	B
Approach Delay (s/veh)		9.3	10.6		14.5	
Approach LOS		A	B		B	

Intersection Summary

Cycle Length: 101.2

Actuated Cycle Length: 83.5

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay (s/veh): 12.1

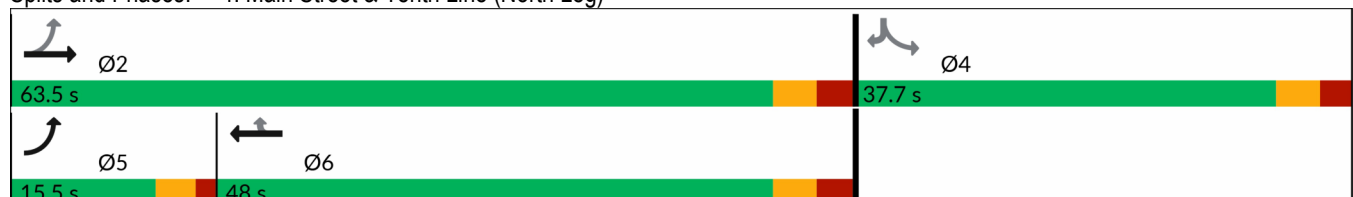
Intersection LOS: B

Intersection Capacity Utilization 67.3%

ICU Level of Service C

Analysis Period (min) 15

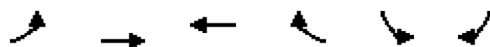
Splits and Phases: 4: Main Street & Tenth Line (North Leg)



HCM Signalized Intersection Capacity Analysis Future Background 2030 Section E - AM Peak

4: Main Street & Tenth Line (North Leg)

03/27/2026



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	343	115	151	58	91	580
Future Volume (vph)	343	115	151	58	91	580
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.6	3.6	3.5	3.5	3.5	3.5
Total Lost time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1802	1900	1879	1558	1776	1597
Flt Permitted	0.58	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1109	1900	1879	1558	1776	1597
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	399	134	176	67	106	674
RTOR Reduction (vph)	0	0	0	33	0	562
Lane Group Flow (vph)	399	134	176	34	106	112
Confl. Peds. (#/hr)	3			3	3	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Actuated Green, G (s)	57.8	57.8	42.9	42.9	13.9	13.9
Effective Green, g (s)	57.8	57.8	42.9	42.9	13.9	13.9
Actuated g/C Ratio	0.69	0.69	0.51	0.51	0.17	0.17
Clearance Time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	855	1316	966	801	296	266
v/s Ratio Prot	c0.06	0.07	0.09			
v/s Ratio Perm	c0.27			0.02	0.06	c0.07
v/c Ratio	0.47	0.10	0.18	0.04	0.36	0.42
Uniform Delay, d1	5.2	4.2	10.9	10.1	30.8	31.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.2	0.4	0.1	0.7	1.1
Delay (s)	5.6	4.4	11.3	10.2	31.5	32.2
Level of Service	A	A	B	B	C	C
Approach Delay (s/veh)		5.3	11.0		32.1	
Approach LOS		A	B		C	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			19.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.48			
Actuated Cycle Length (s)			83.4		Sum of lost time (s)	16.2
Intersection Capacity Utilization			67.3%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis Future Background 2030 Section E - AM Peak 5: York Durham Line & Main Street 03/27/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	174	137	222	468	22
Future Volume (Veh/h)	14	174	137	222	468	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	15	185	146	236	498	23
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1038	510	521			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1038	510	521			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	67	86			
cM capacity (veh/h)	222	568	1056			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	15	185	146	236	521	
Volume Left	15	0	146	0	0	
Volume Right	0	185	0	0	23	
cSH	222	568	1056	1700	1700	
Volume to Capacity	0.07	0.33	0.14	0.14	0.31	
Queue Length 95th (m)	1.6	10.7	3.6	0.0	0.0	
Control Delay (s/veh)	22.3	14.4	9.0	0.0	0.0	
Lane LOS	C	B	A			
Approach Delay (s/veh)	15.0	3.4		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utilization			46.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis Future Background 2030 Section E - AM Peak 6: York Durham Line & Bethesda Side Road 03/27/2026

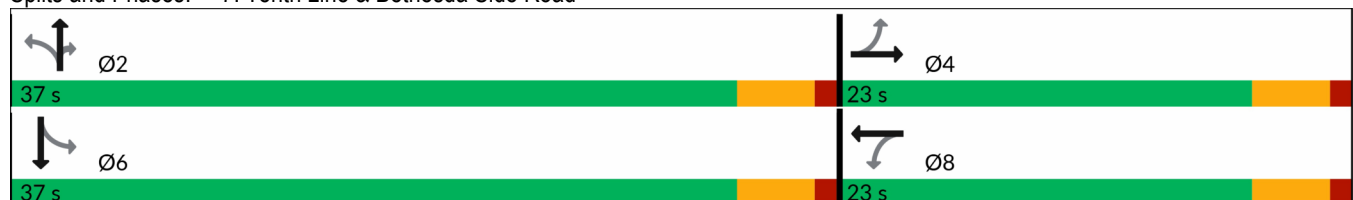
						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	110	73	155	312	8
Future Volume (Veh/h)	16	110	73	155	312	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	116	77	163	328	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	649	332	336			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	649	332	336			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	84	94			
cM capacity (veh/h)	410	714	1235			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	133	240	336			
Volume Left	17	77	0			
Volume Right	116	0	8			
cSH	652	1235	1700			
Volume to Capacity	0.20	0.06	0.20			
Queue Length 95th (m)	5.8	1.5	0.0			
Control Delay (s/veh)	11.9	3.0	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	11.9	3.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		3.2				
Intersection Capacity Utilization		46.8%		ICU Level of Service		A
Analysis Period (min)		15				

Timings
7: Tenth Line & Bethesda Side Road

Future Background 2030 Section E - AM Peak
03/27/2026

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	18	39	54	48	99	419	57	28	451
Future Volume (vph)	18	39	54	48	99	419	57	28	451
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		4		8		2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	61.7%	61.7%	61.7%	61.7%	61.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)		8.1	8.1	8.1	36.4	36.4	36.4	36.4	36.4
Actuated g/C Ratio		0.16	0.16	0.16	0.72	0.72	0.72	0.72	0.72
v/c Ratio		0.50	0.36	0.39	0.20	0.35	0.06	0.05	0.42
Control Delay (s/veh)		13.3	24.3	12.5	5.2	5.0	1.5	4.0	5.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		13.3	24.3	12.5	5.2	5.0	1.5	4.0	5.5
LOS		B	C	B	A	A	A	A	A
Approach Delay (s/veh)		13.3		16.2		4.7			5.4
Approach LOS		B		B		A			A
Intersection Summary									
Cycle Length: 60									
Actuated Cycle Length: 50.7									
Natural Cycle: 50									
Control Type: Semi Act-Uncoord									
Maximum v/c Ratio: 0.50									
Intersection Signal Delay (s/veh): 7.3					Intersection LOS: A				
Intersection Capacity Utilization 59.3%					ICU Level of Service B				
Analysis Period (min) 15									

Splits and Phases: 7: Tenth Line & Bethesda Side Road



HCM Signalized Intersection Capacity Analysis Future Background 2030 Section E - AM Peak 7: Tenth Line & Bethesda Side Road 03/27/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	39	97	54	48	70	99	419	57	28	451	41
Future Volume (vph)	18	39	97	54	48	70	99	419	57	28	451	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.91		1.00	0.91		1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1747		1825	1751		1825	1921	1633	1825	1897	
Flt Permitted		0.94		0.57	1.00		0.41	1.00	1.00	0.47	1.00	
Satd. Flow (perm)		1647		1090	1751		790	1921	1633	895	1897	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	21	45	113	63	56	81	115	487	66	33	524	48
RTOR Reduction (vph)	0	97	0	0	70	0	0	0	21	0	4	0
Lane Group Flow (vph)	0	82	0	63	67	0	115	487	45	33	568	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		7.1		7.1	7.1		35.5	35.5	35.5	35.5	35.5	
Effective Green, g (s)		7.1		7.1	7.1		35.5	35.5	35.5	35.5	35.5	
Actuated g/C Ratio		0.14		0.14	0.14		0.69	0.69	0.69	0.69	0.69	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		226		149	240		543	1321	1123	615	1305	
v/s Ratio Prot					0.04			0.25			c0.30	
v/s Ratio Perm		0.05		c0.06			0.15		0.03	0.04		
v/c Ratio		0.36		0.42	0.28		0.21	0.37	0.04	0.05	0.44	
Uniform Delay, d1		20.2		20.4	20.0		2.9	3.4	2.6	2.6	3.6	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.0		1.9	0.6		0.9	0.8	0.1	0.2	1.1	
Delay (s)		21.2		22.3	20.6		3.8	4.2	2.7	2.8	4.6	
Level of Service		C		C	C		A	A	A	A	A	
Approach Delay (s/veh)		21.2			21.1			4.0			4.5	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			8.1									
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			51.6									
Intersection Capacity Utilization			59.3%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis Future Background 2030 Section E - AM Peak 8: Road A & Bethesda Side Road

03/27/2026

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	109	15	7	128	44	34
Future Volume (Veh/h)	109	15	7	128	44	34
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	121	17	8	142	49	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)	166					
pX, platoon unblocked						
vC, conflicting volume			138	288		130
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			138	288		130
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			99	93		96
cM capacity (veh/h)			1458	703		926
Direction, Lane #						
Volume Total	138	150	87			
Volume Left	0	8	49			
Volume Right	17	0	38			
cSH	1700	1458	786			
Volume to Capacity	0.08	0.00*	0.11			
Queue Length 95th (m)	0.0	0.1	2.8			
Control Delay (s/veh)	0.0	0.4	10.2			
Lane LOS			A	B		
Approach Delay (s/veh)	0.0	0.4	10.2			
Approach LOS			B			
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			23.6%	ICU Level of Service		A
Analysis Period (min)			15			
* Value less than 0.01.						

Timings

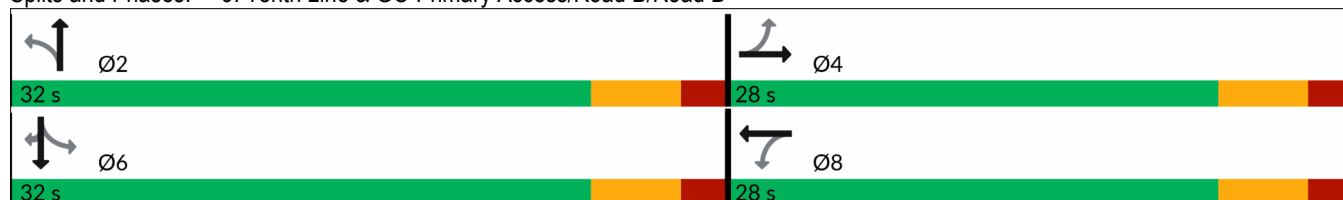
Future Background 2030 Section E - AM Peak

9: Tenth Line & GO Primary Access/Road B/Road B

03/27/2026

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	82	0	74	0	168	477	22	259	7
Future Volume (vph)	82	0	74	0	168	477	22	259	7
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	28.0	28.0	28.0	28.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	10.3	10.3	10.3	10.3	31.9	31.9		31.9	31.9
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.64	0.64		0.64	0.64
v/c Ratio	0.31	0.07	0.28	0.04	0.27	0.46		0.27	0.01
Control Delay (s/veh)	19.5	0.2	19.2	0.1	7.4	8.2		6.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.3		0.0	0.0
Total Delay (s/veh)	19.5	0.2	19.2	0.1	7.4	8.5		6.6	0.0
LOS	B	A	B	A	A	A		A	A
Approach Delay (s/veh)		12.8		15.8		8.2		6.5	
Approach LOS		B		B		A		A	
Intersection Summary									
Cycle Length: 60									
Actuated Cycle Length: 49.6									
Natural Cycle: 60									
Control Type: Semi Act-Uncoord									
Maximum v/c Ratio: 0.46									
Intersection Signal Delay (s/veh): 8.9					Intersection LOS: A				
Intersection Capacity Utilization 67.7%					ICU Level of Service C				
Analysis Period (min) 15									

Splits and Phases: 9: Tenth Line & GO Primary Access/Road B/Road B



HCM Signalized Intersection Capacity Analysis Future Background 2030 Section E - AM Peak 9: Tenth Line & GO Primary Access/Road B/Road B 03/27/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	0	43	74	0	16	168	477	26	22	259	7
Future Volume (vph)	82	0	43	74	0	16	168	477	26	22	259	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1825	1633		1825	1633		1825	1906			1914	1633
Flt Permitted	0.75	1.00		0.73	1.00		0.57	1.00			0.95	1.00
Satd. Flow (perm)	1433	1633		1394	1633		1096	1906			1816	1633
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	91	0	48	82	0	18	187	530	29	24	288	8
RTOR Reduction (vph)	0	40	0	0	15	0	0	2	0	0	0	3
Lane Group Flow (vph)	91	8	0	82	3	0	187	557	0	0	312	5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	8.2	8.2		8.2	8.2		30.6	30.6			30.6	30.6
Effective Green, g (s)	8.2	8.2		8.2	8.2		30.6	30.6			30.6	30.6
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.60	0.60			0.60	0.60
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	231	263		225	263		660	1148			1093	983
v/s Ratio Prot		0.00			0.00			c0.29				
v/s Ratio Perm	c0.06			0.06			0.17				0.17	0.00
v/c Ratio	0.39	0.03		0.36	0.01		0.28	0.48			0.29	0.00
Uniform Delay, d1	19.1	17.9		19.0	17.9		4.8	5.7			4.9	4.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	1.1	0.0		1.0	0.0		1.1	1.5			0.7	0.0
Delay (s)	20.2	18.0		20.0	17.9		5.9	7.1			5.5	4.0
Level of Service	C	B		B	B		A	A			A	A
Approach Delay (s/veh)		19.4			19.6			6.8			5.5	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			8.8				HCM 2000 Level of Service				A	
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			50.8				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			67.7%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Timings
11: Tenth Line & Road C

Future Background 2030 Section E - AM Peak
03/27/2026

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	214	0	41	0	57	415	16	266
Future Volume (vph)	214	0	41	0	57	415	16	266
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	42.5	42.5	42.5	42.5
Total Split (%)	34.6%	34.6%	34.6%	34.6%	65.4%	65.4%	65.4%	65.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effect Green (s)	14.6	14.6	14.6	14.6	39.8	39.8	39.8	39.8
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.63	0.63	0.63	0.63
v/c Ratio	0.72	0.17	0.16	0.03	0.11	0.39	0.03	0.34
Control Delay (s/veh)	35.1	0.5	19.5	0.1	6.3	7.7	5.9	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	35.1	0.5	19.5	0.1	6.3	7.7	5.9	6.5
LOS	D	A	B	A	A	A	A	A
Approach Delay (s/veh)		22.3		14.0		7.5		6.4
Approach LOS		C		B		A		A

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 63.5

Natural Cycle: 45

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.72

Intersection Signal Delay (s/veh): 11.5

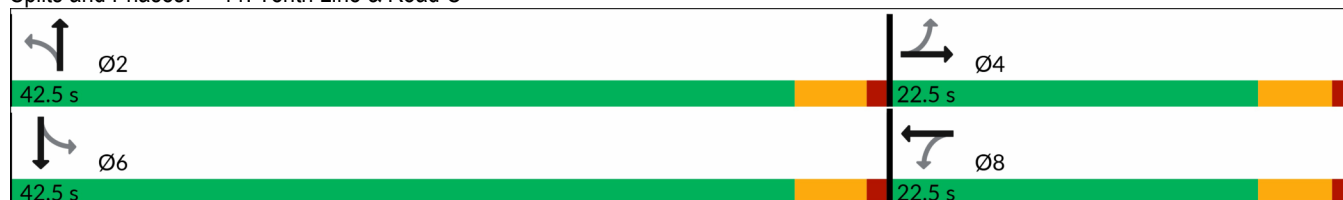
Intersection LOS: B

Intersection Capacity Utilization 57.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 11: Tenth Line & Road C



HCM Signalized Intersection Capacity Analysis Future Background 2030 Section E - AM Peak 11: Tenth Line & Road C

03/27/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	0	126	41	0	16	57	415	12	16	266	93
Future Volume (vph)	214	0	126	41	0	16	57	415	12	16	266	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	1.00		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1633		1825	1633		1825	1913		1825	1847	
Flt Permitted	0.75	1.00		0.67	1.00		0.50	1.00		0.44	1.00	
Satd. Flow (perm)	1433	1633		1283	1633		956	1913		851	1847	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	238	0	140	46	0	18	63	461	13	18	296	103
RTOR Reduction (vph)	0	108	0	0	14	0	0	1	0	0	17	0
Lane Group Flow (vph)	238	32	0	46	4	0	63	473	0	18	382	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.6	14.6		14.6	14.6		39.8	39.8		39.8	39.8	
Effective Green, g (s)	14.6	14.6		14.6	14.6		39.8	39.8		39.8	39.8	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.63	0.63		0.63	0.63	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	329	376		295	376		600	1200		534	1159	
v/s Ratio Prot		0.02			0.00			0.25			0.21	
v/s Ratio Perm	0.17			0.04			0.07			0.02		
v/c Ratio	0.72	0.09		0.16	0.01		0.11	0.39		0.03	0.33	
Uniform Delay, d1	22.5	19.2		19.5	18.8		4.7	5.8		4.5	5.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.7	0.1		0.2	0.0		0.4	1.0		0.1	0.8	
Delay (s)	30.2	19.3		19.7	18.8		5.1	6.8		4.6	6.3	
Level of Service	C	B		B	B		A	A		A	A	
Approach Delay (s/veh)		26.1			19.5			6.6			6.2	
Approach LOS		C			B			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			12.4									
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			63.4									
Intersection Capacity Utilization			57.8%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis Future Background 2030 Section E - AM Peak 108: Tenth Line & GO Right-in/out

03/27/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	10	0	575	278	324
Future Volume (Veh/h)	0	10	0	575	278	324
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	11	0	625	302	352
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				86	95	
pX, platoon unblocked	0.81					
vC, conflicting volume	927	302	654			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	793	302	654			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	292	742	943			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	11	625	302	352		
Volume Left	0	0	0	0		
Volume Right	11	0	0	352		
cSH	742	1700	1700	1700		
Volume to Capacity	0.01	0.37	0.18	0.21		
Queue Length 95th (m)	0.3	0.0	0.0	0.0		
Control Delay (s/veh)	9.9	0.0	0.0	0.0		
Lane LOS	A					
Approach Delay (s/veh)	9.9	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			33.6%	ICU Level of Service		A
Analysis Period (min)			15			

Timings
109: Tenth Line & GO Bus Only Access

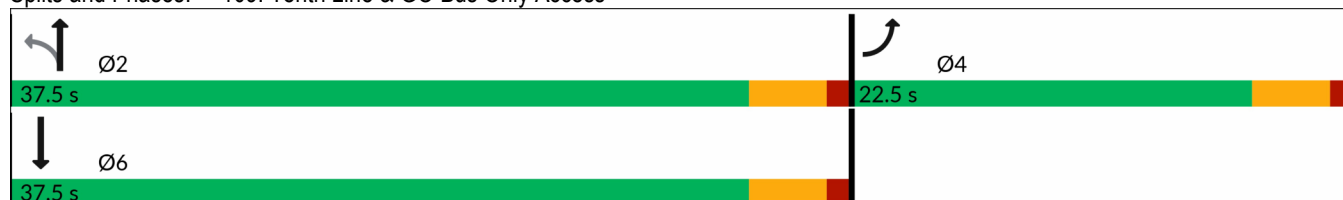
Future Background 2030 Section E - AM Peak
03/27/2026

			
Lane Group	EBL	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	2	662	375
Future Volume (vph)	2	662	375
Turn Type	Prot	NA	NA
Protected Phases	4	2	6
Permitted Phases			
Detector Phase	4	2	6
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5
Total Split (s)	22.5	37.5	37.5
Total Split (%)	37.5%	62.5%	62.5%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	Max	Max
Act Effect Green (s)	5.7	52.0	52.0
Actuated g/C Ratio	0.10	0.95	0.95
v/c Ratio	0.01	0.39	0.22
Control Delay (s/veh)	24.0	1.6	1.1
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	24.0	1.6	1.1
LOS	C	A	A
Approach Delay (s/veh)	24.0	1.6	1.1
Approach LOS	C	A	A

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 54.6
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.39
 Intersection Signal Delay (s/veh): 1.5
 Intersection LOS: A
 Intersection Capacity Utilization 46.5%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 109: Tenth Line & GO Bus Only Access



HCM Signalized Intersection Capacity Analysis Future Background 2030 Section E - AM Peak 109: Tenth Line & GO Bus Only Access

03/27/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	0	0	662	375	1
Future Volume (vph)	2	0	0	662	375	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	
Lane Util. Factor	1.00			1.00	1.00	
Frt	1.00			1.00	1.00	
Flt Protected	0.95			1.00	1.00	
Satd. Flow (prot)	1825			1921	1920	
Flt Permitted	0.95			1.00	1.00	
Satd. Flow (perm)	1825			1921	1920	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	0	0	720	408	1
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	2	0	0	720	409	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.0			48.3	48.3	
Effective Green, g (s)	1.0			48.3	48.3	
Actuated g/C Ratio	0.02			0.83	0.83	
Clearance Time (s)	4.5			4.5	4.5	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	31			1591	1590	
v/s Ratio Prot	c0.00			c0.37	0.21	
v/s Ratio Perm						
v/c Ratio	0.06			0.45	0.26	
Uniform Delay, d1	28.2			1.4	1.1	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.9			0.9	0.4	
Delay (s)	29.1			2.3	1.5	
Level of Service	C			A	A	
Approach Delay (s/veh)	29.1			2.3	1.5	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			2.1	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.44			
Actuated Cycle Length (s)			58.3	Sum of lost time (s)		9.0
Intersection Capacity Utilization			46.5%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis Future Background 2030 Section E - AM Peak 113: Tenth Line & RI/RO North Access

03/27/2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	15	656	8	0	376
Future Volume (Veh/h)	0	15	656	8	0	376
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	713	9	0	409
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			46			48
pX, platoon unblocked	0.93	0.88			0.88	
vC, conflicting volume	1127	718			722	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	857	613			618	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	308	438			857	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	16	722	409			
Volume Left	0	0	0			
Volume Right	16	9	0			
cSH	438	1700	1700			
Volume to Capacity	0.04	0.42	0.24			
Queue Length 95th (m)	0.9	0.0	0.0			
Control Delay (s/veh)	13.5	0.0	0.0			
Lane LOS	B					
Approach Delay (s/veh)	13.5	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		0.2				
Intersection Capacity Utilization		45.0%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis Future Background 2030 Section E - AM Peak 114: Tenth Line & RI/RO Central Access

03/27/2026

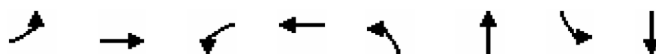
						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	31	631	14	0	375
Future Volume (Veh/h)	0	31	631	14	0	375
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	34	686	15	0	408
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			162			177
pX, platoon unblocked	0.99					
vC, conflicting volume	1102	694			701	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1099	694			701	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	92			100	
cM capacity (veh/h)	236	447			905	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	34	701	408			
Volume Left	0	0	0			
Volume Right	34	15	0			
cSH	447	1700	1700			
Volume to Capacity	0.08	0.41	0.24			
Queue Length 95th (m)	1.9	0.0	0.0			
Control Delay (s/veh)	13.7	0.0	0.0			
Lane LOS	B					
Approach Delay (s/veh)	13.7	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		0.4				
Intersection Capacity Utilization		44.1%		ICU Level of Service		A
Analysis Period (min)		15				

Timings

Future Background 2030 Section E - PM Peak

3: Tenth Line (South Leg)/Private Driveway & Main Street

04/01/2026



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↔	↔	↔	↔	↔		↔
Traffic Volume (vph)	15	327	384	313	130	0	1	0
Future Volume (vph)	15	327	384	313	130	0	1	0
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	29.5	29.5	9.5	29.5	27.5	27.5	27.5	27.5
Total Split (s)	34.5	34.5	18.0	52.5	27.5	27.5	27.5	27.5
Total Split (%)	43.1%	43.1%	22.5%	65.6%	34.4%	34.4%	34.4%	34.4%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	1.5	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.5	4.5	5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Max	Max	None	Max	Max	Max	Max	Max
Act Effect Green (s)		29.4	48.0	47.0	22.0	22.0		22.0
Actuated g/C Ratio		0.37	0.60	0.59	0.28	0.28		0.28
v/c Ratio		0.82	0.81	0.32	0.36	0.56		0.02
Control Delay (s/veh)		33.4	23.6	9.2	26.6	4.0		0.1
Queue Delay		0.0	2.6	3.4	0.0	0.0		0.0
Total Delay (s/veh)		33.4	26.2	12.6	26.6	4.0		0.1
LOS		C	C	B	C	A		A
Approach Delay (s/veh)		33.4		19.9		9.1		0.1
Approach LOS		C		B		A		A

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay (s/veh): 20.3

Intersection LOS: C

Intersection Capacity Utilization 90.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Tenth Line (South Leg)/Private Driveway & Main Street

Ø1 18 s	Ø2 34.5 s	Ø4 27.5 s
Ø6 52.5 s		Ø8 27.5 s

HCM Signalized Intersection Capacity Analysis Future Background 2030 Section E - PM Peak 3: Tenth Line (South Leg)/Private Driveway & Main Street 04/01/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	327	169	384	313	14	130	0	438	1	0	8
Future Volume (vph)	15	327	169	384	313	14	130	0	438	1	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99		1.00	1.00		1.00	1.00			0.97	
Flpb, ped/bikes		1.00		1.00	1.00		0.99	1.00			1.00	
Frt		0.96		1.00	0.99		1.00	0.85			0.88	
Flt Protected		1.00		0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1813		1824	1906		1805	1633			1633	
Flt Permitted		0.98		0.26	1.00		0.75	1.00			0.94	
Satd. Flow (perm)		1788		497	1906		1427	1633			1548	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	355	184	417	340	15	141	0	476	1	0	9
RTOR Reduction (vph)	0	22	0	0	2	0	0	345	0	0	7	0
Lane Group Flow (vph)	0	533	0	417	353	0	141	131	0	0	3	0
Confl. Peds. (#/hr)	13		7	7		13	6					6
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		29.4		47.0	47.0		22.0	22.0			22.0	
Effective Green, g (s)		29.4		47.0	47.0		22.0	22.0			22.0	
Actuated g/C Ratio		0.37		0.59	0.59		0.28	0.28			0.28	
Clearance Time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		657		509	1119		392	449			425	
v/s Ratio Prot				c0.13	0.19			0.08				
v/s Ratio Perm		0.30		c0.35			c0.10				0.00	
v/c Ratio		0.81		0.82	0.32		0.36	0.29			0.01	
Uniform Delay, d1		22.8		12.5	8.4		23.3	22.9			21.1	
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		10.5		9.9	0.7		2.6	1.6			0.0	
Delay (s)		33.3		22.5	9.1		25.9	24.5			21.1	
Level of Service		C		C	A		C	C			C	
Approach Delay (s/veh)		33.3			16.3			24.8			21.1	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			23.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			15.5			
Intersection Capacity Utilization			90.7%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

Timings
4: Main Street & Tenth Line (North Leg)

Future Background 2030 Section E - PM Peak

04/01/2026

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	555	208	198	155	79	491
Future Volume (vph)	555	208	198	155	79	491
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.5	32.0	32.0	32.0	31.7	31.7
Total Split (s)	15.5	63.5	48.0	48.0	37.7	37.7
Total Split (%)	15.3%	62.7%	47.4%	47.4%	37.3%	37.3%
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.5	2.7	2.7	2.7	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Max	Max	Max	None	None
Act Effect Green (s)	59.2	57.7	42.1	42.1	12.2	12.2
Actuated g/C Ratio	0.73	0.71	0.52	0.52	0.15	0.15
v/c Ratio	0.68	0.17	0.22	0.19	0.32	0.77
Control Delay (s/veh)	10.8	4.9	12.3	2.8	33.8	11.6
Queue Delay	7.3	1.2	0.0	0.0	0.0	0.0
Total Delay (s/veh)	18.1	6.1	12.3	2.8	33.8	11.6
LOS	B	A	B	A	C	B
Approach Delay (s/veh)		14.8	8.1		14.7	
Approach LOS		B	A		B	

Intersection Summary

Cycle Length: 101.2

Actuated Cycle Length: 81.6

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay (s/veh): 13.4

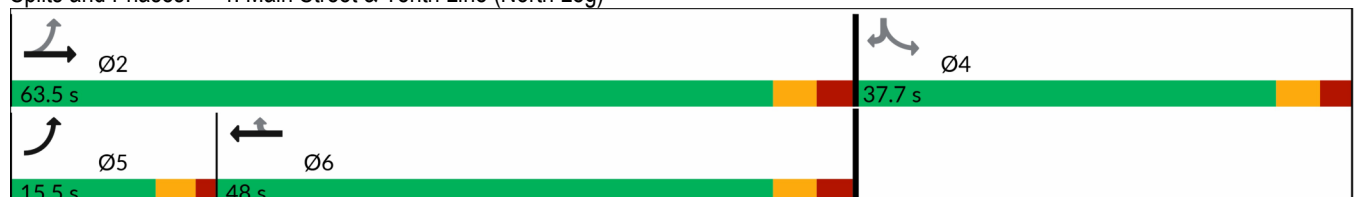
Intersection LOS: B

Intersection Capacity Utilization 75.1%

ICU Level of Service D

Analysis Period (min) 15

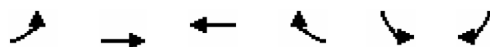
Splits and Phases: 4: Main Street & Tenth Line (North Leg)



HCM Signalized Intersection Capacity Analysis Future Background 2030 Section E - PM Peak

4: Main Street & Tenth Line (North Leg)

04/01/2026



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	555	208	198	155	79	491
Future Volume (vph)	555	208	198	155	79	491
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.6	3.6	3.5	3.5	3.5	3.5
Total Lost time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1800	1900	1879	1553	1782	1560
Flt Permitted	0.56	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1070	1900	1879	1553	1782	1560
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	597	224	213	167	85	528
RTOR Reduction (vph)	0	0	0	81	0	449
Lane Group Flow (vph)	597	224	213	86	85	79
Confl. Peds. (#/hr)	5			5	1	2
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Actuated Green, G (s)	57.7	57.7	42.2	42.2	12.2	12.2
Effective Green, g (s)	57.7	57.7	42.2	42.2	12.2	12.2
Actuated g/C Ratio	0.71	0.71	0.52	0.52	0.15	0.15
Clearance Time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	855	1343	971	803	266	233
v/s Ratio Prot	c0.09	0.12	0.11			
v/s Ratio Perm	c0.40			0.06	0.05	c0.05
v/c Ratio	0.70	0.17	0.22	0.11	0.32	0.34
Uniform Delay, d1	5.7	4.0	10.7	10.1	31.0	31.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	0.3	0.5	0.3	0.7	0.9
Delay (s)	8.2	4.2	11.2	10.3	31.7	32.0
Level of Service	A	A	B	B	C	C
Approach Delay (s/veh)		7.1	10.9		31.9	
Approach LOS		A	B		C	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			16.3		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.67			
Actuated Cycle Length (s)			81.6		Sum of lost time (s)	16.2
Intersection Capacity Utilization			75.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis Future Background 2030 Section E - PM Peak5: York Durham Line & Main Street

04/01/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	175	291	396	336	22
Future Volume (Veh/h)	37	175	291	396	336	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	38	179	297	404	343	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1352	354	365			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1352	354	365			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	70	74	75			
cM capacity (veh/h)	126	694	1205			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	38	179	297	404	365	
Volume Left	38	0	297	0	0	
Volume Right	0	179	0	0	22	
cSH	126	694	1205	1700	1700	
Volume to Capacity	0.30	0.26	0.25	0.24	0.21	
Queue Length 95th (m)	8.9	7.8	7.4	0.0	0.0	
Control Delay (s/veh)	45.5	12.0	9.0	0.0	0.0	
Lane LOS	E	B	A			
Approach Delay (s/veh)	17.8		3.8		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay			5.1			
Intersection Capacity Utilization			48.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis Future Background 2030 Section E - PM Peak6: York Durham Line & Bethesda Side Road

04/01/2026

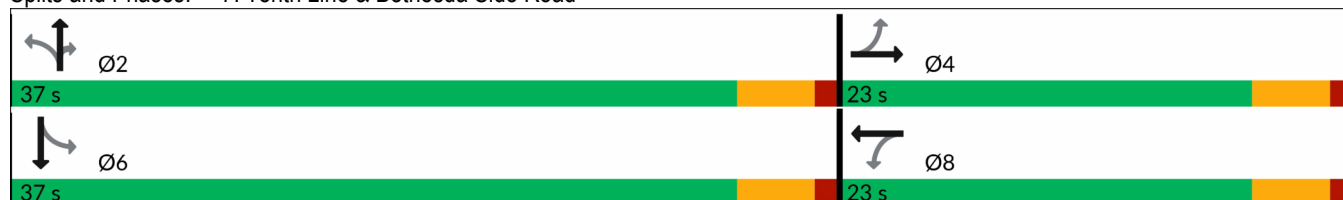
						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	115	110	246	236	17
Future Volume (Veh/h)	13	115	110	246	236	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	125	120	267	257	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	773	266	275			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	773	266	275			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	84	91			
cM capacity (veh/h)	336	778	1300			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	139	387	275			
Volume Left	14	120	0			
Volume Right	125	0	18			
cSH	687	1300	1700			
Volume to Capacity	0.20	0.09	0.16			
Queue Length 95th (m)	5.7	2.3	0.0			
Control Delay (s/veh)	11.6	3.1	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	11.6	3.1	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		3.5				
Intersection Capacity Utilization		50.3%		ICU Level of Service		A
Analysis Period (min)		15				

Timings
7: Tenth Line & Bethesda Side Road

Future Background 2030 Section E - PM Peak
04/01/2026

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	48	61	79	32	135	533	49	73	506
Future Volume (vph)	48	61	79	32	135	533	49	73	506
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		4		8		2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	61.7%	61.7%	61.7%	61.7%	61.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)		10.7	10.7	10.7	34.8	34.8	34.8	34.8	34.8
Actuated g/C Ratio		0.20	0.20	0.20	0.64	0.64	0.64	0.64	0.64
v/c Ratio		0.64	0.49	0.26	0.32	0.48	0.05	0.17	0.48
Control Delay (s/veh)		19.3	27.6	9.7	8.2	7.7	2.1	6.5	7.7
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		19.3	27.6	9.7	8.2	7.7	2.1	6.5	7.7
LOS		B	C	A	A	A	A	A	A
Approach Delay (s/veh)		19.3		17.9		7.4			7.6
Approach LOS		B		B		A			A
Intersection Summary									
Cycle Length: 60									
Actuated Cycle Length: 54.6									
Natural Cycle: 55									
Control Type: Semi Act-Uncoord									
Maximum v/c Ratio: 0.64									
Intersection Signal Delay (s/veh): 10.1					Intersection LOS: B				
Intersection Capacity Utilization 67.2%					ICU Level of Service C				
Analysis Period (min) 15									

Splits and Phases: 7: Tenth Line & Bethesda Side Road



HCM Signalized Intersection Capacity Analysis Future Background 2030 Section E - PM Peak

7: Tenth Line & Bethesda Side Road

04/01/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	61	123	79	32	61	135	533	49	73	506	29
Future Volume (vph)	48	61	123	79	32	61	135	533	49	73	506	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.93		1.00	0.90		1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1765		1825	1707		1824	1921	1633	1825	1903	
Flt Permitted		0.91		0.47	1.00		0.38	1.00	1.00	0.38	1.00	
Satd. Flow (perm)		1615		911	1707		727	1921	1633	730	1903	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	53	67	135	87	35	67	148	586	54	80	556	32
RTOR Reduction (vph)	0	79	0	0	54	0	0	0	19	0	3	0
Lane Group Flow (vph)	0	176	0	87	48	0	148	586	35	80	585	0
Confl. Peds. (#/hr)	1					1	1					1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		10.7		10.7	10.7		34.9	34.9	34.9	34.9	34.9	
Effective Green, g (s)		10.7		10.7	10.7		34.9	34.9	34.9	34.9	34.9	
Actuated g/C Ratio		0.20		0.20	0.20		0.64	0.64	0.64	0.64	0.64	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		316		178	334		464	1227	1043	466	1216	
v/s Ratio Prot					0.03			0.31			c0.31	
v/s Ratio Perm		c0.11		0.10			0.20		0.02	0.11		
v/c Ratio		0.56		0.49	0.14		0.32	0.48	0.03	0.17	0.48	
Uniform Delay, d1		19.8		19.5	18.2		4.5	5.1	3.6	4.0	5.1	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		2.1		2.1	0.2		1.8	1.3	0.1	0.8	1.4	
Delay (s)		21.9		21.6	18.4		6.3	6.4	3.7	4.8	6.5	
Level of Service		C		C	B		A	A	A	A	A	
Approach Delay (s/veh)		21.9			19.9			6.2			6.3	
Approach LOS		C			B			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			9.7									
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			54.6									
Intersection Capacity Utilization			67.2%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis Future Background 2030 Section E - PM Peak8: Road A & Bethesda Side Road

04/01/2026

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	137	46	20	141	30	41
Future Volume (Veh/h)	137	46	20	141	30	41
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.92	0.90
Hourly flow rate (vph)	152	51	22	157	33	46
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	166					
pX, platoon unblocked						
vC, conflicting volume			203	379		178
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			203	379		178
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			98	95		95
cM capacity (veh/h)			1381	617		871
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	203	179	79			
Volume Left	0	22	33			
Volume Right	51	0	46			
cSH	1700	1381	743			
Volume to Capacity	0.12	0.02	0.11			
Queue Length 95th (m)	0.0	0.4	2.7			
Control Delay (s/veh)	0.0	1.1	10.4			
Lane LOS	A		B			
Approach Delay (s/veh)	0.0	1.1	10.4			
Approach LOS			B			
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			32.7%	ICU Level of Service		A
Analysis Period (min)			15			

Timings

Future Background 2030 Section E - PM Peak

9: Tenth Line & GO Primary Access/Road B/Road B

04/01/2026

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	364	0	50	0	49	343	61	595	23
Future Volume (vph)	364	0	50	0	49	343	61	595	23
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	3	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.5	28.0	9.5	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	9.5	28.0	9.5	28.0	37.5	37.5	37.5	37.5	37.5
Total Split (%)	12.7%	37.3%	12.7%	37.3%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	4.0	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	6.0	4.5	6.0	6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	16.1	10.1	7.2	10.1	31.7	31.7		31.7	31.7
Actuated g/C Ratio	0.27	0.17	0.12	0.17	0.54	0.54		0.54	0.54
v/c Ratio	0.85	0.25	0.25	0.02	0.27	0.46		0.77	0.03
Control Delay (s/veh)	41.6	1.3	24.5	0.1	13.7	10.9		19.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.9		0.0	0.0
Total Delay (s/veh)	41.6	1.3	24.5	0.1	13.7	11.8		19.9	0.0
LOS	D	A	C	A	B	B		B	A
Approach Delay (s/veh)		32.4		20.8		12.0		19.2	
Approach LOS		C		C		B		B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 59.2

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.85

Intersection Signal Delay (s/veh): 21.0

Intersection LOS: C

Intersection Capacity Utilization 99.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 9: Tenth Line & GO Primary Access/Road B/Road B

 Ø2	 Ø3	 Ø4
37.5 s	9.5 s	28 s
 Ø6	 Ø7	 Ø8
37.5 s	9.5 s	28 s

HCM Signalized Intersection Capacity Analysis Future Background 2030 Section E - PM Peak
 9: Tenth Line & GO Primary Access/Road B/Road B 04/01/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	364	0	108	50	0	9	49	343	74	61	595	23
Future Volume (vph)	364	0	108	50	0	9	49	343	74	61	595	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1825	1633		1825	1633		1825	1870			1912	1633
Flt Permitted	0.63	1.00		1.00	1.00		0.19	1.00			0.92	1.00
Satd. Flow (perm)	1201	1633		1921	1633		370	1870			1763	1633
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	404	0	120	56	0	10	54	381	82	68	661	26
RTOR Reduction (vph)	0	96	0	0	10	0	0	9	0	0	0	13
Lane Group Flow (vph)	404	24	0	56	0	0	54	454	0	0	729	13
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	20.3	13.0		4.7	1.9		31.7	31.7			31.7	31.7
Effective Green, g (s)	20.3	13.0		4.7	1.9		31.7	31.7			31.7	31.7
Actuated g/C Ratio	0.32	0.20		0.07	0.03		0.50	0.50			0.50	0.50
Clearance Time (s)	4.5	6.0		4.5	6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	516	331		136	48		183	926			873	808
v/s Ratio Prot	c0.17	0.01		0.02	0.00			0.24				
v/s Ratio Perm	c0.08			0.01			0.15				c0.41	0.01
v/c Ratio	0.78	0.07		0.41	0.01		0.30	0.49			0.84	0.02
Uniform Delay, d1	19.2	20.6		28.4	30.1		9.5	10.8			13.9	8.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	7.6	0.1		2.0	0.1		4.1	1.9			9.3	0.0
Delay (s)	26.8	20.7		30.4	30.2		13.6	12.6			23.2	8.3
Level of Service	C	C		C	C		B	B			C	A
Approach Delay (s/veh)		25.4			30.4			12.7			22.7	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			21.0				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			64.0				Sum of lost time (s)			16.5		
Intersection Capacity Utilization			99.1%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

Timings
11: Tenth Line & Road C

Future Background 2030 Section E - PM Peak
04/01/2026

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	156	0	30	0	133	329	44	482
Future Volume (vph)	156	0	30	0	133	329	44	482
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	47.5	47.5	47.5	47.5
Total Split (%)	32.1%	32.1%	32.1%	32.1%	67.9%	67.9%	67.9%	67.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effect Green (s)	13.1	13.1	13.1	13.1	46.0	46.0	46.0	46.0
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.68	0.68	0.68	0.68
v/c Ratio	0.63	0.17	0.13	0.02	0.43	0.32	0.08	0.63
Control Delay (s/veh)	34.7	0.6	22.0	0.1	11.0	5.8	5.2	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.7	0.6	22.0	0.1	11.0	5.8	5.2	9.2
LOS	C	A	C	A	B	A	A	A
Approach Delay (s/veh)		21.9		15.8		7.2		9.0
Approach LOS		C		B		A		A

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 68.1

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.63

Intersection Signal Delay (s/veh): 10.7

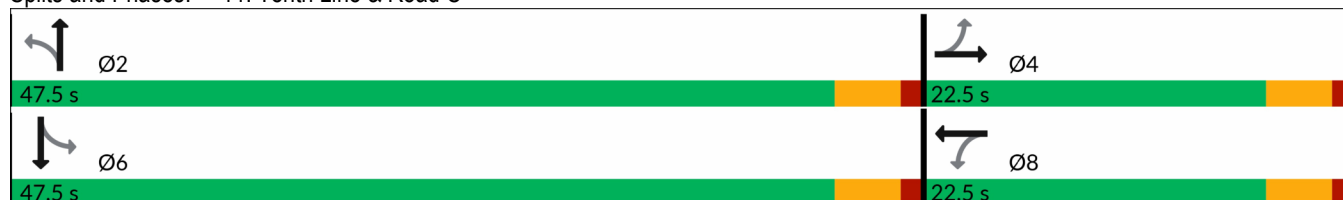
Intersection LOS: B

Intersection Capacity Utilization 72.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 11: Tenth Line & Road C



HCM Signalized Intersection Capacity Analysis Future Background 2030 Section E - PM Peak 11: Tenth Line & Road C

04/01/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	0	94	30	0	12	133	329	35	44	482	224
Future Volume (vph)	156	0	94	30	0	12	133	329	35	44	482	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1633		1825	1633		1825	1893		1825	1830	
Flt Permitted	0.75	1.00		0.69	1.00		0.27	1.00		0.50	1.00	
Satd. Flow (perm)	1439	1633		1325	1633		514	1893		965	1830	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	173	0	104	33	0	13	148	366	39	49	536	249
RTOR Reduction (vph)	0	84	0	0	10	0	0	5	0	0	20	0
Lane Group Flow (vph)	173	20	0	33	3	0	148	400	0	49	765	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.1	13.1		13.1	13.1		46.0	46.0		46.0	46.0	
Effective Green, g (s)	13.1	13.1		13.1	13.1		46.0	46.0		46.0	46.0	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.68	0.68		0.68	0.68	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	276	314		254	314		347	1278		651	1236	
v/s Ratio Prot		0.01			0.00			0.21			c0.42	
v/s Ratio Perm	c0.12			0.02			0.29			0.05		
v/c Ratio	0.63	0.06		0.13	0.01		0.43	0.31		0.08	0.62	
Uniform Delay, d1	25.3	22.5		22.8	22.2		5.0	4.5		3.8	6.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.4	0.1		0.2	0.0		3.8	0.6		0.2	2.3	
Delay (s)	29.7	22.6		23.0	22.3		8.8	5.2		4.0	8.5	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s/veh)		27.0			22.8			6.2			8.2	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			11.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			68.1				Sum of lost time (s)			9.0		
Intersection Capacity Utilization			72.9%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis Future Background 2030 Section E - PM Peak 108: Tenth Line & GO Right-in/out

04/01/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	40	0	716	639	69
Future Volume (Veh/h)	0	40	0	716	639	69
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	43	0	778	695	75
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				86	95	
pX, platoon unblocked	0.73	0.84	0.84			
vC, conflicting volume	1473	695	770			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	972	542	631			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	100			
cM capacity (veh/h)	207	457	807			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	43	778	695	75		
Volume Left	0	0	0	0		
Volume Right	43	0	0	75		
cSH	457	1700	1700	1700		
Volume to Capacity	0.09	0.46	0.41	0.04		
Queue Length 95th (m)	2.4	0.0	0.0	0.0		
Control Delay (s/veh)	13.7	0.0	0.0	0.0		
Lane LOS	B					
Approach Delay (s/veh)	13.7	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			43.6%		ICU Level of Service	A
Analysis Period (min)			15			

Timings
109: Tenth Line & GO Bus Only Access

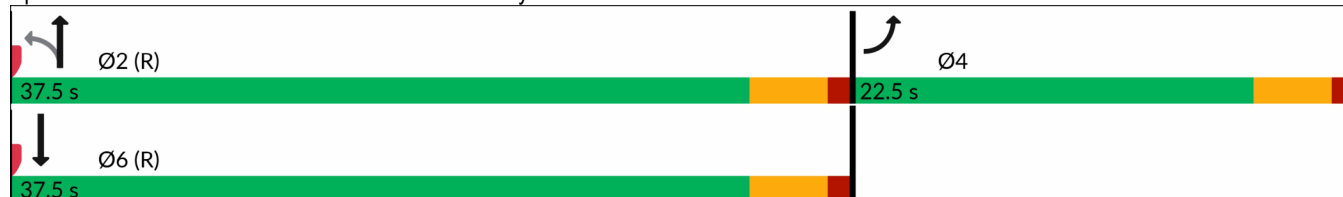
Future Background 2030 Section E - PM Peak
04/01/2026

			
Lane Group	EBL	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	2	478	749
Future Volume (vph)	2	478	749
Turn Type	Prot	NA	NA
Protected Phases	4	2	6
Permitted Phases			
Detector Phase	4	2	6
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5
Total Split (s)	22.5	37.5	37.5
Total Split (%)	37.5%	62.5%	62.5%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	5.7	57.0	57.0
Actuated g/C Ratio	0.10	0.95	0.95
v/c Ratio	0.02	0.29	0.45
Control Delay (s/veh)	22.3	1.3	2.0
Queue Delay	0.0	0.0	0.1
Total Delay (s/veh)	22.3	1.3	2.1
LOS	C	A	A
Approach Delay (s/veh)	22.3	1.3	2.1
Approach LOS	C	A	A

Intersection Summary

Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay (s/veh): 1.8	Intersection LOS: A
Intersection Capacity Utilization 51.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 109: Tenth Line & GO Bus Only Access



HCM Signalized Intersection Capacity Analysis Future Background 2030 Section E - PM Peak
 109: Tenth Line & GO Bus Only Access 04/01/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	1	0	478	749	4
Future Volume (vph)	2	1	0	478	749	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.96			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1775			1921	1920	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1775			1921	1920	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	1	0	520	814	4
RTOR Reduction (vph)	1	0	0	0	0	0
Lane Group Flow (vph)	2	0	0	520	818	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.2			49.8	49.8	
Effective Green, g (s)	1.2			49.8	49.8	
Actuated g/C Ratio	0.02			0.83	0.83	
Clearance Time (s)	4.5			4.5	4.5	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	35			1594	1593	
v/s Ratio Prot	c0.00			0.27	c0.43	
v/s Ratio Perm						
v/c Ratio	0.06			0.33	0.51	
Uniform Delay, d1	28.8			1.2	1.5	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.7			0.5	1.2	
Delay (s)	29.5			1.7	2.7	
Level of Service	C			A	A	
Approach Delay (s/veh)	29.5			1.7	2.7	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			2.4	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.50			
Actuated Cycle Length (s)			60.0	Sum of lost time (s)		9.0
Intersection Capacity Utilization			51.3%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis Future Background 2030 Section E - PM Peak 113: Tenth Line & RI/RO North Access

04/01/2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	10	456	24	0	753
Future Volume (Veh/h)	0	10	456	24	0	753
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	11	496	26	0	818
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			46			48
pX, platoon unblocked	0.70	0.93			0.93	
vC, conflicting volume	1327	509			522	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1031	436			450	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	182	582			1044	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	11	522	818			
Volume Left	0	0	0			
Volume Right	11	26	0			
cSH	582	1700	1700			
Volume to Capacity	0.02	0.31	0.48			
Queue Length 95th (m)	0.4	0.0	0.0			
Control Delay (s/veh)	11.3	0.0	0.0			
Lane LOS	B					
Approach Delay (s/veh)	11.3	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			43.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis Future Background 2030 Section E - PM Peak 114: Tenth Line & RI/RO Central Access

04/01/2026

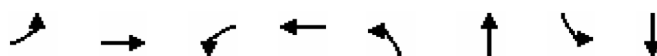
						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	22	456	42	0	750
Future Volume (Veh/h)	0	22	456	42	0	750
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	24	496	46	0	815
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			162			177
pX, platoon unblocked	0.83					
vC, conflicting volume	1334	519			542	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1299	519			542	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	149	561			1037	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	24	542	815			
Volume Left	0	0	0			
Volume Right	24	46	0			
cSH	561	1700	1700			
Volume to Capacity	0.04	0.32	0.48			
Queue Length 95th (m)	1.0	0.0	0.0			
Control Delay (s/veh)	11.7	0.0	0.0			
Lane LOS	B					
Approach Delay (s/veh)	11.7	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		0.2				
Intersection Capacity Utilization		42.8%		ICU Level of Service		A
Analysis Period (min)		15				

Timings

Future Background 2035 Section E - AM Peak

3: Tenth Line (South Leg)/Private Driveway & Main Street

03/30/2026



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↔	↔	↔	↔	↔		↔
Traffic Volume (vph)	7	173	708	275	126	1	1	0
Future Volume (vph)	7	173	708	275	126	1	1	0
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	29.5	29.5	9.5	29.5	27.5	27.5	27.5	27.5
Total Split (s)	38.8	38.8	53.0	91.8	28.2	28.2	28.2	28.2
Total Split (%)	32.3%	32.3%	44.2%	76.5%	23.5%	23.5%	23.5%	23.5%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	1.5	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.5	4.5	5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Max	Max	None	Max	Max	Max	Max	Max
Act Effect Green (s)		43.7	87.3	86.3	22.7	22.7		22.7
Actuated g/C Ratio		0.36	0.73	0.72	0.19	0.19		0.19
v/c Ratio		0.51	0.87	0.22	0.51	0.64		0.02
Control Delay (s/veh)		33.1	22.3	6.0	51.0	9.2		0.2
Queue Delay		0.0	33.3	3.9	0.0	0.0		0.0
Total Delay (s/veh)		33.1	55.6	10.0	51.0	9.2		0.2
LOS		C	E	A	D	A		A
Approach Delay (s/veh)		33.1		42.6		19.6		0.2
Approach LOS		C		D		B		A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay (s/veh): 34.4

Intersection LOS: C

Intersection Capacity Utilization 96.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Tenth Line (South Leg)/Private Driveway & Main Street

Ø1 53 s	Ø2 38.8 s	Ø4 28.2 s
Ø6 91.8 s		Ø8 28.2 s

HCM Signalized Intersection Capacity Analysis Future Background 2035 Section E - AM Peak 3: Tenth Line (South Leg)/Private Driveway & Main Street 03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	173	131	708	275	7	126	1	378	1	0	5
Future Volume (vph)	7	173	131	708	275	7	126	1	378	1	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.98		1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes		1.00		1.00	1.00		0.99	1.00			1.00	
Frt		0.94		1.00	1.00		1.00	0.85			0.89	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)		1768		1816	1912		1810	1634			1651	
Flt Permitted		0.99		0.39	1.00		0.75	1.00			0.66	
Satd. Flow (perm)		1754		747	1912		1436	1634			1101	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	188	142	770	299	8	137	1	411	1	0	5
RTOR Reduction (vph)	0	19	0	0	1	0	0	333	0	0	5	0
Lane Group Flow (vph)	0	319	0	770	306	0	137	79	0	0	1	0
Confl. Peds. (#/hr)	5		14	14		5	3					3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		43.7		86.3	86.3		22.7	22.7			22.7	
Effective Green, g (s)		43.7		86.3	86.3		22.7	22.7			22.7	
Actuated g/C Ratio		0.36		0.72	0.72		0.19	0.19			0.19	
Clearance Time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		638		876	1375		271	309			208	
v/s Ratio Prot				c0.28	0.16			0.05				
v/s Ratio Perm		0.18		c0.35			c0.10				0.00	
v/c Ratio		0.50		0.88	0.22		0.51	0.25			0.01	
Uniform Delay, d1		29.7		12.8	5.6		43.6	41.4			39.5	
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		2.8		10.0	0.4		6.6	2.0			0.0	
Delay (s)		32.4		22.8	6.0		50.2	43.4			39.5	
Level of Service		C		C	A		D	D			D	
Approach Delay (s/veh)		32.4			18.0			45.1			39.5	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			28.1			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			15.5			
Intersection Capacity Utilization			96.4%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group

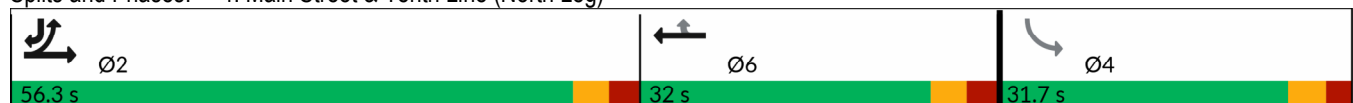
Timings
4: Main Street & Tenth Line (North Leg)

Future Background 2035 Section E - AM Peak

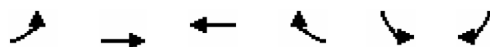
03/30/2026

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	421	115	151	73	138	816
Future Volume (vph)	421	115	151	73	138	816
Turn Type	Split	NA	NA	Perm	Perm	Over
Protected Phases	2	2	6			2
Permitted Phases				6	4	
Detector Phase	2	2	6	6	4	2
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.0	32.0	32.0	32.0	31.7	32.0
Total Split (s)	56.3	56.3	32.0	32.0	31.7	56.3
Total Split (%)	46.9%	46.9%	26.7%	26.7%	26.4%	46.9%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.4	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max	Max	Max	Max	None	Max
Act Effct Green (s)	50.4	50.4	26.0	26.0	15.1	50.4
Actuated g/C Ratio	0.46	0.46	0.24	0.24	0.14	0.46
v/c Ratio	0.59	0.15	0.39	0.20	0.65	0.84
Control Delay (s/veh)	26.1	18.5	39.0	8.9	57.3	14.2
Queue Delay	55.8	1.8	0.0	0.0	0.0	0.0
Total Delay (s/veh)	81.9	20.3	39.0	8.9	57.3	14.2
LOS	F	C	D	A	E	B
Approach Delay (s/veh)		68.7	29.2		20.4	
Approach LOS		E	C		C	
Intersection Summary						
Cycle Length: 120						
Actuated Cycle Length: 109.3						
Natural Cycle: 100						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.84						
Intersection Signal Delay (s/veh): 36.7				Intersection LOS: D		
Intersection Capacity Utilization 82.2%				ICU Level of Service E		
Analysis Period (min) 15						

Splits and Phases: 4: Main Street & Tenth Line (North Leg)



HCM Signalized Intersection Capacity Analysis Future Background 2035 Section E - AM Peak 4: Main Street & Tenth Line (North Leg) 03/30/2026



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	421	115	151	73	138	816
Future Volume (vph)	421	115	151	73	138	816
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.6	3.6	3.5	3.5	3.5	3.5
Total Lost time (s)	6.0	6.0	6.0	6.0	5.7	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1805	1900	1879	1555	1774	1597
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1805	1900	1879	1555	1774	1597
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	490	134	176	85	160	949
RTOR Reduction (vph)	0	0	0	65	0	393
Lane Group Flow (vph)	490	134	176	20	160	556
Confl. Peds. (#/hr)	3			3	3	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA	NA	Perm	Perm	Over
Protected Phases	2	2	6			2
Permitted Phases				6	4	
Actuated Green, G (s)	50.4	50.4	26.0	26.0	15.1	50.4
Effective Green, g (s)	50.4	50.4	26.0	26.0	15.1	50.4
Actuated g/C Ratio	0.46	0.46	0.24	0.24	0.14	0.46
Clearance Time (s)	6.0	6.0	6.0	6.0	5.7	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	833	876	447	370	245	737
v/s Ratio Prot	0.27	0.07	c0.09			c0.35
v/s Ratio Perm				0.01	c0.09	
v/c Ratio	0.59	0.15	0.39	0.05	0.65	0.76
Uniform Delay, d1	21.7	17.0	35.0	32.1	44.6	24.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.0	0.4	2.6	0.3	6.1	7.1
Delay (s)	24.8	17.4	37.6	32.4	50.7	31.4
Level of Service	C	B	D	C	D	C
Approach Delay (s/veh)		23.2	35.9		34.2	
Approach LOS		C	D		C	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			31.0		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			109.2		Sum of lost time (s)	17.7
Intersection Capacity Utilization			82.2%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity AnalysisFuture Background 2035 Section E - AM Peak 5: York Durham Line & Main Street03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	221	152	238	492	22
Future Volume (Veh/h)	14	221	152	238	492	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	15	235	162	253	523	23
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1112	535	546			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1112	535	546			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	57	84			
cM capacity (veh/h)	197	550	1033			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	15	235	162	253	546	
Volume Left	15	0	162	0	0	
Volume Right	0	235	0	0	23	
cSH	197	550	1033	1700	1700	
Volume to Capacity	0.08	0.43	0.16	0.15	0.32	
Queue Length 95th (m)	1.9	16.2	4.2	0.0	0.0	
Control Delay (s/veh)	24.8	16.4	9.1	0.0	0.0	
Lane LOS	C	C	A			
Approach Delay (s/veh)	16.9	3.6		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay			4.7			
Intersection Capacity Utilization			49.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis Future Background 2035 Section E - AM Peak 6: York Durham Line & Bethesda Side Road 03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	341	156	155	312	10
Future Volume (Veh/h)	20	341	156	155	312	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	21	359	164	163	328	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	825	334	339			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	825	334	339			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	50	87			
cM capacity (veh/h)	299	713	1231			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	380	327	339			
Volume Left	21	164	0			
Volume Right	359	0	11			
cSH	662	1231	1700			
Volume to Capacity	0.57	0.13	0.20			
Queue Length 95th (m)	27.8	3.5	0.0			
Control Delay (s/veh)	17.5	4.8	0.0			
Lane LOS	C	A				
Approach Delay (s/veh)	17.5	4.8	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		7.9				
Intersection Capacity Utilization		66.0%		ICU Level of Service		C
Analysis Period (min)		15				

Timings
7: Tenth Line & Bethesda Side Road

Future Background 2035 Section E - AM Peak

03/30/2026

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	86	227	307	54	109	170	457	58	74	510
Future Volume (vph)	86	227	307	54	109	170	457	58	74	510
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8		2		2	6	
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	24.0	24.0	24.0	24.0	24.0	9.6	31.5	31.5	9.5	31.4
Total Split (%)	36.9%	36.9%	36.9%	36.9%	36.9%	14.8%	48.5%	48.5%	14.6%	48.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		18.2	18.2	18.2	18.2	33.1	29.1	29.1	31.9	26.9
Actuated g/C Ratio		0.29	0.29	0.29	0.29	0.52	0.46	0.46	0.50	0.42
v/c Ratio		0.88	0.52	0.35	0.42	0.36	0.61	0.08	0.22	0.82
Control Delay (s/veh)		47.0	6.8	24.5	15.4	8.7	18.2	1.7	8.2	27.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		47.0	6.8	24.5	15.4	8.7	18.2	1.7	8.2	27.1
LOS		D	A	C	B	A	B	A	A	C
Approach Delay (s/veh)		27.1			17.4		14.4			25.0
Approach LOS		C			B		B			C

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 63.7

Natural Cycle: 65

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.88

Intersection Signal Delay (s/veh): 21.4

Intersection LOS: C

Intersection Capacity Utilization 78.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 7: Tenth Line & Bethesda Side Road

 Ø1	 Ø2	 Ø4
9.5 s	31.5 s	24 s
 Ø5	 Ø6	 Ø8
9.6 s	31.4 s	24 s

HCM Signalized Intersection Capacity Analysis Future Background 2035 Section E - AM Peak

7: Tenth Line & Bethesda Side Road

03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	227	307	54	109	94	170	457	58	74	510	57
Future Volume (vph)	86	227	307	54	109	94	170	457	58	74	510	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00	1.00	1.00	1.00		0.97	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.93		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1895	1633	1825	1788		3541	1921	1633	1825	1892	
Flt Permitted		0.75	1.00	0.33	1.00		0.16	1.00	1.00	0.31	1.00	
Satd. Flow (perm)		1448	1633	627	1788		592	1921	1633	601	1892	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	100	264	357	63	127	109	198	531	67	86	593	66
RTOR Reduction (vph)	0	0	224	0	49	0	0	0	37	0	6	0
Lane Group Flow (vph)	0	364	133	63	187	0	198	531	30	86	653	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)		18.2	18.2	18.2	18.2		34.2	29.1	29.1	31.8	27.9	
Effective Green, g (s)		18.2	18.2	18.2	18.2		34.2	29.1	29.1	31.8	27.9	
Actuated g/C Ratio		0.28	0.28	0.28	0.28		0.53	0.45	0.45	0.49	0.43	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		407	459	176	502		545	864	734	369	815	
v/s Ratio Prot					0.10		c0.03	0.28		0.01	c0.34	
v/s Ratio Perm		c0.25	0.08	0.10			0.16		0.02	0.10		
v/c Ratio		0.89	0.29	0.36	0.37		0.36	0.61	0.04	0.23	0.80	
Uniform Delay, d1		22.3	18.2	18.6	18.7		10.5	13.5	10.0	9.5	16.0	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		21.3	0.4	1.2	0.5		0.4	3.3	0.1	0.3	8.1	
Delay (s)		43.6	18.6	19.8	19.1		10.9	16.8	10.1	9.8	24.1	
Level of Service		D	B	B	B		B	B	B	A	C	
Approach Delay (s/veh)		31.2			19.3			14.8			22.5	
Approach LOS		C			B			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			22.2									
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			64.7							13.5		
Intersection Capacity Utilization			78.3%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis Future Background 2035 Section E - AM Peak 8: Road A & Bethesda Side Road 03/30/2026

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (veh/h)	344	15	7	213	44	34
Future Volume (Veh/h)	344	15	7	213	44	34
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	382	17	8	237	49	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)	166					
pX, platoon unblocked			0.89		0.89	0.89
vC, conflicting volume			399		644	391
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			258		534	248
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		89	95
cM capacity (veh/h)			1169		449	705
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	399	245	87			
Volume Left	0	8	49			
Volume Right	17	0	38			
cSH	1700	1169	534			
Volume to Capacity	0.23	0.00*	0.16			
Queue Length 95th (m)	0.0	0.2	4.4			
Control Delay (s/veh)	0.0	0.3	13.1			
Lane LOS		A	B			
Approach Delay (s/veh)	0.0	0.3	13.1			
Approach LOS			B			
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			30.2%	ICU Level of Service		A
Analysis Period (min)			15			
* Value less than 0.01.						

Timings

Future Background 2035 Section E - AM Peak

9: Tenth Line & GO Primary Access/Road B/Road B

03/30/2026



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	82	0	74	0	168	587	22	528	7
Future Volume (vph)	82	0	74	0	168	587	22	528	7
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	28.0	28.0	28.0	28.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	10.3	10.3	10.3	10.3	31.9	31.9	31.9	31.9	31.9
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.64	0.64	0.64	0.64	0.64
v/c Ratio	0.31	0.10	0.28	0.04	0.39	0.55	0.06	0.48	0.01
Control Delay (s/veh)	19.5	0.4	19.2	0.2	10.1	9.6	6.1	8.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
Total Delay (s/veh)	19.5	0.4	19.2	0.2	10.1	10.0	6.1	8.5	0.0
LOS	B	A	B	A	B	B	A	A	A
Approach Delay (s/veh)		12.9		15.8		10.1		8.3	
Approach LOS		B		B		B		A	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 49.6

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.55

Intersection Signal Delay (s/veh): 10.0

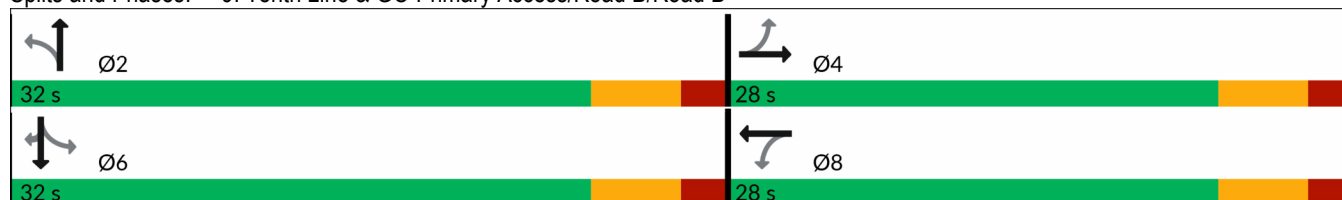
Intersection LOS: A

Intersection Capacity Utilization 67.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 9: Tenth Line & GO Primary Access/Road B/Road B



HCM Signalized Intersection Capacity Analysis Future Background 2035 Section E - AM Peak 9: Tenth Line & GO Primary Access/Road B/Road B 03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	0	43	74	0	16	168	587	26	22	528	7
Future Volume (vph)	82	0	43	74	0	16	168	587	26	22	528	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1633		1825	1633		1825	1909		1825	1921	1633
Flt Permitted	0.75	1.00		0.73	1.00		0.39	1.00		0.32	1.00	1.00
Satd. Flow (perm)	1433	1633		1394	1633		746	1909		620	1921	1633
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	91	0	48	82	0	18	187	652	29	24	587	8
RTOR Reduction (vph)	0	40	0	0	15	0	0	2	0	0	0	3
Lane Group Flow (vph)	91	8	0	82	3	0	187	679	0	24	587	5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	8.2	8.2		8.2	8.2		30.6	30.6		30.6	30.6	30.6
Effective Green, g (s)	8.2	8.2		8.2	8.2		30.6	30.6		30.6	30.6	30.6
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.60	0.60		0.60	0.60	0.60
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	231	263		225	263		449	1149		373	1157	983
v/s Ratio Prot		0.00			0.00			c0.36			0.31	
v/s Ratio Perm	c0.06			0.06			0.25			0.04		0.00
v/c Ratio	0.39	0.03		0.36	0.01		0.42	0.59		0.06	0.51	0.00
Uniform Delay, d1	19.1	17.9		19.0	17.9		5.4	6.2		4.2	5.8	4.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.0		1.0	0.0		2.8	2.2		0.3	1.6	0.0
Delay (s)	20.2	18.0		20.0	17.9		8.2	8.5		4.5	7.4	4.0
Level of Service	C	B		B	B		A	A		A	A	A
Approach Delay (s/veh)		19.4			19.6			8.4			7.2	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			9.5				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			50.8				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			67.0%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Timings
11: Tenth Line & Road C

Future Background 2035 Section E - AM Peak
03/30/2026

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	214	0	41	0	57	525	16	535
Future Volume (vph)	214	0	41	0	57	525	16	535
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	42.5	42.5	42.5	42.5
Total Split (%)	34.6%	34.6%	34.6%	34.6%	65.4%	65.4%	65.4%	65.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effect Green (s)	14.6	14.6	14.6	14.6	39.8	39.8	39.8	39.8
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.63	0.63	0.63	0.63
v/c Ratio	0.72	0.23	0.16	0.03	0.18	0.50	0.04	0.59
Control Delay (s/veh)	35.1	0.9	19.5	0.1	7.6	8.8	6.0	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	35.1	0.9	19.5	0.1	7.6	8.8	6.0	10.0
LOS	D	A	B	A	A	A	A	B
Approach Delay (s/veh)		22.4		14.0		8.7		9.9
Approach LOS		C		B		A		A

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 63.5

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.72

Intersection Signal Delay (s/veh): 12.2

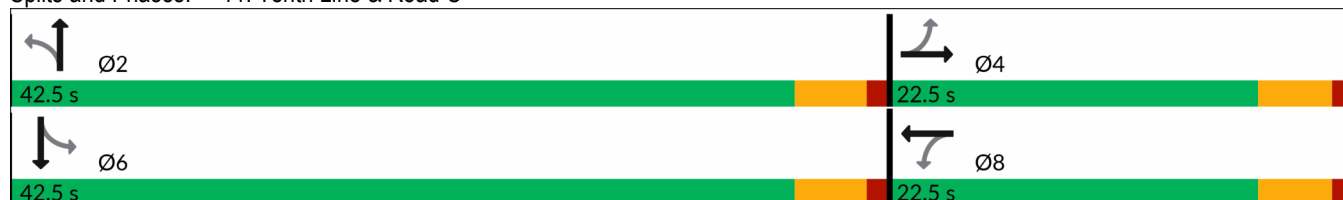
Intersection LOS: B

Intersection Capacity Utilization 69.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 11: Tenth Line & Road C



HCM Signalized Intersection Capacity Analysis Future Background 2035 Section E - AM Peak 11: Tenth Line & Road C

03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	0	126	41	0	16	57	525	12	16	535	93
Future Volume (vph)	214	0	126	41	0	16	57	525	12	16	535	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1633		1825	1633		1825	1915		1825	1879	
Flt Permitted	0.75	1.00		0.67	1.00		0.30	1.00		0.36	1.00	
Satd. Flow (perm)	1433	1633		1283	1633		567	1915		692	1879	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	238	0	140	46	0	18	63	583	13	18	594	103
RTOR Reduction (vph)	0	108	0	0	14	0	0	1	0	0	9	0
Lane Group Flow (vph)	238	32	0	46	4	0	63	595	0	18	688	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.6	14.6		14.6	14.6		39.8	39.8		39.8	39.8	
Effective Green, g (s)	14.6	14.6		14.6	14.6		39.8	39.8		39.8	39.8	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.63	0.63		0.63	0.63	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	329	376		295	376		355	1202		434	1179	
v/s Ratio Prot		0.02			0.00			0.31			c0.37	
v/s Ratio Perm	c0.17			0.04			0.11			0.03		
v/c Ratio	0.72	0.09		0.16	0.01		0.18	0.49		0.04	0.58	
Uniform Delay, d1	22.5	19.2		19.5	18.8		4.9	6.4		4.5	6.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.7	0.1		0.2	0.0		1.1	1.5		0.2	2.1	
Delay (s)	30.2	19.3		19.7	18.8		6.0	7.8		4.7	9.1	
Level of Service	C	B		B	B		A	A		A	A	
Approach Delay (s/veh)		26.1			19.5			7.7			8.9	
Approach LOS		C			B			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			12.4									
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			63.4									
Intersection Capacity Utilization			69.0%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis Future Background 2035 Section E - AM Peak 108: Tenth Line & GO Right-in/out 03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	10	0	685	547	324
Future Volume (Veh/h)	0	10	0	685	547	324
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	11	0	745	595	352
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				86	95	
pX, platoon unblocked	0.75					
vC, conflicting volume	1340	595	947			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1285	595	947			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	137	508	733			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	11	745	595	352		
Volume Left	0	0	0	0		
Volume Right	11	0	0	352		
cSH	508	1700	1700	1700		
Volume to Capacity	0.02	0.44	0.35	0.21		
Queue Length 95th (m)	0.5	0.0	0.0	0.0		
Control Delay (s/veh)	12.2	0.0	0.0	0.0		
Lane LOS	B					
Approach Delay (s/veh)	12.2	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			39.4%		ICU Level of Service	A
Analysis Period (min)			15			

Timings
109: Tenth Line & GO Bus Only Access

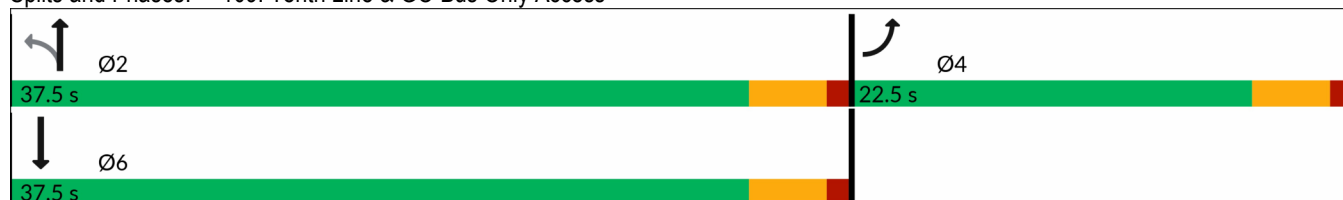
Future Background 2035 Section E - AM Peak
03/30/2026

			
Lane Group	EBL	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	2	772	644
Future Volume (vph)	2	772	644
Turn Type	Prot	NA	NA
Protected Phases	4	2	6
Permitted Phases			
Detector Phase	4	2	6
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5
Total Split (s)	22.5	37.5	37.5
Total Split (%)	37.5%	62.5%	62.5%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	Max	Max
Act Effect Green (s)	5.7	52.0	52.0
Actuated g/C Ratio	0.10	0.95	0.95
v/c Ratio	0.01	0.46	0.38
Control Delay (s/veh)	24.0	2.0	1.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	24.0	2.0	1.6
LOS	C	A	A
Approach Delay (s/veh)	24.0	2.0	1.6
Approach LOS	C	A	A

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 54.6
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay (s/veh): 1.9
 Intersection LOS: A
 Intersection Capacity Utilization 52.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 109: Tenth Line & GO Bus Only Access



HCM Signalized Intersection Capacity Analysis Future Background 2035 Section E - AM Peak 109: Tenth Line & GO Bus Only Access

03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	0	0	772	644	1
Future Volume (vph)	2	0	0	772	644	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	
Lane Util. Factor	1.00			1.00	1.00	
Frt	1.00			1.00	1.00	
Flt Protected	0.95			1.00	1.00	
Satd. Flow (prot)	1825			1921	1921	
Flt Permitted	0.95			1.00	1.00	
Satd. Flow (perm)	1825			1921	1921	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	0	0	839	700	1
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	2	0	0	839	701	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.0			48.3	48.3	
Effective Green, g (s)	1.0			48.3	48.3	
Actuated g/C Ratio	0.02			0.83	0.83	
Clearance Time (s)	4.5			4.5	4.5	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	31			1591	1591	
v/s Ratio Prot	c0.00			c0.44	0.36	
v/s Ratio Perm						
v/c Ratio	0.06			0.53	0.44	
Uniform Delay, d1	28.2			1.5	1.4	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.9			1.3	0.9	
Delay (s)	29.1			2.8	2.2	
Level of Service	C			A	A	
Approach Delay (s/veh)	29.1			2.8	2.2	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			2.6	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.52			
Actuated Cycle Length (s)			58.3	Sum of lost time (s)		9.0
Intersection Capacity Utilization			52.3%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis Future Background 2035 Section E - AM Peak 113: Tenth Line & RI/RO North Access

03/30/2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	15	766	8	0	645
Future Volume (Veh/h)	0	15	766	8	0	645
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	833	9	0	701
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			46			48
pX, platoon unblocked	0.87	0.84			0.84	
vC, conflicting volume	1539	838			842	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1135	713			719	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	196	366			751	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	16	842	701			
Volume Left	0	0	0			
Volume Right	16	9	0			
cSH	366	1700	1700			
Volume to Capacity	0.04	0.50	0.41			
Queue Length 95th (m)	1.0	0.0	0.0			
Control Delay (s/veh)	15.3	0.0	0.0			
Lane LOS	C					
Approach Delay (s/veh)	15.3	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		0.2				
Intersection Capacity Utilization		50.8%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis Future Background 2035 Section E - AM Peak 114: Tenth Line & RI/RO Central Access

03/30/2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	31	741	14	0	644
Future Volume (Veh/h)	0	31	741	14	0	644
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	34	805	15	0	700
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (m)			162			177
pX, platoon unblocked	0.88					
vC, conflicting volume	1513	813			820	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1514	813			820	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	91			100	
cM capacity (veh/h)	118	382			818	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	34	820	700			
Volume Left	0	0	0			
Volume Right	34	15	0			
cSH	382	1700	1700			
Volume to Capacity	0.09	0.48	0.41			
Queue Length 95th (m)	2.2	0.0	0.0			
Control Delay (s/veh)	15.3	0.0	0.0			
Lane LOS	C					
Approach Delay (s/veh)	15.3	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		0.3				
Intersection Capacity Utilization		49.8%		ICU Level of Service		A
Analysis Period (min)		15				

Timings

Future Background 2035 Section E - PM Peak

3: Tenth Line (South Leg)/Private Driveway & Main Street

03/30/2026

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	15	327	547	314	130	0	1	0
Future Volume (vph)	15	327	547	314	130	0	1	0
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	29.5	29.5	9.5	29.5	27.5	27.5	27.5	27.5
Total Split (s)	47.0	47.0	35.0	82.0	38.0	38.0	38.0	38.0
Total Split (%)	39.2%	39.2%	29.2%	68.3%	31.7%	31.7%	31.7%	31.7%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	1.5	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.5	4.5	5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Max	Max	None	Max	Max	Max	Max	Max
Act Effect Green (s)		42.9	77.5	76.5	32.5	32.5		32.5
Actuated g/C Ratio		0.36	0.65	0.64	0.27	0.27		0.27
v/c Ratio		0.85	0.95	0.29	0.37	0.87		0.03
Control Delay (s/veh)		48.6	44.8	10.3	38.8	19.9		0.1
Queue Delay		0.0	47.2	8.1	0.0	0.0		0.0
Total Delay (s/veh)		48.6	92.0	18.4	38.8	19.9		0.1
LOS		D	F	B	D	B		A
Approach Delay (s/veh)		48.6		64.5		22.8		0.1
Approach LOS		D		E		C		A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay (s/veh): 44.9

Intersection LOS: D

Intersection Capacity Utilization 116.7%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 3: Tenth Line (South Leg)/Private Driveway & Main Street

 Ø1	 Ø2	 Ø4
35 s	47 s	38 s
 Ø6		 Ø8
82 s		38 s

HCM Signalized Intersection Capacity Analysis Future Background 2035 Section E - PM Peak 3: Tenth Line (South Leg)/Private Driveway & Main Street 03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	327	169	547	314	14	130	0	711	1	0	8
Future Volume (vph)	15	327	169	547	314	14	130	0	711	1	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99		1.00	1.00		1.00	1.00			0.97	
Flpb, ped/bikes		1.00		1.00	1.00		0.98	1.00			1.00	
Frt		0.96		1.00	0.99		1.00	0.85			0.88	
Flt Protected		1.00		0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1809		1825	1905		1796	1633			1625	
Flt Permitted		0.98		0.24	1.00		0.75	1.00			0.73	
Satd. Flow (perm)		1783		464	1905		1420	1633			1199	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	355	184	595	341	15	141	0	773	1	0	9
RTOR Reduction (vph)	0	15	0	0	1	0	0	451	0	0	7	0
Lane Group Flow (vph)	0	540	0	595	355	0	141	322	0	0	3	0
Confl. Peds. (#/hr)	13		7	7		13	6					6
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.9		76.5	76.5		32.5	32.5			32.5	
Effective Green, g (s)		42.9		76.5	76.5		32.5	32.5			32.5	
Actuated g/C Ratio		0.36		0.64	0.64		0.27	0.27			0.27	
Clearance Time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		637		625	1214		384	442			324	
v/s Ratio Prot				c0.23	0.19			c0.20				
v/s Ratio Perm		0.30		c0.38			0.10				0.00	
v/c Ratio		0.85		0.95	0.29		0.37	0.73			0.01	
Uniform Delay, d1		35.5		23.8	9.7		35.4	39.7			32.0	
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		13.2		24.6	0.6		2.7	10.1			0.0	
Delay (s)		48.8		48.4	10.3		38.1	49.8			32.0	
Level of Service		D		D	B		D	D			C	
Approach Delay (s/veh)		48.8			34.1			48.0			32.0	
Approach LOS		D			C			D			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			42.7			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			15.5			
Intersection Capacity Utilization			116.7%			ICU Level of Service			H			
Analysis Period (min)			15									

c Critical Lane Group

Timings
4: Main Street & Tenth Line (North Leg)

Future Background 2035 Section E - PM Peak

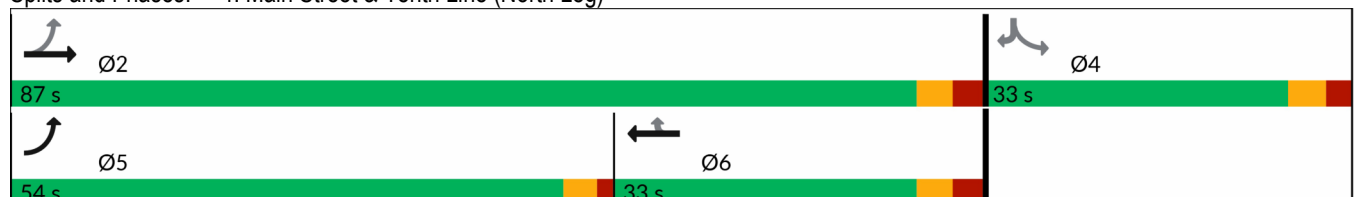
03/30/2026

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	828	208	198	205	109	655
Future Volume (vph)	828	208	198	205	109	655
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.5	32.0	32.0	32.0	31.7	31.7
Total Split (s)	54.0	87.0	33.0	33.0	33.0	33.0
Total Split (%)	45.0%	72.5%	27.5%	27.5%	27.5%	27.5%
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.5	2.7	2.7	2.7	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Max	Max	Max	None	None
Act Effect Green (s)	82.8	81.3	37.8	37.8	15.4	15.4
Actuated g/C Ratio	0.76	0.75	0.35	0.35	0.14	0.14
v/c Ratio	0.86	0.16	0.33	0.32	0.46	0.85
Control Delay (s/veh)	17.8	4.9	32.6	6.3	48.1	14.3
Queue Delay	23.3	1.7	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.0	6.6	32.6	6.3	48.1	14.3
LOS	D	A	C	A	D	B
Approach Delay (s/veh)		34.1	19.2		19.1	
Approach LOS		C	B		B	

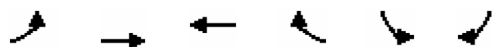
Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 108.4	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay (s/veh): 26.2	Intersection LOS: C
Intersection Capacity Utilization 90.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Main Street & Tenth Line (North Leg)



HCM Signalized Intersection Capacity Analysis Future Background 2035 Section E - PM Peak 4: Main Street & Tenth Line (North Leg) 03/30/2026



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	828	208	198	205	109	655
Future Volume (vph)	828	208	198	205	109	655
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.6	3.6	3.5	3.5	3.5	3.5
Total Lost time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1799	1900	1879	1549	1781	1559
Flt Permitted	0.51	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	960	1900	1879	1549	1781	1559
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	890	224	213	220	117	704
RTOR Reduction (vph)	0	0	0	143	0	604
Lane Group Flow (vph)	890	224	213	77	117	100
Confl. Peds. (#/hr)	5			5	1	2
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Actuated Green, G (s)	81.3	81.3	37.8	37.8	15.4	15.4
Effective Green, g (s)	81.3	81.3	37.8	37.8	15.4	15.4
Actuated g/C Ratio	0.75	0.75	0.35	0.35	0.14	0.14
Clearance Time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1021	1425	655	540	253	221
v/s Ratio Prot	c0.31	0.12	0.11			
v/s Ratio Perm	c0.34			0.05	c0.07	0.06
v/c Ratio	0.87	0.16	0.33	0.14	0.46	0.45
Uniform Delay, d1	7.9	3.8	25.9	24.2	42.7	42.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.3	0.2	1.3	0.6	1.3	1.5
Delay (s)	16.2	4.1	27.2	24.7	44.0	44.1
Level of Service	B	A	C	C	D	D
Approach Delay (s/veh)		13.7	26.0		44.1	
Approach LOS		B	C		D	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			26.5		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.84			
Actuated Cycle Length (s)			108.4		Sum of lost time (s)	16.2
Intersection Capacity Utilization			90.2%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis Future Background 2035 Section E - PM Peak5: York Durham Line & Main Street

03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	205	341	423	358	22
Future Volume (Veh/h)	37	205	341	423	358	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	38	209	348	432	365	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1504	376	387			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1504	376	387			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	60	69	71			
cM capacity (veh/h)	95	675	1183			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	38	209	348	432	387	
Volume Left	38	0	348	0	0	
Volume Right	0	209	0	0	22	
cSH	95	675	1183	1700	1700	
Volume to Capacity	0.40	0.31	0.29	0.25	0.23	
Queue Length 95th (m)	12.3	10.0	9.4	0.0	0.0	
Control Delay (s/veh)	65.8	12.7	9.3	0.0	0.0	
Lane LOS	F	B	A			
Approach Delay (s/veh)	20.9		4.2		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay			5.9			
Intersection Capacity Utilization			52.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis Future Background 2035 Section E - PM Peak6: York Durham Line & Bethesda Side Road

03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	267	358	246	236	21
Future Volume (Veh/h)	16	267	358	246	236	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	290	389	267	257	23
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1314	269	280			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1314	269	280			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	63	70			
cM capacity (veh/h)	123	775	1294			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	307	656	280			
Volume Left	17	389	0			
Volume Right	290	0	23			
cSH	600	1294	1700			
Volume to Capacity	0.51	0.30	0.16			
Queue Length 95th (m)	22.2	9.7	0.0			
Control Delay (s/veh)	17.1	6.6	0.0			
Lane LOS	C	A				
Approach Delay (s/veh)	17.1	6.6	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		7.7				
Intersection Capacity Utilization		73.9%		ICU Level of Service		D
Analysis Period (min)		15				

Timings
7: Tenth Line & Bethesda Side Road

Future Background 2035 Section E - PM Peak

03/30/2026

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	79	179	269	80	234	379	601	50	109	566
Future Volume (vph)	79	179	269	80	234	379	601	50	109	566
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8		2		2	6	
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	25.2	25.2	25.2	25.2	25.2	10.8	35.3	35.3	9.5	34.0
Total Split (%)	36.0%	36.0%	36.0%	36.0%	36.0%	15.4%	50.4%	50.4%	13.6%	48.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		20.7	20.7	20.7	20.7	37.8	32.7	32.7	34.5	29.5
Actuated g/C Ratio		0.30	0.30	0.30	0.30	0.54	0.47	0.47	0.49	0.42
v/c Ratio		0.97	0.43	0.35	0.68	0.80	0.73	0.07	0.41	0.92
Control Delay (s/veh)		74.4	5.1	24.2	26.7	24.1	22.4	1.3	11.4	38.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		74.4	5.1	24.2	26.7	24.1	22.4	1.3	11.4	38.5
LOS		E	A	C	C	C	C	A	B	D
Approach Delay (s/veh)		39.0			26.2		22.0			34.7
Approach LOS		D			C		C			C

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 70

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.97

Intersection Signal Delay (s/veh): 29.5

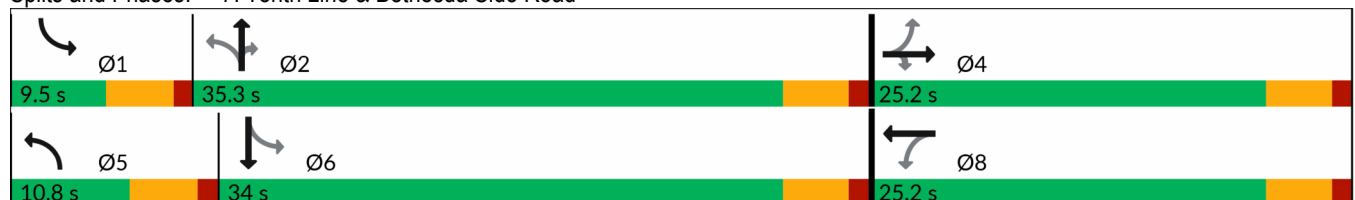
Intersection LOS: C

Intersection Capacity Utilization 94.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 7: Tenth Line & Bethesda Side Road



HCM Signalized Intersection Capacity Analysis Future Background 2035 Section E - PM Peak

7: Tenth Line & Bethesda Side Road

03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	179	269	80	234	110	379	601	50	109	566	103
Future Volume (vph)	79	179	269	80	234	110	379	601	50	109	566	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00	1.00	1.00	1.00		0.97	1.00	1.00	1.00	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	0.99		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1892	1633	1825	1816		3541	1921	1633	1825	1873	
Flt Permitted		0.52	1.00	0.45	1.00		0.12	1.00	1.00	0.21	1.00	
Satd. Flow (perm)		992	1633	858	1816		456	1921	1633	395	1873	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	87	197	296	88	257	121	416	660	55	120	622	113
RTOR Reduction (vph)	0	0	206	0	24	0	0	0	30	0	9	0
Lane Group Flow (vph)	0	284	90	88	354	0	416	660	25	120	726	0
Confl. Peds. (#/hr)	1					1	1					1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)		20.7	20.7	20.7	20.7		39.0	32.7	32.7	34.4	30.4	
Effective Green, g (s)		20.7	20.7	20.7	20.7		39.0	32.7	32.7	34.4	30.4	
Actuated g/C Ratio		0.29	0.29	0.29	0.29		0.55	0.46	0.46	0.49	0.43	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		289	476	250	530		524	885	753	272	803	
v/s Ratio Prot					0.19		c0.07	0.34		0.02	c0.39	
v/s Ratio Perm		c0.29	0.06	0.10			0.37		0.02	0.19		
v/c Ratio		0.98	0.19	0.35	0.67		0.79	0.75	0.03	0.44	0.90	
Uniform Delay, d1		24.9	18.8	19.8	22.1		13.9	15.7	10.5	12.0	18.9	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		47.9	0.2	0.9	3.2		8.1	5.7	0.1	1.1	15.5	
Delay (s)		72.8	19.0	20.7	25.3		22.0	21.4	10.5	13.1	34.4	
Level of Service		E	B	C	C		C	C	B	B	C	
Approach Delay (s/veh)		45.4			24.4			21.1			31.4	
Approach LOS		D			C			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			29.2				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			70.9				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			94.7%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis Future Background 2035 Section E - PM Peak8: Road A & Bethesda Side Road

03/30/2026

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	292	46	20	393	30	41
Future Volume (Veh/h)	292	46	20	393	30	41
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.92	0.90
Hourly flow rate (vph)	324	51	22	437	33	46
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	166					
pX, platoon unblocked			1.00		1.00	1.00
vC, conflicting volume			375		831	350
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			375		830	349
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		90	93
cM capacity (veh/h)			1195		336	698
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	375	459	79			
Volume Left	0	22	33			
Volume Right	51	0	46			
cSH	1700	1195	482			
Volume to Capacity	0.22	0.02	0.16			
Queue Length 95th (m)	0.0	0.4	4.4			
Control Delay (s/veh)	0.0	0.6	13.9			
Lane LOS		A	B			
Approach Delay (s/veh)	0.0	0.6	13.9			
Approach LOS			B			
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			47.8%	ICU Level of Service		A
Analysis Period (min)			15			

Timings

Future Background 2035 Section E - PM Peak

9: Tenth Line & GO Primary Access/Road B/Road B

03/30/2026

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	364	0	50	0	49	656	61	802	23
Future Volume (vph)	364	0	50	0	49	656	61	802	23
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	3	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.5	28.0	9.5	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	9.6	28.0	9.6	28.0	37.4	37.4	37.4	37.4	37.4
Total Split (%)	12.8%	37.3%	12.8%	37.3%	49.9%	49.9%	49.9%	49.9%	49.9%
Yellow Time (s)	3.5	4.0	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	4.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	16.2	10.1	7.3	10.1	31.6	31.6	31.6	31.6	31.6
Actuated g/C Ratio	0.27	0.17	0.12	0.17	0.53	0.53	0.53	0.53	0.53
v/c Ratio	0.85	0.28	0.25	0.03	0.42	0.80	0.52	0.87	0.03
Control Delay (s/veh)	41.1	3.4	24.3	0.1	22.9	20.6	30.9	25.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	18.1	0.0	0.0	0.0
Total Delay (s/veh)	41.1	3.4	24.3	0.1	22.9	38.7	30.9	25.6	0.0
LOS	D	A	C	A	C	D	C	C	A
Approach Delay (s/veh)		32.5		20.7		37.7		25.3	
Approach LOS		C		C		D		C	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 59.2

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.87

Intersection Signal Delay (s/veh): 31.1

Intersection LOS: C

Intersection Capacity Utilization 87.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 9: Tenth Line & GO Primary Access/Road B/Road B

 Ø2	 Ø3	 Ø4
37.4 s	9.6 s	28 s
 Ø6	 Ø7	 Ø8
37.4 s	9.6 s	28 s

HCM Signalized Intersection Capacity Analysis Future Background 2035 Section E - PM Peak 9: Tenth Line & GO Primary Access/Road B/Road B 03/30/2026

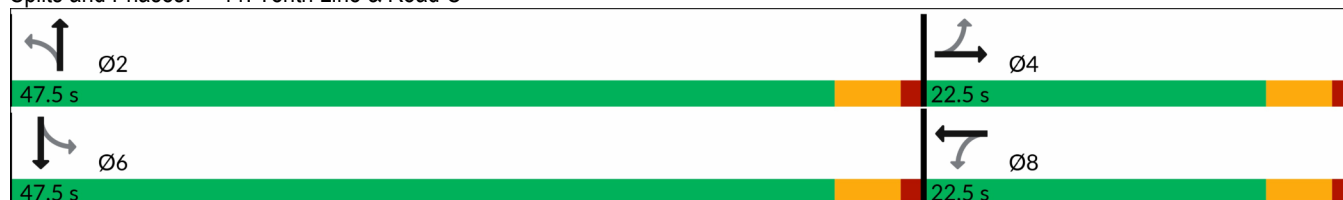
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	364	0	108	50	0	9	49	656	74	61	802	23
Future Volume (vph)	364	0	108	50	0	9	49	656	74	61	802	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1633		1825	1633		1825	1892		1825	1921	1633
Flt Permitted	0.63	1.00		1.00	1.00		0.13	1.00		0.13	1.00	1.00
Satd. Flow (perm)	1201	1633		1921	1633		243	1892		243	1921	1633
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	404	0	120	56	0	10	54	729	82	68	891	26
RTOR Reduction (vph)	0	96	0	0	10	0	0	5	0	0	0	13
Lane Group Flow (vph)	404	24	0	56	0	0	54	806	0	68	891	13
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	20.4	13.0		4.8	1.9		31.6	31.6		31.6	31.6	31.6
Effective Green, g (s)	20.4	13.0		4.8	1.9		31.6	31.6		31.6	31.6	31.6
Actuated g/C Ratio	0.32	0.20		0.08	0.03		0.49	0.49		0.49	0.49	0.49
Clearance Time (s)	4.5	6.0		4.5	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	519	331		139	48		119	934		119	948	806
v/s Ratio Prot	c0.17	0.01		0.02	0.00			0.43			c0.46	
v/s Ratio Perm	c0.08			0.01			0.22			0.28		0.01
v/c Ratio	0.78	0.07		0.40	0.01		0.45	0.86		0.57	0.94	0.02
Uniform Delay, d1	19.1	20.6		28.3	30.1		10.6	14.3		11.4	15.3	8.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.2	0.1		1.9	0.1		12.0	10.4		18.4	17.9	0.0
Delay (s)	26.4	20.7		30.2	30.2		22.6	24.7		29.8	33.2	8.3
Level of Service	C	C		C	C		C	C		C	C	A
Approach Delay (s/veh)		25.1			30.2			24.6			32.3	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			28.0			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			64.0			Sum of lost time (s)			16.5			
Intersection Capacity Utilization			87.5%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Timings
11: Tenth Line & Road C

Future Background 2035 Section E - PM Peak
03/30/2026

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	156	0	30	0	133	642	44	689
Future Volume (vph)	156	0	30	0	133	642	44	689
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	47.5	47.5	47.5	47.5
Total Split (%)	32.1%	32.1%	32.1%	32.1%	67.9%	67.9%	67.9%	67.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	13.1	13.1	13.1	13.1	46.0	46.0	46.0	46.0
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.68	0.68	0.68	0.68
v/c Ratio	0.63	0.21	0.13	0.03	0.81	0.58	0.13	0.80
Control Delay (s/veh)	34.7	1.0	22.0	0.1	48.7	9.0	6.1	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.7	1.0	22.0	0.1	48.7	9.0	6.1	15.6
LOS	C	A	C	A	D	A	A	B
Approach Delay (s/veh)		22.0		15.8		15.5		15.2
Approach LOS		C		B		B		B
Intersection Summary								
Cycle Length: 70								
Actuated Cycle Length: 68.1								
Natural Cycle: 80								
Control Type: Semi Act-Uncoord								
Maximum v/c Ratio: 0.81								
Intersection Signal Delay (s/veh): 16.1					Intersection LOS: B			
Intersection Capacity Utilization 83.8%					ICU Level of Service E			
Analysis Period (min) 15								

Splits and Phases: 11: Tenth Line & Road C



HCM Signalized Intersection Capacity Analysis Future Background 2035 Section E - PM Peak 11: Tenth Line & Road C

03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	0	94	30	0	12	133	642	35	44	689	224
Future Volume (vph)	156	0	94	30	0	12	133	642	35	44	689	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1633		1825	1633		1825	1906		1825	1850	
Flt Permitted	0.75	1.00		0.69	1.00		0.14	1.00		0.29	1.00	
Satd. Flow (perm)	1439	1633		1325	1633		271	1906		549	1850	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	173	0	104	33	0	13	148	713	39	49	766	249
RTOR Reduction (vph)	0	84	0	0	10	0	0	2	0	0	14	0
Lane Group Flow (vph)	173	20	0	33	3	0	148	750	0	49	1001	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.1	13.1		13.1	13.1		45.9	45.9		45.9	45.9	
Effective Green, g (s)	13.1	13.1		13.1	13.1		45.9	45.9		45.9	45.9	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.68	0.68		0.68	0.68	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	277	314		255	314		182	1286		370	1248	
v/s Ratio Prot		0.01			0.00			0.39			0.54	
v/s Ratio Perm	c0.12			0.02			c0.55			0.09		
v/c Ratio	0.62	0.06		0.13	0.01		0.81	0.58		0.13	0.80	
Uniform Delay, d1	25.2	22.4		22.7	22.2		8.0	5.9		3.9	7.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	0.1		0.2	0.0		31.4	1.9		0.7	5.5	
Delay (s)	29.5	22.5		23.0	22.2		39.3	7.9		4.7	13.3	
Level of Service	C	C		C	C		D	A		A	B	
Approach Delay (s/veh)		26.9			22.7			13.0			12.9	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			14.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			68.0				Sum of lost time (s)			9.0		
Intersection Capacity Utilization			83.8%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis Future Background 2035 Section E - PM Peak 108: Tenth Line & GO Right-in/out 03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	40	0	1029	846	69
Future Volume (Veh/h)	0	40	0	1029	846	69
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	43	0	1118	920	75
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				86	95	
pX, platoon unblocked	0.59	0.66	0.66			
vC, conflicting volume	2038	920	995			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1094	615	729			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	100			
cM capacity (veh/h)	140	324	579			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	43	1118	920	75		
Volume Left	0	0	0	0		
Volume Right	43	0	0	75		
cSH	324	1700	1700	1700		
Volume to Capacity	0.13	0.66	0.54	0.04		
Queue Length 95th (m)	3.4	0.0	0.0	0.0		
Control Delay (s/veh)	17.8	0.0	0.0	0.0		
Lane LOS	C					
Approach Delay (s/veh)	17.8	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			57.5%	ICU Level of Service		B
Analysis Period (min)			15			

Timings
109: Tenth Line & GO Bus Only Access

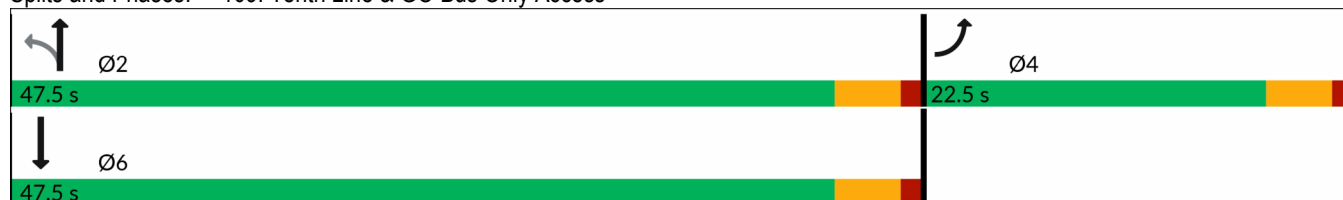
Future Background 2035 Section E - PM Peak
03/30/2026

			
Lane Group	EBL	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	2	791	956
Future Volume (vph)	2	791	956
Turn Type	Prot	NA	NA
Protected Phases	4	2	6
Permitted Phases			
Detector Phase	4	2	6
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5
Total Split (s)	22.5	47.5	47.5
Total Split (%)	32.1%	67.9%	67.9%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	Max	Max
Act Effect Green (s)	5.7	61.9	61.9
Actuated g/C Ratio	0.09	0.96	0.96
v/c Ratio	0.02	0.47	0.57
Control Delay (s/veh)	26.7	1.9	2.6
Queue Delay	0.0	0.0	0.1
Total Delay (s/veh)	26.7	1.9	2.7
LOS	C	A	A
Approach Delay (s/veh)	26.7	1.9	2.7
Approach LOS	C	A	A

Intersection Summary

Cycle Length: 70
 Actuated Cycle Length: 64.6
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.57
 Intersection Signal Delay (s/veh): 2.3
 Intersection LOS: A
 Intersection Capacity Utilization 62.2%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 109: Tenth Line & GO Bus Only Access



HCM Signalized Intersection Capacity Analysis Future Background 2035 Section E - PM Peak
 109: Tenth Line & GO Bus Only Access 03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	1	0	791	956	4
Future Volume (vph)	2	1	0	791	956	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.96			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1775			1921	1920	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1775			1921	1920	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	1	0	860	1039	4
RTOR Reduction (vph)	1	0	0	0	0	0
Lane Group Flow (vph)	2	0	0	860	1043	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.1			58.2	58.2	
Effective Green, g (s)	1.1			58.2	58.2	
Actuated g/C Ratio	0.02			0.85	0.85	
Clearance Time (s)	4.5			4.5	4.5	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	28			1636	1636	
v/s Ratio Prot	c0.00			0.45	c0.54	
v/s Ratio Perm						
v/c Ratio	0.07			0.53	0.64	
Uniform Delay, d1	33.1			1.4	1.6	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.1			1.2	1.9	
Delay (s)	34.2			2.6	3.5	
Level of Service	C			A	A	
Approach Delay (s/veh)	34.2			2.6	3.5	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			3.2	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.63			
Actuated Cycle Length (s)			68.3	Sum of lost time (s)		9.0
Intersection Capacity Utilization			62.2%	ICU Level of Service		B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis Future Background 2035 Section E - PM Peak 113: Tenth Line & RI/RO North Access

03/30/2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	10	769	24	0	960
Future Volume (Veh/h)	0	10	769	24	0	960
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	11	836	26	0	1043
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (m)			46			48
pX, platoon unblocked	0.60	0.84			0.84	
vC, conflicting volume	1892	849			862	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1562	727			743	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	97			100	
cM capacity (veh/h)	75	360			736	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	11	862	1043			
Volume Left	0	0	0			
Volume Right	11	26	0			
cSH	360	1700	1700			
Volume to Capacity	0.03	0.51	0.61			
Queue Length 95th (m)	0.7	0.0	0.0			
Control Delay (s/veh)	15.3	0.0	0.0			
Lane LOS	C					
Approach Delay (s/veh)	15.3	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		53.9%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis Future Background 2035 Section E - PM Peak 114: Tenth Line & RI/RO Central Access

03/30/2026

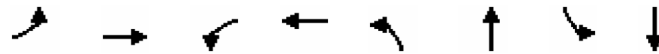
						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	22	769	42	0	957
Future Volume (Veh/h)	0	22	769	42	0	957
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	24	836	46	0	1040
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			162			177
pX, platoon unblocked	0.22					
vC, conflicting volume	1899	859			882	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3352	859			882	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	93			100	
cM capacity (veh/h)	2	359			775	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	24	882	1040			
Volume Left	0	0	0			
Volume Right	24	46	0			
cSH	359	1700	1700			
Volume to Capacity	0.07	0.52	0.61			
Queue Length 95th (m)	1.6	0.0	0.0			
Control Delay (s/veh)	15.7	0.0	0.0			
Lane LOS	C					
Approach Delay (s/veh)	15.7	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		0.2				
Intersection Capacity Utilization		53.7%		ICU Level of Service		A
Analysis Period (min)		15				

Timings

Future Total 2030 Section E - AM Peak

3: Tenth Line (South Leg)/Private Driveway & Main Street

03/30/2026



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	7	174	488	277	126	1	1	0
Future Volume (vph)	7	174	488	277	126	1	1	0
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	29.5	29.5	9.5	29.5	27.5	27.5	27.5	27.5
Total Split (s)	29.5	29.5	23.0	52.5	27.5	27.5	27.5	27.5
Total Split (%)	36.9%	36.9%	28.8%	65.6%	34.4%	34.4%	34.4%	34.4%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	1.5	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.5	4.5	5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Max	Max	None	Max	Max	Max	Max	Max
Act Effect Green (s)		25.4	48.0	47.0	22.0	22.0		22.0
Actuated g/C Ratio		0.32	0.60	0.59	0.28	0.28		0.28
v/c Ratio		0.58	0.81	0.27	0.35	0.48		0.01
Control Delay (s/veh)		24.7	20.6	8.8	26.3	5.6		0.0
Queue Delay		0.0	13.4	2.6	0.0	0.0		0.0
Total Delay (s/veh)		24.7	33.9	11.5	26.3	5.6		0.0
LOS		C	C	B	C	A		A
Approach Delay (s/veh)		24.7		25.7		11.6		
Approach LOS		C		C		B		

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay (s/veh): 21.4

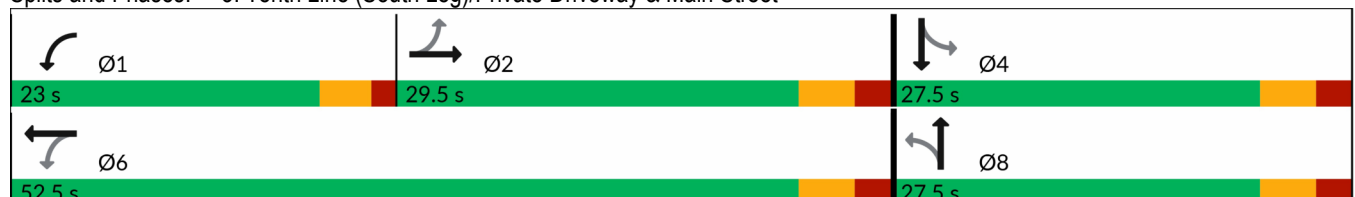
Intersection LOS: C

Intersection Capacity Utilization 79.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Tenth Line (South Leg)/Private Driveway & Main Street



HCM Signalized Intersection Capacity Analysis 3: Tenth Line (South Leg)/Private Driveway & Main Street

Future Total 2030 Section E - AM Peak
03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔			↔	
Traffic Volume (vph)	7	174	131	488	277	7	126	1	305	1	0	5
Future Volume (vph)	7	174	131	488	277	7	126	1	305	1	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.98		1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes		1.00		1.00	1.00		0.99	1.00			1.00	
Frt		0.94		1.00	1.00		1.00	0.85			0.89	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)		1778		1819	1912		1815	1634			1655	
Flt Permitted		0.99		0.36	1.00		0.75	1.00			0.96	
Satd. Flow (perm)		1762		692	1912		1440	1634			1595	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	189	142	530	301	8	137	1	332	1	0	5
RTOR Reduction (vph)	0	31	0	0	1	0	0	241	0	0	4	0
Lane Group Flow (vph)	0	308	0	530	308	0	137	92	0	0	2	0
Confl. Peds. (#/hr)	5		14	14		5	3					3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		25.4		47.0	47.0		22.0	22.0			22.0	
Effective Green, g (s)		25.4		47.0	47.0		22.0	22.0			22.0	
Actuated g/C Ratio		0.32		0.59	0.59		0.28	0.28			0.28	
Clearance Time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		559		647	1123		396	449			438	
v/s Ratio Prot				c0.17	0.16			0.06				
v/s Ratio Perm		0.17		c0.31			c0.10				0.00	
v/c Ratio		0.55		0.82	0.27		0.35	0.21			0.00	
Uniform Delay, d1		22.6		11.7	8.1		23.2	22.3			21.0	
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		3.9		8.0	0.6		2.4	1.0			0.0	
Delay (s)		26.4		19.7	8.7		25.6	23.3			21.1	
Level of Service		C		B	A		C	C			C	
Approach Delay (s/veh)		26.4			15.7			24.0			21.1	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			20.3			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			15.5			
Intersection Capacity Utilization			79.7%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

Timings

Future Total 2030 Section E - AM Peak

4: Main Street & Tenth Line (North Leg)

03/30/2026

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	349	115	151	60	96	598
Future Volume (vph)	349	115	151	60	96	598
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.5	32.0	32.0	32.0	31.7	31.7
Total Split (s)	11.0	43.3	32.3	32.3	31.7	31.7
Total Split (%)	14.7%	57.7%	43.1%	43.1%	42.3%	42.3%
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.5	2.7	2.7	2.7	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Max	Max	Max	None	None
Act Effect Green (s)	39.1	37.6	26.5	26.5	13.7	13.7
Actuated g/C Ratio	0.62	0.60	0.42	0.42	0.22	0.22
v/c Ratio	0.56	0.12	0.22	0.10	0.29	0.80
Control Delay (s/veh)	11.3	7.3	14.2	4.8	21.9	10.5
Queue Delay	4.5	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.8	7.3	14.2	4.8	21.9	10.5
LOS	B	A	B	A	C	B
Approach Delay (s/veh)		13.7	11.5		12.1	
Approach LOS		B	B		B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 63.1

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay (s/veh): 12.5

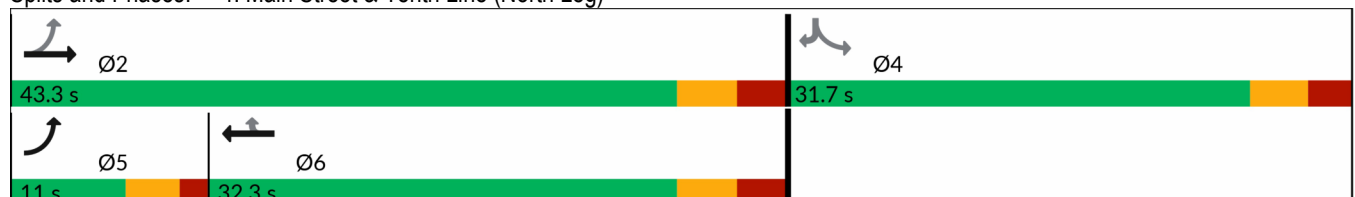
Intersection LOS: B

Intersection Capacity Utilization 68.4%

ICU Level of Service C

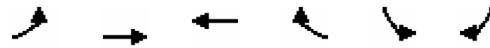
Analysis Period (min) 15

Splits and Phases: 4: Main Street & Tenth Line (North Leg)



HCM Signalized Intersection Capacity Analysis 4: Main Street & Tenth Line (North Leg)

Future Total 2030 Section E - AM Peak
03/30/2026



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	349	115	151	60	96	598
Future Volume (vph)	349	115	151	60	96	598
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.6	3.6	3.5	3.5	3.5	3.5
Total Lost time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1803	1900	1879	1559	1778	1597
Flt Permitted	0.55	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1048	1900	1879	1559	1778	1597
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	406	134	176	70	112	695
RTOR Reduction (vph)	0	0	0	41	0	520
Lane Group Flow (vph)	406	134	176	29	112	175
Confl. Peds. (#/hr)	3			3	3	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Actuated Green, G (s)	37.6	37.6	26.5	26.5	13.7	13.7
Effective Green, g (s)	37.6	37.6	26.5	26.5	13.7	13.7
Actuated g/C Ratio	0.60	0.60	0.42	0.42	0.22	0.22
Clearance Time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	704	1133	790	655	386	347
v/s Ratio Prot	c0.06	0.07	0.09			
v/s Ratio Perm	c0.28			0.02	0.06	c0.11
v/c Ratio	0.58	0.12	0.22	0.04	0.29	0.50
Uniform Delay, d1	7.1	5.5	11.7	10.8	20.6	21.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.2	0.7	0.1	0.4	1.2
Delay (s)	8.3	5.7	12.3	10.9	21.0	22.8
Level of Service	A	A	B	B	C	C
Approach Delay (s/veh)		7.7	11.9		22.6	
Approach LOS		A	B		C	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			15.9		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			63.0		Sum of lost time (s)	16.2
Intersection Capacity Utilization			68.4%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis 5: York Durham Line & Main Street

Future Total 2030 Section E - AM Peak
03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	179	139	222	468	22
Future Volume (Veh/h)	14	179	139	222	468	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	15	190	148	236	498	23
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1042	510	521			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1042	510	521			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	67	86			
cM capacity (veh/h)	221	568	1056			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	15	190	148	236	521	
Volume Left	15	0	148	0	0	
Volume Right	0	190	0	0	23	
cSH	221	568	1056	1700	1700	
Volume to Capacity	0.07	0.33	0.14	0.14	0.31	
Queue Length 95th (m)	1.6	11.1	3.7	0.0	0.0	
Control Delay (s/veh)	22.5	14.5	9.0	0.0	0.0	
Lane LOS	C	B	A			
Approach Delay (s/veh)	15.1		3.5		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization			47.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 6: York Durham Line & Bethesda Side Road

Future Total 2030 Section E - AM Peak
03/30/2026

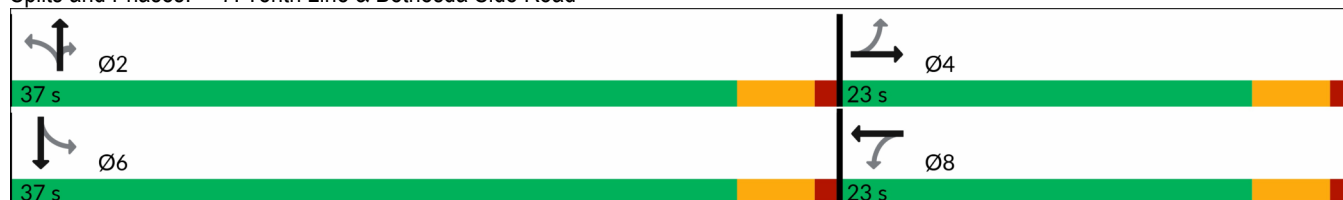
						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	110	73	155	312	8
Future Volume (Veh/h)	17	110	73	155	312	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	18	116	77	163	328	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	649	332	336			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	649	332	336			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	84	94			
cM capacity (veh/h)	410	714	1235			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	134	240	336			
Volume Left	18	77	0			
Volume Right	116	0	8			
cSH	650	1235	1700			
Volume to Capacity	0.21	0.06	0.20			
Queue Length 95th (m)	5.9	1.5	0.0			
Control Delay (s/veh)	12.0	3.0	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	12.0	3.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		3.3				
Intersection Capacity Utilization		46.8%		ICU Level of Service		A
Analysis Period (min)		15				

Timings
7: Tenth Line & Bethesda Side Road

Future Total 2030 Section E - AM Peak
03/30/2026

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	18	39	54	48	101	434	57	28	456
Future Volume (vph)	18	39	54	48	101	434	57	28	456
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		4		8		2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	61.7%	61.7%	61.7%	61.7%	61.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)		8.1	8.1	8.1	36.4	36.4	36.4	36.4	36.4
Actuated g/C Ratio		0.16	0.16	0.16	0.72	0.72	0.72	0.72	0.72
v/c Ratio		0.50	0.36	0.39	0.21	0.37	0.06	0.05	0.42
Control Delay (s/veh)		13.2	24.5	12.5	5.3	5.1	1.5	4.0	5.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		13.2	24.5	12.5	5.3	5.1	1.5	4.0	5.5
LOS		B	C	B	A	A	A	A	A
Approach Delay (s/veh)		13.2		16.3		4.8			5.4
Approach LOS		B		B		A			A
Intersection Summary									
Cycle Length: 60									
Actuated Cycle Length: 50.7									
Natural Cycle: 50									
Control Type: Semi Act-Uncoord									
Maximum v/c Ratio: 0.50									
Intersection Signal Delay (s/veh): 7.3					Intersection LOS: A				
Intersection Capacity Utilization 59.7%					ICU Level of Service B				
Analysis Period (min) 15									

Splits and Phases: 7: Tenth Line & Bethesda Side Road



HCM Signalized Intersection Capacity Analysis 7: Tenth Line & Bethesda Side Road

Future Total 2030 Section E - AM Peak
03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↑	↔	↔	↔	
Traffic Volume (vph)	18	39	98	54	48	70	101	434	57	28	456	41
Future Volume (vph)	18	39	98	54	48	70	101	434	57	28	456	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.91		1.00	0.91		1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1747		1825	1751		1825	1921	1633	1825	1897	
Flt Permitted		0.94		0.56	1.00		0.41	1.00	1.00	0.45	1.00	
Satd. Flow (perm)		1647		1084	1751		783	1921	1633	872	1897	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	21	45	114	63	56	81	117	505	66	33	530	48
RTOR Reduction (vph)	0	98	0	0	70	0	0	0	21	0	4	0
Lane Group Flow (vph)	0	82	0	63	67	0	117	505	45	33	574	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		7.1		7.1	7.1		35.5	35.5	35.5	35.5	35.5	
Effective Green, g (s)		7.1		7.1	7.1		35.5	35.5	35.5	35.5	35.5	
Actuated g/C Ratio		0.14		0.14	0.14		0.69	0.69	0.69	0.69	0.69	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		226		149	240		538	1321	1123	599	1305	
v/s Ratio Prot					0.04			0.26			c0.30	
v/s Ratio Perm		0.05		c0.06			0.15		0.03	0.04		
v/c Ratio		0.36		0.42	0.28		0.22	0.38	0.04	0.06	0.44	
Uniform Delay, d1		20.2		20.4	20.0		3.0	3.4	2.6	2.6	3.6	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.0		1.9	0.6		0.9	0.8	0.1	0.2	1.1	
Delay (s)		21.2		22.3	20.6		3.9	4.2	2.7	2.8	4.7	
Level of Service		C		C	C		A	A	A	A	A	
Approach Delay (s/veh)		21.2			21.1			4.0			4.6	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			8.1			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			51.6			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			59.7%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: Road A & Bethesda Side Road

Future Total 2030 Section E - AM Peak
03/30/2026

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	109	15	7	128	44	35
Future Volume (Veh/h)	109	15	7	128	44	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	121	17	8	142	49	39
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)	166					
pX, platoon unblocked						
vC, conflicting volume			138	288		130
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			138	288		130
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			99	93		96
cM capacity (veh/h)			1458	703		926
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	138	150	88			
Volume Left	0	8	49			
Volume Right	17	0	39			
cSH	1700	1458	787			
Volume to Capacity	0.08	0.00*	0.11			
Queue Length 95th (m)	0.0	0.1	2.9			
Control Delay (s/veh)	0.0	0.4	10.1			
Lane LOS			A B			
Approach Delay (s/veh)	0.0	0.4	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay			2.6			
Intersection Capacity Utilization			23.7%	ICU Level of Service		A
Analysis Period (min)			15			
* Value less than 0.01.						

Timings

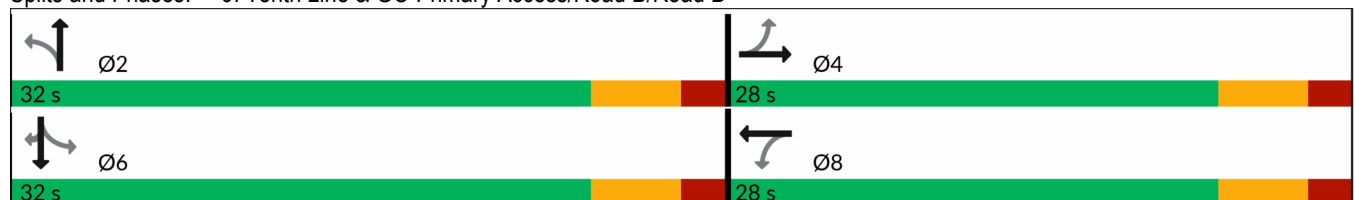
Future Total 2030 Section E - AM Peak

9: Tenth Line & GO Primary Access/Road B/Road B

03/30/2026

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	82	0	74	0	168	494	22	265	7
Future Volume (vph)	82	0	74	0	168	494	22	265	7
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	28.0	28.0	28.0	28.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	10.3	10.3	10.3	10.3	31.9	31.9		31.9	31.9
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.64	0.64		0.64	0.64
v/c Ratio	0.31	0.07	0.28	0.04	0.27	0.47		0.27	0.01
Control Delay (s/veh)	19.5	0.2	19.2	0.1	7.5	8.4		6.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.3		0.0	0.0
Total Delay (s/veh)	19.5	0.2	19.2	0.1	7.5	8.7		6.7	0.0
LOS	B	A	B	A	A	A		A	A
Approach Delay (s/veh)		12.8		15.8		8.4		6.5	
Approach LOS		B		B		A		A	
Intersection Summary									
Cycle Length: 60									
Actuated Cycle Length: 49.6									
Natural Cycle: 60									
Control Type: Semi Act-Uncoord									
Maximum v/c Ratio: 0.47									
Intersection Signal Delay (s/veh): 9.0					Intersection LOS: A				
Intersection Capacity Utilization 68.9%					ICU Level of Service C				
Analysis Period (min) 15									

Splits and Phases: 9: Tenth Line & GO Primary Access/Road B/Road B



HCM Signalized Intersection Capacity Analysis
9: Tenth Line & GO Primary Access/Road B/Road B

Future Total 2030 Section E - AM Peak
03/30/2026

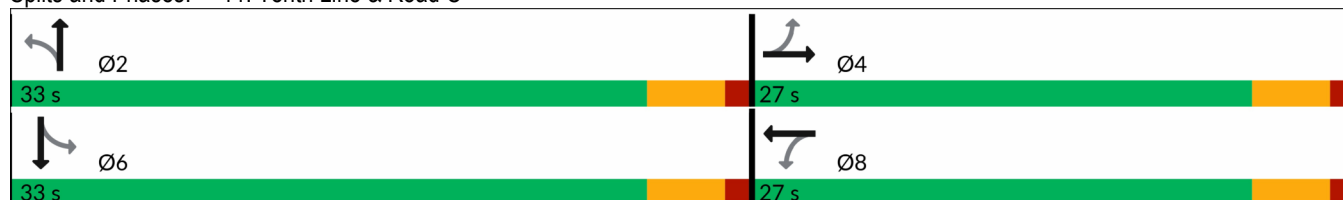
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	0	43	74	0	16	168	494	26	22	265	7
Future Volume (vph)	82	0	43	74	0	16	168	494	26	22	265	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1825	1633		1825	1633		1825	1907			1914	1633
Flt Permitted	0.75	1.00		0.73	1.00		0.57	1.00			0.94	1.00
Satd. Flow (perm)	1433	1633		1394	1633		1090	1907			1815	1633
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	91	0	48	82	0	18	187	549	29	24	294	8
RTOR Reduction (vph)	0	40	0	0	15	0	0	2	0	0	0	3
Lane Group Flow (vph)	91	8	0	82	3	0	187	576	0	0	318	5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	8.2	8.2		8.2	8.2		30.6	30.6			30.6	30.6
Effective Green, g (s)	8.2	8.2		8.2	8.2		30.6	30.6			30.6	30.6
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.60	0.60			0.60	0.60
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	231	263		225	263		656	1148			1093	983
v/s Ratio Prot		0.00			0.00			c0.30				
v/s Ratio Perm	c0.06			0.06			0.17				0.18	0.00
v/c Ratio	0.39	0.03		0.36	0.01		0.29	0.50			0.29	0.00
Uniform Delay, d1	19.1	17.9		19.0	17.9		4.8	5.8			4.9	4.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	1.1	0.0		1.0	0.0		1.1	1.6			0.7	0.0
Delay (s)	20.2	18.0		20.0	17.9		5.9	7.3			5.5	4.0
Level of Service	C	B		B	B		A	A			A	A
Approach Delay (s/veh)		19.4			19.6			7.0			5.5	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		8.9					HCM 2000 Level of Service		A			
HCM 2000 Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		50.8					Sum of lost time (s)		12.0			
Intersection Capacity Utilization		68.9%					ICU Level of Service		C			
Analysis Period (min)		15										
c Critical Lane Group												

Timings
11: Tenth Line & Road C

Future Total 2030 Section E - AM Peak
03/30/2026

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	214	0	64	0	57	415	22	266
Future Volume (vph)	214	0	64	0	57	415	22	266
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	27.0	27.0	27.0	27.0	33.0	33.0	33.0	33.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	14.1	14.1	14.1	14.1	30.7	30.7	30.7	30.7
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.57	0.57	0.57	0.57
v/c Ratio	0.65	0.18	0.21	0.06	0.12	0.44	0.05	0.37
Control Delay (s/veh)	25.5	0.5	15.6	0.2	7.6	9.3	7.3	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.5	0.5	15.6	0.2	7.6	9.3	7.3	7.9
LOS	C	A	B	A	A	A	A	A
Approach Delay (s/veh)		16.3		10.3		9.1		7.8
Approach LOS		B		B		A		A
Intersection Summary								
Cycle Length: 60								
Actuated Cycle Length: 53.8								
Natural Cycle: 45								
Control Type: Semi Act-Uncoord								
Maximum v/c Ratio: 0.65								
Intersection Signal Delay (s/veh): 10.7				Intersection LOS: B				
Intersection Capacity Utilization 58.2%				ICU Level of Service B				
Analysis Period (min) 15								

Splits and Phases: 11: Tenth Line & Road C



HCM Signalized Intersection Capacity Analysis

Future Total 2030 Section E - AM Peak

11: Tenth Line & Road C

03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	0	126	64	0	33	57	415	20	22	266	93
Future Volume (vph)	214	0	126	64	0	33	57	415	20	22	266	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1633		1825	1633		1825	1908		1825	1847	
Flt Permitted	0.73	1.00		0.67	1.00		0.49	1.00		0.42	1.00	
Satd. Flow (perm)	1408	1633		1283	1633		944	1908		816	1847	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	238	0	140	71	0	37	63	461	22	24	296	103
RTOR Reduction (vph)	0	103	0	0	27	0	0	2	0	0	17	0
Lane Group Flow (vph)	238	37	0	71	10	0	63	481	0	24	382	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.1	14.1		14.1	14.1		30.7	30.7		30.7	30.7	
Effective Green, g (s)	14.1	14.1		14.1	14.1		30.7	30.7		30.7	30.7	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.57	0.57		0.57	0.57	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	369	427		336	427		538	1088		465	1053	
v/s Ratio Prot		0.02			0.01			0.25			0.21	
v/s Ratio Perm	0.17			0.06			0.07			0.03		
v/c Ratio	0.64	0.09		0.21	0.02		0.12	0.44		0.05	0.36	
Uniform Delay, d1	17.6	15.0		15.5	14.7		5.3	6.6		5.1	6.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.8	0.1		0.3	0.0		0.4	1.3		0.2	1.0	
Delay (s)	21.5	15.1		15.8	14.8		5.8	7.9		5.3	7.2	
Level of Service	C	B		B	B		A	A		A	A	
Approach Delay (s/veh)		19.1			15.5			7.7			7.1	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		11.1			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.51										
Actuated Cycle Length (s)		53.8			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		58.2%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 108: Tenth Line & GO Right-in/out

Future Total 2030 Section E - AM Peak
03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	10	0	592	284	324
Future Volume (Veh/h)	0	10	0	592	284	324
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	11	0	643	309	352
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				86	95	
pX, platoon unblocked	0.80					
vC, conflicting volume	952	309	661			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	816	309	661			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	280	736	937			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	11	643	309	352		
Volume Left	0	0	0	0		
Volume Right	11	0	0	352		
cSH	736	1700	1700	1700		
Volume to Capacity	0.01	0.38	0.18	0.21		
Queue Length 95th (m)	0.3	0.0	0.0	0.0		
Control Delay (s/veh)	10.0	0.0	0.0	0.0		
Lane LOS	A					
Approach Delay (s/veh)	10.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			34.5%		ICU Level of Service	A
Analysis Period (min)			15			

Timings
109: Tenth Line & GO Bus Only Access

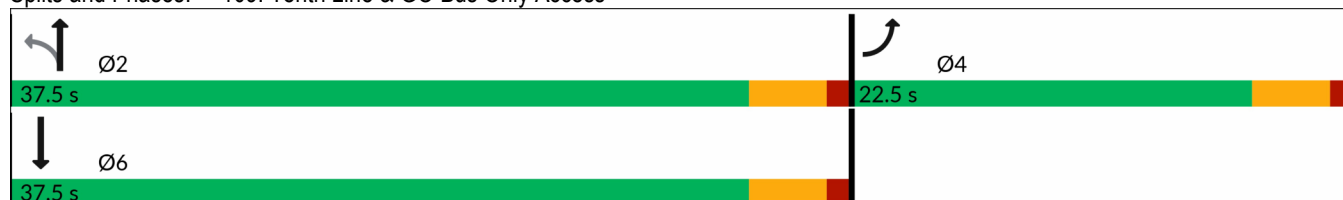
Future Total 2030 Section E - AM Peak
03/30/2026

			
Lane Group	EBL	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	2	679	381
Future Volume (vph)	2	679	381
Turn Type	Prot	NA	NA
Protected Phases	4	2	6
Permitted Phases			
Detector Phase	4	2	6
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5
Total Split (s)	22.5	37.5	37.5
Total Split (%)	37.5%	62.5%	62.5%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	Max	Max
Act Effect Green (s)	5.7	52.0	52.0
Actuated g/C Ratio	0.10	0.95	0.95
v/c Ratio	0.01	0.40	0.23
Control Delay (s/veh)	24.0	1.7	1.1
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	24.0	1.7	1.1
LOS	C	A	A
Approach Delay (s/veh)	24.0	1.7	1.1
Approach LOS	C	A	A

Intersection Summary

Cycle Length: 60
 Actuated Cycle Length: 54.6
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.40
 Intersection Signal Delay (s/veh): 1.5
 Intersection LOS: A
 Intersection Capacity Utilization 47.4%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 109: Tenth Line & GO Bus Only Access



HCM Signalized Intersection Capacity Analysis
109: Tenth Line & GO Bus Only Access

Future Total 2030 Section E - AM Peak
03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	0	0	679	381	1
Future Volume (vph)	2	0	0	679	381	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	
Lane Util. Factor	1.00			1.00	1.00	
Frt	1.00			1.00	1.00	
Flt Protected	0.95			1.00	1.00	
Satd. Flow (prot)	1825			1921	1920	
Flt Permitted	0.95			1.00	1.00	
Satd. Flow (perm)	1825			1921	1920	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	0	0	738	414	1
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	2	0	0	738	415	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.0			48.3	48.3	
Effective Green, g (s)	1.0			48.3	48.3	
Actuated g/C Ratio	0.02			0.83	0.83	
Clearance Time (s)	4.5			4.5	4.5	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	31			1591	1590	
v/s Ratio Prot	c0.00			c0.38	0.22	
v/s Ratio Perm						
v/c Ratio	0.06			0.46	0.26	
Uniform Delay, d1	28.2			1.4	1.1	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.9			1.0	0.4	
Delay (s)	29.1			2.4	1.5	
Level of Service	C			A	A	
Approach Delay (s/veh)	29.1			2.4	1.5	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			2.1	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.46			
Actuated Cycle Length (s)			58.3	Sum of lost time (s)		9.0
Intersection Capacity Utilization			47.4%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis 113: Tenth Line & RI/RO North Access

Future Total 2030 Section E - AM Peak
03/30/2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	15	673	8	0	382
Future Volume (Veh/h)	0	15	673	8	0	382
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	732	9	0	415
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			46			48
pX, platoon unblocked	0.93	0.88			0.88	
vC, conflicting volume	1152	737			741	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	876	629			634	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	299	426			840	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	16	741	415			
Volume Left	0	0	0			
Volume Right	16	9	0			
cSH	426	1700	1700			
Volume to Capacity	0.04	0.44	0.24			
Queue Length 95th (m)	0.9	0.0	0.0			
Control Delay (s/veh)	13.8	0.0	0.0			
Lane LOS	B					
Approach Delay (s/veh)	13.8	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		0.2				
Intersection Capacity Utilization		45.9%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 114: Tenth Line & RI/RO Central Access

Future Total 2030 Section E - AM Peak
03/30/2026

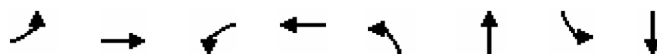
						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	31	648	14	0	381
Future Volume (Veh/h)	0	31	648	14	0	381
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	34	704	15	0	414
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			162			177
pX, platoon unblocked	0.99					
vC, conflicting volume	1126	712			719	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1123	712			719	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	92			100	
cM capacity (veh/h)	228	436			892	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	34	719	414			
Volume Left	0	0	0			
Volume Right	34	15	0			
cSH	436	1700	1700			
Volume to Capacity	0.08	0.42	0.24			
Queue Length 95th (m)	1.9	0.0	0.0			
Control Delay (s/veh)	14.0	0.0	0.0			
Lane LOS	B					
Approach Delay (s/veh)	14.0	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		0.4				
Intersection Capacity Utilization		45.0%		ICU Level of Service		A
Analysis Period (min)		15				

Timings

Future Total 2030 Section E - PM Peak

3: Tenth Line (South Leg)/Private Driveway & Main Street

03/30/2026



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↔	↔	↔	↔	↔		↔
Traffic Volume (vph)	15	331	397	317	130	0	1	0
Future Volume (vph)	15	331	397	317	130	0	1	0
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	29.5	29.5	9.5	29.5	27.5	27.5	27.5	27.5
Total Split (s)	34.5	34.5	18.0	52.5	27.5	27.5	27.5	27.5
Total Split (%)	43.1%	43.1%	22.5%	65.6%	34.4%	34.4%	34.4%	34.4%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	1.5	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.5	4.5	5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Max	Max	None	Max	Max	Max	Max	Max
Act Effect Green (s)		29.3	48.0	47.0	22.0	22.0		22.0
Actuated g/C Ratio		0.37	0.60	0.59	0.28	0.28		0.28
v/c Ratio		0.83	0.84	0.32	0.36	0.59		0.02
Control Delay (s/veh)		34.2	26.6	9.2	26.6	4.7		0.1
Queue Delay		0.0	3.0	3.5	0.0	0.0		0.0
Total Delay (s/veh)		34.2	29.7	12.8	26.6	4.7		0.1
LOS		C	C	B	C	A		A
Approach Delay (s/veh)		34.2		22.0		9.6		0.1
Approach LOS		C		C		A		A

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay (s/veh): 21.3

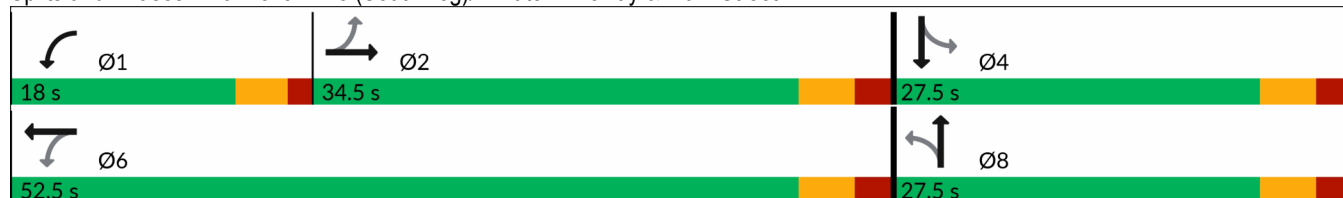
Intersection LOS: C

Intersection Capacity Utilization 92.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Tenth Line (South Leg)/Private Driveway & Main Street



HCM Signalized Intersection Capacity Analysis 3: Tenth Line (South Leg)/Private Driveway & Main Street

Future Total 2030 Section E - PM Peak

03/30/2026

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔			↔	
Traffic Volume (vph)	15	331	169	397	317	14	130	0	455	1	0	8
Future Volume (vph)	15	331	169	397	317	14	130	0	455	1	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99		1.00	1.00		1.00	1.00			0.97	
Flpb, ped/bikes		1.00		1.00	1.00		0.99	1.00			1.00	
Frt		0.96		1.00	0.99		1.00	0.85			0.88	
Flt Protected		1.00		0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1814		1824	1906		1805	1633			1633	
Flt Permitted		0.98		0.26	1.00		0.75	1.00			0.90	
Satd. Flow (perm)		1789		490	1906		1427	1633			1470	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	360	184	432	345	15	141	0	495	1	0	9
RTOR Reduction (vph)	0	22	0	0	2	0	0	359	0	0	7	0
Lane Group Flow (vph)	0	538	0	432	358	0	141	136	0	0	3	0
Confl. Peds. (#/hr)	13		7	7		13	6					6
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		29.3		47.0	47.0		22.0	22.0			22.0	
Effective Green, g (s)		29.3		47.0	47.0		22.0	22.0			22.0	
Actuated g/C Ratio		0.37		0.59	0.59		0.28	0.28			0.28	
Clearance Time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		655		507	1119		392	449			404	
v/s Ratio Prot				c0.14	0.19			0.08				
v/s Ratio Perm		0.30		c0.36			c0.10				0.00	
v/c Ratio		0.82		0.85	0.32		0.36	0.30			0.01	
Uniform Delay, d1		23.0		12.8	8.4		23.3	22.9			21.1	
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		11.1		13.0	0.8		2.6	1.7			0.0	
Delay (s)		34.1		25.8	9.1		25.9	24.7			21.1	
Level of Service		C		C	A		C	C			C	
Approach Delay (s/veh)		34.1			18.2			24.9			21.1	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			24.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			15.5			
Intersection Capacity Utilization			92.7%			ICU Level of Service			F			
Analysis Period (min)			15									

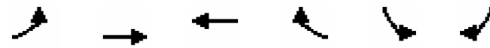
c Critical Lane Group

Timings

Future Total 2030 Section E - PM Peak

4: Main Street & Tenth Line (North Leg)

03/30/2026



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	576	208	198	162	84	508
Future Volume (vph)	576	208	198	162	84	508
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.5	32.0	32.0	32.0	31.7	31.7
Total Split (s)	26.0	58.3	32.3	32.3	31.7	31.7
Total Split (%)	28.9%	64.8%	35.9%	35.9%	35.2%	35.2%
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.5	2.7	2.7	2.7	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Max	Max	Max	None	None
Act Effect Green (s)	53.9	52.4	30.5	30.5	12.5	12.5
Actuated g/C Ratio	0.70	0.68	0.40	0.40	0.16	0.16
v/c Ratio	0.69	0.17	0.29	0.24	0.31	0.77
Control Delay (s/veh)	10.7	5.4	19.3	4.6	30.7	10.8
Queue Delay	4.5	1.1	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.2	6.5	19.3	4.6	30.7	10.8
LOS	B	A	B	A	C	B
Approach Delay (s/veh)		12.9	12.7		13.6	
Approach LOS		B	B		B	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 76.7

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay (s/veh): 13.1

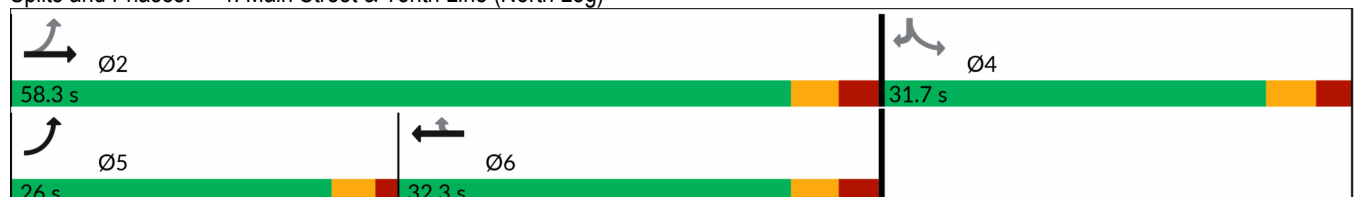
Intersection LOS: B

Intersection Capacity Utilization 76.3%

ICU Level of Service D

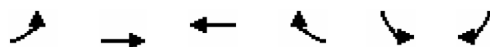
Analysis Period (min) 15

Splits and Phases: 4: Main Street & Tenth Line (North Leg)



HCM Signalized Intersection Capacity Analysis 4: Main Street & Tenth Line (North Leg)

Future Total 2030 Section E - PM Peak
03/30/2026



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	576	208	198	162	84	508
Future Volume (vph)	576	208	198	162	84	508
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.6	3.6	3.5	3.5	3.5	3.5
Total Lost time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1800	1900	1879	1554	1782	1560
Flt Permitted	0.54	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1025	1900	1879	1554	1782	1560
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	619	224	213	174	90	546
RTOR Reduction (vph)	0	0	0	105	0	457
Lane Group Flow (vph)	619	224	213	69	90	89
Confl. Peds. (#/hr)	5			5	1	2
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Actuated Green, G (s)	52.5	52.5	30.5	30.5	12.5	12.5
Effective Green, g (s)	52.5	52.5	30.5	30.5	12.5	12.5
Actuated g/C Ratio	0.68	0.68	0.40	0.40	0.16	0.16
Clearance Time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	878	1300	747	617	290	254
v/s Ratio Prot	c0.16	0.12	0.11			
v/s Ratio Perm	c0.32			0.04	0.05	c0.06
v/c Ratio	0.71	0.17	0.29	0.11	0.31	0.35
Uniform Delay, d1	6.1	4.3	15.7	14.6	28.3	28.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.3	1.0	0.4	0.6	0.8
Delay (s)	8.7	4.6	16.7	14.9	28.9	29.3
Level of Service	A	A	B	B	C	C
Approach Delay (s/veh)		7.6	15.9		29.3	
Approach LOS		A	B		C	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			16.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.67			
Actuated Cycle Length (s)			76.7		Sum of lost time (s)	16.2
Intersection Capacity Utilization			76.3%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis 5: York Durham Line & Main Street

Future Total 2030 Section E - PM Peak
03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	180	298	396	336	22
Future Volume (Veh/h)	37	180	298	396	336	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	38	184	304	404	343	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1366	354	365			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1366	354	365			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	69	74	75			
cM capacity (veh/h)	123	694	1205			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	38	184	304	404	365	
Volume Left	38	0	304	0	0	
Volume Right	0	184	0	0	22	
cSH	123	694	1205	1700	1700	
Volume to Capacity	0.31	0.26	0.25	0.24	0.21	
Queue Length 95th (m)	9.2	8.1	7.6	0.0	0.0	
Control Delay (s/veh)	47.1	12.0	9.0	0.0	0.0	
Lane LOS	E	B	A			
Approach Delay (s/veh)	18.0		3.9		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay			5.2			
Intersection Capacity Utilization			48.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 6: York Durham Line & Bethesda Side Road

Future Total 2030 Section E - PM Peak
03/30/2026

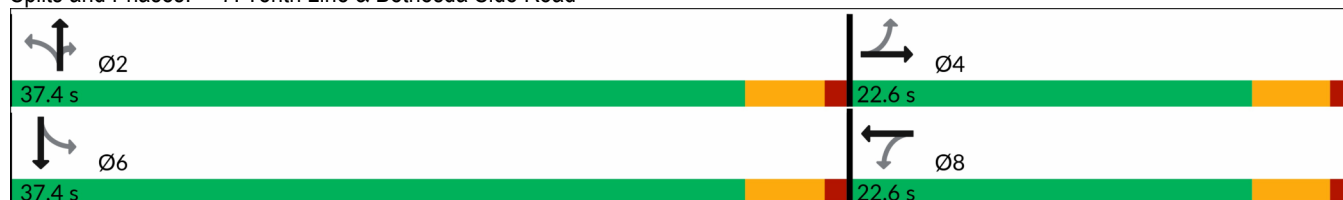
						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	115	110	246	236	18
Future Volume (Veh/h)	14	115	110	246	236	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	125	120	267	257	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	774	267	277			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774	267	277			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	84	91			
cM capacity (veh/h)	336	777	1298			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	140	387	277			
Volume Left	15	120	0			
Volume Right	125	0	20			
cSH	681	1298	1700			
Volume to Capacity	0.21	0.09	0.16			
Queue Length 95th (m)	5.8	2.3	0.0			
Control Delay (s/veh)	11.7	3.1	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	11.7	3.1	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		3.5				
Intersection Capacity Utilization		50.4%		ICU Level of Service		A
Analysis Period (min)		15				

Timings
7: Tenth Line & Bethesda Side Road

Future Total 2030 Section E - PM Peak
03/30/2026

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	48	61	80	32	137	547	49	73	525
Future Volume (vph)	48	61	80	32	137	547	49	73	525
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		4		8		2			6
Permitted Phases	4		8		2		2	6	
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.6	22.6	22.6	22.6	37.4	37.4	37.4	37.4	37.4
Total Split (%)	37.7%	37.7%	37.7%	37.7%	62.3%	62.3%	62.3%	62.3%	62.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)		11.0	11.0	11.0	34.8	34.8	34.8	34.8	34.8
Actuated g/C Ratio		0.20	0.20	0.20	0.64	0.64	0.64	0.64	0.64
v/c Ratio		0.64	0.49	0.26	0.34	0.49	0.05	0.18	0.50
Control Delay (s/veh)		19.2	27.5	9.6	8.9	8.1	2.2	6.9	8.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		19.2	27.5	9.6	8.9	8.1	2.2	6.9	8.2
LOS		B	C	A	A	A	A	A	A
Approach Delay (s/veh)		19.2		17.9		7.9			8.1
Approach LOS		B		B		A			A
Intersection Summary									
Cycle Length: 60									
Actuated Cycle Length: 54.8									
Natural Cycle: 55									
Control Type: Semi Act-Uncoord									
Maximum v/c Ratio: 0.64									
Intersection Signal Delay (s/veh): 10.4					Intersection LOS: B				
Intersection Capacity Utilization 68.6%					ICU Level of Service C				
Analysis Period (min) 15									

Splits and Phases: 7: Tenth Line & Bethesda Side Road



HCM Signalized Intersection Capacity Analysis 7: Tenth Line & Bethesda Side Road

Future Total 2030 Section E - PM Peak
03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↑	↔	↔	↔	
Traffic Volume (vph)	48	61	127	80	32	61	137	547	49	73	525	29
Future Volume (vph)	48	61	127	80	32	61	137	547	49	73	525	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.93		1.00	0.90		1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1763		1825	1707		1824	1921	1633	1825	1904	
Flt Permitted		0.91		0.47	1.00		0.36	1.00	1.00	0.37	1.00	
Satd. Flow (perm)		1617		903	1707		696	1921	1633	707	1904	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	53	67	140	88	35	67	151	601	54	80	577	32
RTOR Reduction (vph)	0	80	0	0	54	0	0	0	20	0	3	0
Lane Group Flow (vph)	0	180	0	88	48	0	151	601	34	80	606	0
Confl. Peds. (#/hr)	1					1	1					1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		11.0		11.0	11.0		34.8	34.8	34.8	34.8	34.8	
Effective Green, g (s)		11.0		11.0	11.0		34.8	34.8	34.8	34.8	34.8	
Actuated g/C Ratio		0.20		0.20	0.20		0.64	0.64	0.64	0.64	0.64	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		324		181	342		441	1219	1037	448	1209	
v/s Ratio Prot					0.03			0.31			c0.32	
v/s Ratio Perm		c0.11		0.10			0.22		0.02	0.11		
v/c Ratio		0.56		0.49	0.14		0.34	0.49	0.03	0.18	0.50	
Uniform Delay, d1		19.7		19.4	18.0		4.7	5.3	3.7	4.1	5.4	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		2.1		2.1	0.2		2.1	1.4	0.1	0.9	1.5	
Delay (s)		21.8		21.4	18.2		6.8	6.7	3.8	5.0	6.8	
Level of Service		C		C	B		A	A	A	A	A	
Approach Delay (s/veh)		21.8			19.7			6.5			6.6	
Approach LOS		C			B			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			9.9			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			54.8			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			68.6%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: Road A & Bethesda Side Road

Future Total 2030 Section E - PM Peak
03/30/2026

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (veh/h)	137	46	20	142	30	42
Future Volume (Veh/h)	137	46	20	142	30	42
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.92	0.90
Hourly flow rate (vph)	152	51	22	158	33	47
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)	166					
pX, platoon unblocked						
vC, conflicting volume			203		380	178
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			203		380	178
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		95	95
cM capacity (veh/h)			1381		616	871
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	203	180	80			
Volume Left	0	22	33			
Volume Right	51	0	47			
cSH	1700	1381	744			
Volume to Capacity	0.12	0.02	0.11			
Queue Length 95th (m)	0.0	0.4	2.7			
Control Delay (s/veh)	0.0	1.1	10.4			
Lane LOS		A	B			
Approach Delay (s/veh)	0.0	1.1	10.4			
Approach LOS			B			
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			32.8%	ICU Level of Service		A
Analysis Period (min)			15			

Timings

Future Total 2030 Section E - PM Peak

9: Tenth Line & GO Primary Access/Road B/Road B

03/30/2026

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	364	0	50	0	49	359	61	619	23
Future Volume (vph)	364	0	50	0	49	359	61	619	23
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	3	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.5	28.0	9.5	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	9.5	28.0	9.5	28.0	37.5	37.5	37.5	37.5	37.5
Total Split (%)	12.7%	37.3%	12.7%	37.3%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	4.0	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	6.0	4.5	6.0	6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	16.1	10.1	7.2	10.1	31.7	31.7		31.7	31.7
Actuated g/C Ratio	0.27	0.17	0.12	0.17	0.54	0.54		0.54	0.54
v/c Ratio	0.85	0.25	0.25	0.02	0.31	0.48		0.80	0.03
Control Delay (s/veh)	41.6	1.3	24.5	0.1	15.3	11.2		21.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.9		0.0	0.0
Total Delay (s/veh)	41.6	1.3	24.5	0.1	15.3	12.1		21.4	0.0
LOS	D	A	C	A	B	B		C	A
Approach Delay (s/veh)		32.4		20.8		12.4		20.6	
Approach LOS		C		C		B		C	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 59.2

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.85

Intersection Signal Delay (s/veh): 21.6

Intersection LOS: C

Intersection Capacity Utilization 101.2%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 9: Tenth Line & GO Primary Access/Road B/Road B

	Ø2		Ø3		Ø4
37.5 s		9.5 s		28 s	
	Ø6		Ø7		Ø8
37.5 s		9.5 s		28 s	

HCM Signalized Intersection Capacity Analysis
9: Tenth Line & GO Primary Access/Road B/Road B

Future Total 2030 Section E - PM Peak
03/30/2026

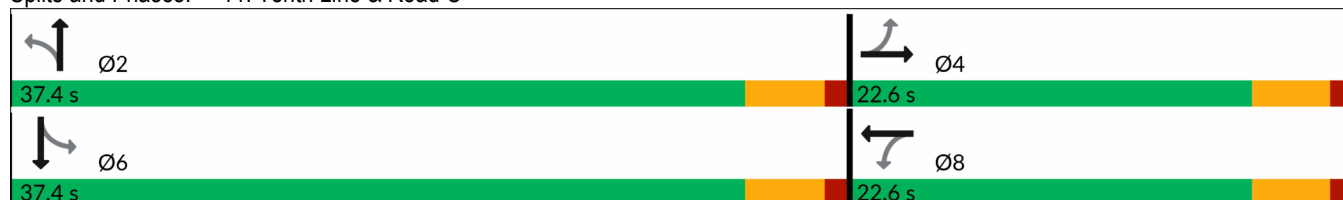
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	364	0	108	50	0	9	49	359	74	61	619	23
Future Volume (vph)	364	0	108	50	0	9	49	359	74	61	619	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1825	1633		1825	1633		1825	1872			1913	1633
Flt Permitted	0.63	1.00		1.00	1.00		0.17	1.00			0.92	1.00
Satd. Flow (perm)	1201	1633		1921	1633		328	1872			1763	1633
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	404	0	120	56	0	10	54	399	82	68	688	26
RTOR Reduction (vph)	0	96	0	0	10	0	0	9	0	0	0	13
Lane Group Flow (vph)	404	24	0	56	0	0	54	472	0	0	756	13
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	20.3	13.0		4.7	1.9		31.7	31.7			31.7	31.7
Effective Green, g (s)	20.3	13.0		4.7	1.9		31.7	31.7			31.7	31.7
Actuated g/C Ratio	0.32	0.20		0.07	0.03		0.50	0.50			0.50	0.50
Clearance Time (s)	4.5	6.0		4.5	6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	516	331		136	48		162	927			873	808
v/s Ratio Prot	c0.17	0.01		0.02	0.00			0.25				
v/s Ratio Perm	c0.08			0.01			0.16				c0.43	0.01
v/c Ratio	0.78	0.07		0.41	0.01		0.33	0.51			0.87	0.02
Uniform Delay, d1	19.2	20.6		28.4	30.1		9.8	10.9			14.3	8.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	7.6	0.1		2.0	0.1		5.5	2.0			11.2	0.0
Delay (s)	26.8	20.7		30.4	30.2		15.2	12.9			25.5	8.3
Level of Service	C	C		C	C		B	B			C	A
Approach Delay (s/veh)		25.4			30.4			13.1			24.9	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			21.9									
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			64.0									
Intersection Capacity Utilization			101.2%									
Analysis Period (min)			15									
c Critical Lane Group												

Timings
11: Tenth Line & Road C

Future Total 2030 Section E - PM Peak
03/30/2026

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	156	0	52	0	133	329	68	482
Future Volume (vph)	156	0	52	0	133	329	68	482
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.6	22.6	22.6	22.6	37.4	37.4	37.4	37.4
Total Split (%)	37.7%	37.7%	37.7%	37.7%	62.3%	62.3%	62.3%	62.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	11.8	11.8	11.5	11.5	37.0	37.0	37.0	37.0
Actuated g/C Ratio	0.22	0.22	0.21	0.21	0.68	0.68	0.68	0.68
v/c Ratio	0.57	0.18	0.21	0.04	0.43	0.34	0.12	0.62
Control Delay (s/veh)	26.2	0.6	18.4	0.1	12.5	6.3	6.1	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.2	0.6	18.4	0.1	12.5	6.3	6.1	10.0
LOS	C	A	B	A	B	A	A	A
Approach Delay (s/veh)		16.6		12.1		7.9		9.6
Approach LOS		B		B		A		A
Intersection Summary								
Cycle Length: 60								
Actuated Cycle Length: 54.5								
Natural Cycle: 60								
Control Type: Semi Act-Uncoord								
Maximum v/c Ratio: 0.62								
Intersection Signal Delay (s/veh): 10.3					Intersection LOS: B			
Intersection Capacity Utilization 72.9%					ICU Level of Service C			
Analysis Period (min) 15								

Splits and Phases: 11: Tenth Line & Road C



HCM Signalized Intersection Capacity Analysis

Future Total 2030 Section E - PM Peak

11: Tenth Line & Road C

03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	0	94	52	0	28	133	329	63	68	482	224
Future Volume (vph)	156	0	94	52	0	28	133	329	63	68	482	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1633		1825	1633		1825	1875		1825	1830	
Flt Permitted	0.74	1.00		0.69	1.00		0.26	1.00		0.49	1.00	
Satd. Flow (perm)	1416	1633		1325	1633		503	1875		933	1830	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	173	0	104	58	0	31	148	366	70	76	536	249
RTOR Reduction (vph)	0	85	0	0	25	0	0	9	0	0	22	0
Lane Group Flow (vph)	173	19	0	58	6	0	148	427	0	76	763	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	10.3	10.3		10.3	10.3		36.1	36.1		36.1	36.1	
Effective Green, g (s)	10.3	10.3		10.3	10.3		36.1	36.1		36.1	36.1	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.65	0.65		0.65	0.65	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	263	303		246	303		327	1221		607	1192	
v/s Ratio Prot		0.01			0.00			0.23			c0.42	
v/s Ratio Perm	c0.12			0.04			0.29			0.08		
v/c Ratio	0.66	0.06		0.24	0.02		0.45	0.35		0.13	0.64	
Uniform Delay, d1	20.9	18.6		19.2	18.4		4.8	4.4		3.7	5.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.8	0.1		0.5	0.0		4.5	0.8		0.4	2.6	
Delay (s)	26.7	18.7		19.7	18.4		9.2	5.1		4.1	8.4	
Level of Service	C	B		B	B		A	A		A	A	
Approach Delay (s/veh)		23.7			19.3			6.2			8.0	
Approach LOS		C			B			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			10.4									
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			55.4									
Intersection Capacity Utilization			72.9%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 108: Tenth Line & GO Right-in/out

Future Total 2030 Section E - PM Peak
03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	40	0	732	663	69
Future Volume (Veh/h)	0	40	0	732	663	69
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	43	0	796	721	75
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				86	95	
pX, platoon unblocked	0.74	0.85	0.85			
vC, conflicting volume	1517	721	796			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1055	580	669			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	90	100			
cM capacity (veh/h)	186	439	788			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	43	796	721	75		
Volume Left	0	0	0	0		
Volume Right	43	0	0	75		
cSH	439	1700	1700	1700		
Volume to Capacity	0.10	0.47	0.42	0.04		
Queue Length 95th (m)	2.5	0.0	0.0	0.0		
Control Delay (s/veh)	14.1	0.0	0.0	0.0		
Lane LOS	B					
Approach Delay (s/veh)	14.1	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			44.9%		ICU Level of Service	A
Analysis Period (min)			15			

Timings
109: Tenth Line & GO Bus Only Access

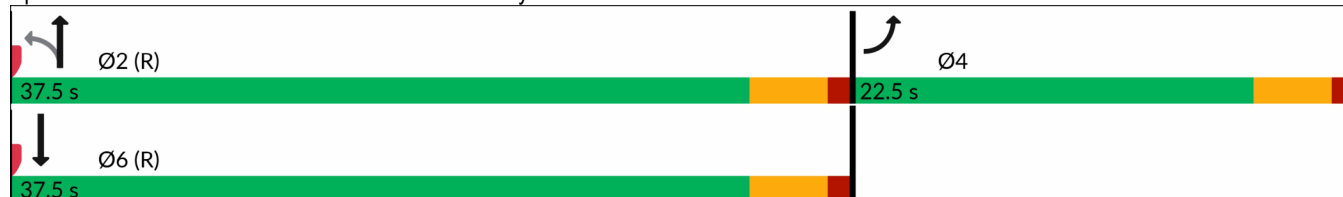
Future Total 2030 Section E - PM Peak
03/30/2026

			
Lane Group	EBL	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	2	494	773
Future Volume (vph)	2	494	773
Turn Type	Prot	NA	NA
Protected Phases	4	2	6
Permitted Phases			
Detector Phase	4	2	6
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5
Total Split (s)	22.5	37.5	37.5
Total Split (%)	37.5%	62.5%	62.5%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Max	C-Max
Act Effect Green (s)	5.7	57.0	57.0
Actuated g/C Ratio	0.10	0.95	0.95
v/c Ratio	0.02	0.29	0.46
Control Delay (s/veh)	22.3	1.3	2.1
Queue Delay	0.0	0.0	0.1
Total Delay (s/veh)	22.3	1.3	2.1
LOS	C	A	A
Approach Delay (s/veh)	22.3	1.3	2.1
Approach LOS	C	A	A

Intersection Summary

Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay (s/veh): 1.9	Intersection LOS: A
Intersection Capacity Utilization 52.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 109: Tenth Line & GO Bus Only Access



HCM Signalized Intersection Capacity Analysis
109: Tenth Line & GO Bus Only Access

Future Total 2030 Section E - PM Peak
03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	1	0	494	773	4
Future Volume (vph)	2	1	0	494	773	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.96			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1775			1921	1920	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1775			1921	1920	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	1	0	537	840	4
RTOR Reduction (vph)	1	0	0	0	0	0
Lane Group Flow (vph)	2	0	0	537	844	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.2			49.8	49.8	
Effective Green, g (s)	1.2			49.8	49.8	
Actuated g/C Ratio	0.02			0.83	0.83	
Clearance Time (s)	4.5			4.5	4.5	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	35			1594	1593	
v/s Ratio Prot	c0.00			0.28	c0.44	
v/s Ratio Perm						
v/c Ratio	0.06			0.34	0.53	
Uniform Delay, d1	28.8			1.2	1.5	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.7			0.6	1.3	
Delay (s)	29.5			1.8	2.8	
Level of Service	C			A	A	
Approach Delay (s/veh)	29.5			1.8	2.8	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			2.5	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.52			
Actuated Cycle Length (s)			60.0	Sum of lost time (s)		9.0
Intersection Capacity Utilization			52.6%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis 113: Tenth Line & RI/RO North Access

Future Total 2030 Section E - PM Peak
03/30/2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	10	472	24	0	777
Future Volume (Veh/h)	0	10	472	24	0	777
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	11	513	26	0	845
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			46			48
pX, platoon unblocked	0.69	0.93			0.93	
vC, conflicting volume	1371	526			539	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1084	452			466	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	167	569			1028	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	11	539	845			
Volume Left	0	0	0			
Volume Right	11	26	0			
cSH	569	1700	1700			
Volume to Capacity	0.02	0.32	0.50			
Queue Length 95th (m)	0.4	0.0	0.0			
Control Delay (s/veh)	11.5	0.0	0.0			
Lane LOS	B					
Approach Delay (s/veh)	11.5	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		44.2%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 114: Tenth Line & RI/RO Central Access

Future Total 2030 Section E - PM Peak
03/30/2026

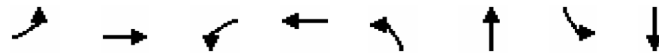
						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	22	472	42	0	774
Future Volume (Veh/h)	0	22	472	42	0	774
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	24	513	46	0	841
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			162			177
pX, platoon unblocked	0.82					
vC, conflicting volume	1377	536			559	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1350	536			559	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	138	549			1022	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	24	559	841			
Volume Left	0	0	0			
Volume Right	24	46	0			
cSH	549	1700	1700			
Volume to Capacity	0.04	0.33	0.49			
Queue Length 95th (m)	1.0	0.0	0.0			
Control Delay (s/veh)	11.9	0.0	0.0			
Lane LOS	B					
Approach Delay (s/veh)	11.9	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		0.2				
Intersection Capacity Utilization		44.1%		ICU Level of Service		A
Analysis Period (min)		15				

Timings

Future Total 2035 Section E - AM Peak

3: Tenth Line (South Leg)/Private Driveway & Main Street

03/30/2026



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↔	↔	↔	↔	↔		↔
Traffic Volume (vph)	7	174	722	279	126	1	1	0
Future Volume (vph)	7	174	722	279	126	1	1	0
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	29.5	29.5	9.5	29.5	27.5	27.5	27.5	27.5
Total Split (s)	29.8	29.8	62.0	91.8	28.2	28.2	28.2	28.2
Total Split (%)	24.8%	24.8%	51.7%	76.5%	23.5%	23.5%	23.5%	23.5%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	1.5	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.5	4.5	5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Max	Max	None	Max	Max	Max	Max	Max
Act Effect Green (s)		33.3	87.3	86.3	22.7	22.7		22.7
Actuated g/C Ratio		0.28	0.73	0.72	0.19	0.19		0.19
v/c Ratio		0.67	0.85	0.23	0.51	0.65		0.02
Control Delay (s/veh)		45.2	24.1	6.1	51.0	9.2		0.2
Queue Delay		0.0	50.6	4.0	0.0	0.0		0.0
Total Delay (s/veh)		45.2	74.7	10.1	51.0	9.2		0.2
LOS		D	E	B	D	A		A
Approach Delay (s/veh)		45.2		56.4		19.6		0.2
Approach LOS		D		E		B		A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay (s/veh): 44.1

Intersection LOS: D

Intersection Capacity Utilization 97.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Tenth Line (South Leg)/Private Driveway & Main Street

Ø1 62 s	Ø2 29.8 s	Ø4 28.2 s
Ø6 91.8 s		Ø8 28.2 s

HCM Signalized Intersection Capacity Analysis 3: Tenth Line (South Leg)/Private Driveway & Main Street

Future Total 2035 Section E - AM Peak
03/30/2026

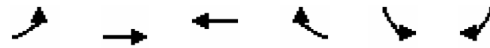
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔			↔	
Traffic Volume (vph)	7	174	131	722	279	7	126	1	383	1	0	5
Future Volume (vph)	7	174	131	722	279	7	126	1	383	1	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.98		1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes		1.00		1.00	1.00		0.99	1.00			1.00	
Frt		0.94		1.00	1.00		1.00	0.85			0.89	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)		1769		1819	1912		1810	1634			1651	
Flt Permitted		0.99		0.30	1.00		0.75	1.00			0.66	
Satd. Flow (perm)		1753		581	1912		1436	1634			1101	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	189	142	785	303	8	137	1	416	1	0	5
RTOR Reduction (vph)	0	20	0	0	1	0	0	337	0	0	5	0
Lane Group Flow (vph)	0	319	0	785	310	0	137	80	0	0	1	0
Confl. Peds. (#/hr)	5		14	14		5	3					3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		33.3		86.3	86.3		22.7	22.7			22.7	
Effective Green, g (s)		33.3		86.3	86.3		22.7	22.7			22.7	
Actuated g/C Ratio		0.28		0.72	0.72		0.19	0.19			0.19	
Clearance Time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		486		918	1375		271	309			208	
v/s Ratio Prot				c0.35	0.16			0.05				
v/s Ratio Perm		0.18		c0.27			c0.10				0.00	
v/c Ratio		0.66		0.86	0.23		0.51	0.26			0.01	
Uniform Delay, d1		38.3		17.5	5.6		43.6	41.5			39.5	
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		6.8		7.9	0.4		6.6	2.0			0.0	
Delay (s)		45.1		25.3	6.0		50.2	43.5			39.5	
Level of Service		D		C	A		D	D			D	
Approach Delay (s/veh)		45.1			19.9			45.1			39.5	
Approach LOS		D			B			D			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			31.2									
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			120.0									
Intersection Capacity Utilization			97.5%									
Analysis Period (min)			15									
c Critical Lane Group												

Timings

Future Total 2035 Section E - AM Peak

4: Main Street & Tenth Line (North Leg)

03/30/2026



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	427	115	151	75	143	834
Future Volume (vph)	427	115	151	75	143	834
Turn Type	Split	NA	NA	Perm	Perm	Over
Protected Phases	2	2	6			2
Permitted Phases				6	4	
Detector Phase	2	2	6	6	4	2
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.0	32.0	32.0	32.0	31.7	32.0
Total Split (s)	56.3	56.3	32.0	32.0	31.7	56.3
Total Split (%)	46.9%	46.9%	26.7%	26.7%	26.4%	46.9%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.4	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max	Max	Max	Max	None	Max
Act Effect Green (s)	50.4	50.4	26.0	26.0	15.5	50.4
Actuated g/C Ratio	0.46	0.46	0.24	0.24	0.14	0.46
v/c Ratio	0.60	0.15	0.39	0.20	0.66	0.86
Control Delay (s/veh)	26.6	18.7	39.2	8.9	57.7	15.8
Queue Delay	55.7	1.7	0.0	0.0	0.0	0.0
Total Delay (s/veh)	82.3	20.4	39.2	8.9	57.7	15.8
LOS	F	C	D	A	E	B
Approach Delay (s/veh)		69.2	29.2		21.9	
Approach LOS		E	C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 109.6

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay (s/veh): 37.6

Intersection LOS: D

Intersection Capacity Utilization 83.3%

ICU Level of Service E

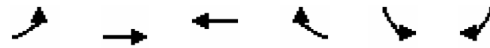
Analysis Period (min) 15

Splits and Phases: 4: Main Street & Tenth Line (North Leg)



HCM Signalized Intersection Capacity Analysis 4: Main Street & Tenth Line (North Leg)

Future Total 2035 Section E - AM Peak
03/30/2026



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	427	115	151	75	143	834
Future Volume (vph)	427	115	151	75	143	834
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.6	3.6	3.5	3.5	3.5	3.5
Total Lost time (s)	6.0	6.0	6.0	6.0	5.7	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1805	1900	1879	1555	1774	1597
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1805	1900	1879	1555	1774	1597
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	497	134	176	87	166	970
RTOR Reduction (vph)	0	0	0	66	0	394
Lane Group Flow (vph)	497	134	176	21	166	576
Confl. Peds. (#/hr)	3			3	3	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA	NA	Perm	Perm	Over
Protected Phases	2	2	6			2
Permitted Phases				6	4	
Actuated Green, G (s)	50.4	50.4	26.0	26.0	15.5	50.4
Effective Green, g (s)	50.4	50.4	26.0	26.0	15.5	50.4
Actuated g/C Ratio	0.46	0.46	0.24	0.24	0.14	0.46
Clearance Time (s)	6.0	6.0	6.0	6.0	5.7	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	830	873	445	368	250	734
v/s Ratio Prot	0.28	0.07	c0.09			c0.36
v/s Ratio Perm				0.01	c0.09	
v/c Ratio	0.60	0.15	0.40	0.06	0.66	0.79
Uniform Delay, d1	22.1	17.2	35.2	32.3	44.6	25.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.2	0.4	2.6	0.3	6.5	8.3
Delay (s)	25.2	17.6	37.8	32.6	51.1	33.3
Level of Service	C	B	D	C	D	C
Approach Delay (s/veh)		23.6	36.1		35.9	
Approach LOS		C	D		D	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			32.1		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.65			
Actuated Cycle Length (s)			109.6		Sum of lost time (s)	17.7
Intersection Capacity Utilization			83.3%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis 5: York Durham Line & Main Street

Future Total 2035 Section E - AM Peak
03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	226	154	238	492	22
Future Volume (Veh/h)	14	226	154	238	492	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	15	240	164	253	523	23
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1116	535	546			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1116	535	546			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	56	84			
cM capacity (veh/h)	195	550	1033			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	15	240	164	253	546	
Volume Left	15	0	164	0	0	
Volume Right	0	240	0	0	23	
cSH	195	550	1033	1700	1700	
Volume to Capacity	0.08	0.44	0.16	0.15	0.32	
Queue Length 95th (m)	1.9	16.7	4.3	0.0	0.0	
Control Delay (s/veh)	25.0	16.5	9.1	0.0	0.0	
Lane LOS	C	C	A			
Approach Delay (s/veh)	17.0		3.6		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay			4.8			
Intersection Capacity Utilization			49.1%		ICU Level of Service	
					A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 6: York Durham Line & Bethesda Side Road

Future Total 2035 Section E - AM Peak
03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	21	341	156	155	312	10
Future Volume (Veh/h)	21	341	156	155	312	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	22	359	164	163	328	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	825	334	339			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	825	334	339			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	50	87			
cM capacity (veh/h)	299	713	1231			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	381	327	339			
Volume Left	22	164	0			
Volume Right	359	0	11			
cSH	660	1231	1700			
Volume to Capacity	0.58	0.13	0.20			
Queue Length 95th (m)	28.1	3.5	0.0			
Control Delay (s/veh)	17.6	4.8	0.0			
Lane LOS	C	A				
Approach Delay (s/veh)	17.6	4.8	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		7.9				
Intersection Capacity Utilization		66.1%		ICU Level of Service		C
Analysis Period (min)		15				

Timings
7: Tenth Line & Bethesda Side Road

Future Total 2035 Section E - AM Peak
03/30/2026

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	86	227	308	54	109	172	472	58	74	515
Future Volume (vph)	86	227	308	54	109	172	472	58	74	515
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8		2		2	6	
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	71.6	71.6	71.6	71.6	71.6	9.8	38.0	38.0	10.4	38.6
Total Split (%)	59.7%	59.7%	59.7%	59.7%	59.7%	8.2%	31.7%	31.7%	8.7%	32.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		23.1	23.1	23.1	23.1	40.2	36.1	36.1	40.2	34.3
Actuated g/C Ratio		0.30	0.30	0.30	0.30	0.53	0.47	0.47	0.53	0.45
v/c Ratio		0.84	0.56	0.33	0.41	0.37	0.61	0.08	0.22	0.78
Control Delay (s/veh)		42.0	12.5	25.1	17.2	10.7	21.1	6.3	10.4	27.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		42.0	12.5	25.1	17.2	10.7	21.1	6.3	10.4	27.5
LOS		D	B	C	B	B	C	A	B	C
Approach Delay (s/veh)		27.4			18.9		17.4			25.6
Approach LOS		C			B		B			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 76.4

Natural Cycle: 65

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.84

Intersection Signal Delay (s/veh): 22.7

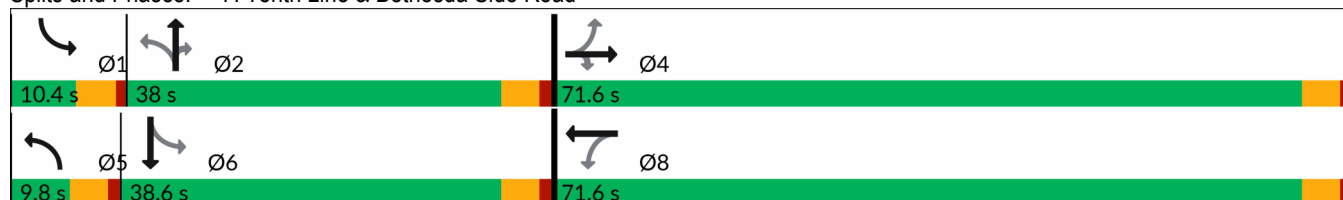
Intersection LOS: C

Intersection Capacity Utilization 78.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 7: Tenth Line & Bethesda Side Road



HCM Signalized Intersection Capacity Analysis 7: Tenth Line & Bethesda Side Road

Future Total 2035 Section E - AM Peak
03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	227	308	54	109	94	172	472	58	74	515	57
Future Volume (vph)	86	227	308	54	109	94	172	472	58	74	515	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00	1.00	1.00	1.00		0.97	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.93		1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1895	1633	1825	1788		3541	1921	1633	1825	1893	
Flt Permitted		0.75	1.00	0.33	1.00		0.18	1.00	1.00	0.29	1.00	
Satd. Flow (perm)		1439	1633	627	1788		653	1921	1633	561	1893	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	100	264	358	63	127	109	200	549	67	86	599	66
RTOR Reduction (vph)	0	0	144	0	41	0	0	0	29	0	3	0
Lane Group Flow (vph)	0	364	214	63	195	0	200	549	38	86	662	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)		23.1	23.1	23.1	23.1		41.4	36.1	36.1	40.0	35.4	
Effective Green, g (s)		23.1	23.1	23.1	23.1		41.4	36.1	36.1	40.0	35.4	
Actuated g/C Ratio		0.30	0.30	0.30	0.30		0.54	0.47	0.47	0.52	0.46	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		430	487	187	534		547	897	762	365	866	
v/s Ratio Prot					0.11		0.03	0.29		0.01	0.35	
v/s Ratio Perm		0.25	0.13	0.10			0.17		0.02	0.11		
v/c Ratio		0.85	0.44	0.34	0.37		0.37	0.61	0.05	0.24	0.76	
Uniform Delay, d1		25.4	21.9	21.1	21.3		12.0	15.4	11.2	10.6	17.5	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		14.2	0.6	1.1	0.4		0.4	3.1	0.1	0.3	6.4	
Delay (s)		39.7	22.5	22.2	21.8		12.5	18.5	11.4	11.0	23.9	
Level of Service		D	C	C	C		B	B	B	B	C	
Approach Delay (s/veh)		31.2			21.9			16.4			22.4	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			22.9									
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			77.3							13.5		
Intersection Capacity Utilization			78.7%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: Road A & Bethesda Side Road

Future Total 2035 Section E - AM Peak
03/30/2026

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	344	15	7	213	44	35
Future Volume (Veh/h)	344	15	7	213	44	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	382	17	8	237	49	39
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)	166					
pX, platoon unblocked			0.88		0.88	0.88
vC, conflicting volume			399		644	391
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			249		527	240
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		89	94
cM capacity (veh/h)			1169		450	708
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	399	245	88			
Volume Left	0	8	49			
Volume Right	17	0	39			
cSH	1700	1169	537			
Volume to Capacity	0.23	0.00*	0.16			
Queue Length 95th (m)	0.0	0.2	4.4			
Control Delay (s/veh)	0.0	0.3	13.0			
Lane LOS		A	B			
Approach Delay (s/veh)	0.0	0.3	13.0			
Approach LOS			B			
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			30.3%	ICU Level of Service		A
Analysis Period (min)			15			
* Value less than 0.01.						

Timings

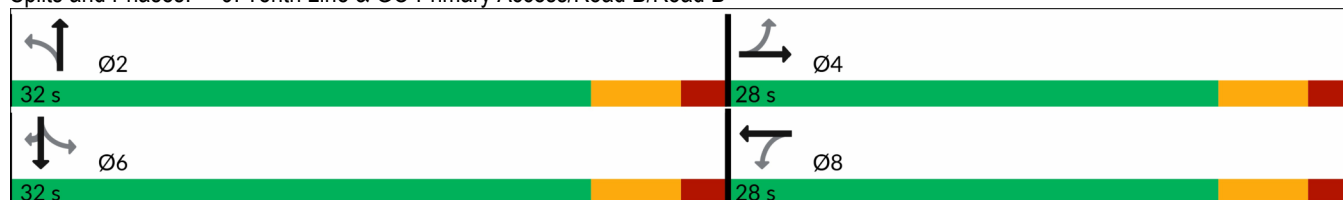
Future Total 2035 Section E - AM Peak

9: Tenth Line & GO Primary Access/Road B/Road B

03/30/2026

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	82	0	74	0	168	604	22	534	7
Future Volume (vph)	82	0	74	0	168	604	22	534	7
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	28.0	28.0	28.0	28.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	10.3	10.3	10.3	10.3	31.9	31.9	31.9	31.9	31.9
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.64	0.64	0.64	0.64	0.64
v/c Ratio	0.31	0.10	0.28	0.04	0.39	0.57	0.06	0.48	0.01
Control Delay (s/veh)	19.5	0.4	19.2	0.2	10.2	9.8	6.2	8.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
Total Delay (s/veh)	19.5	0.4	19.2	0.2	10.2	10.3	6.2	8.6	0.0
LOS	B	A	B	A	B	B	A	A	A
Approach Delay (s/veh)		12.9		15.8		10.3		8.4	
Approach LOS		B		B		B		A	
Intersection Summary									
Cycle Length: 60									
Actuated Cycle Length: 49.6									
Natural Cycle: 60									
Control Type: Semi Act-Uncoord									
Maximum v/c Ratio: 0.57									
Intersection Signal Delay (s/veh): 10.1					Intersection LOS: B				
Intersection Capacity Utilization 67.9%					ICU Level of Service C				
Analysis Period (min) 15									

Splits and Phases: 9: Tenth Line & GO Primary Access/Road B/Road B



HCM Signalized Intersection Capacity Analysis
9: Tenth Line & GO Primary Access/Road B/Road B

Future Total 2035 Section E - AM Peak
03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	0	43	74	0	16	168	604	26	22	534	7
Future Volume (vph)	82	0	43	74	0	16	168	604	26	22	534	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1633		1825	1633		1825	1909		1825	1921	1633
Flt Permitted	0.75	1.00		0.73	1.00		0.38	1.00		0.31	1.00	1.00
Satd. Flow (perm)	1433	1633		1394	1633		738	1909		595	1921	1633
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	91	0	48	82	0	18	187	671	29	24	593	8
RTOR Reduction (vph)	0	40	0	0	15	0	0	2	0	0	0	3
Lane Group Flow (vph)	91	8	0	82	3	0	187	698	0	24	593	5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	8.2	8.2		8.2	8.2		30.6	30.6		30.6	30.6	30.6
Effective Green, g (s)	8.2	8.2		8.2	8.2		30.6	30.6		30.6	30.6	30.6
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.60	0.60		0.60	0.60	0.60
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	231	263		225	263		444	1149		358	1157	983
v/s Ratio Prot		0.00			0.00			c0.37			0.31	
v/s Ratio Perm	c0.06			0.06			0.25			0.04		0.00
v/c Ratio	0.39	0.03		0.36	0.01		0.42	0.61		0.07	0.51	0.00
Uniform Delay, d1	19.1	17.9		19.0	17.9		5.4	6.3		4.2	5.8	4.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.0		1.0	0.0		2.9	2.4		0.4	1.6	0.0
Delay (s)	20.2	18.0		20.0	17.9		8.3	8.7		4.5	7.4	4.0
Level of Service	C	B		B	B		A	A		A	A	A
Approach Delay (s/veh)		19.4			19.6			8.6			7.3	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			9.6				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			50.8				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			67.9%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Timings
11: Tenth Line & Road C

Future Total 2035 Section E - AM Peak
03/30/2026

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	214	0	64	0	57	525	22	535
Future Volume (vph)	214	0	64	0	57	525	22	535
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	37.0	37.0	37.0	37.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	61.7%	61.7%	61.7%	61.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effect Green (s)	14.2	14.2	14.2	14.2	34.7	34.7	34.7	34.7
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.60	0.60	0.60	0.60
v/c Ratio	0.69	0.23	0.23	0.06	0.19	0.53	0.06	0.61
Control Delay (s/veh)	30.1	0.9	17.9	0.2	8.5	9.7	6.7	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.1	0.9	17.9	0.2	8.5	9.7	6.7	11.0
LOS	C	A	B	A	A	A	A	B
Approach Delay (s/veh)		19.3		11.8		9.6		10.9
Approach LOS		B		B		A		B

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 57.9

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.69

Intersection Signal Delay (s/veh): 12.2

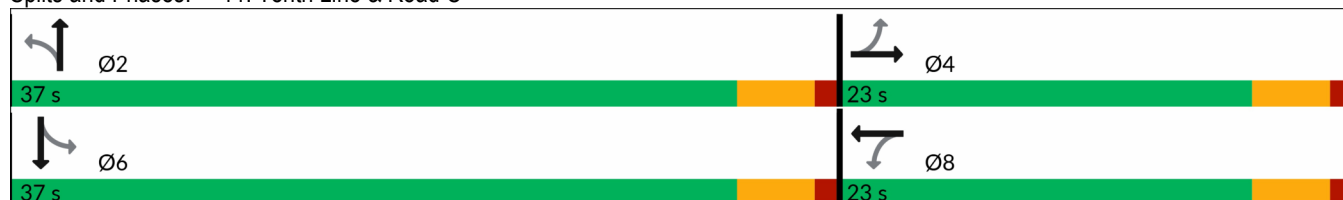
Intersection LOS: B

Intersection Capacity Utilization 69.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 11: Tenth Line & Road C



HCM Signalized Intersection Capacity Analysis

Future Total 2035 Section E - AM Peak

11: Tenth Line & Road C

03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	0	126	64	0	33	57	525	20	22	535	93
Future Volume (vph)	214	0	126	64	0	33	57	525	20	22	535	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1633		1825	1633		1825	1911		1825	1879	
Flt Permitted	0.73	1.00		0.67	1.00		0.28	1.00		0.34	1.00	
Satd. Flow (perm)	1408	1633		1283	1633		543	1911		662	1879	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	238	0	140	71	0	37	63	583	22	24	594	103
RTOR Reduction (vph)	0	106	0	0	28	0	0	2	0	0	9	0
Lane Group Flow (vph)	238	34	0	71	9	0	63	603	0	24	688	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.2	14.2		14.2	14.2		34.7	34.7		34.7	34.7	
Effective Green, g (s)	14.2	14.2		14.2	14.2		34.7	34.7		34.7	34.7	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.60	0.60		0.60	0.60	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	345	400		314	400		325	1145		396	1126	
v/s Ratio Prot		0.02			0.01			0.32			c0.37	
v/s Ratio Perm	c0.17			0.06			0.12			0.04		
v/c Ratio	0.69	0.09		0.23	0.02		0.19	0.53		0.06	0.61	
Uniform Delay, d1	19.8	16.8		17.5	16.6		5.3	6.8		4.8	7.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.7	0.1		0.4	0.0		1.3	1.7		0.3	2.5	
Delay (s)	25.5	16.9		17.8	16.6		6.6	8.5		5.1	9.8	
Level of Service	C	B		B	B		A	A		A	A	
Approach Delay (s/veh)		22.3			17.4			8.3			9.6	
Approach LOS		C			B			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			12.2									B
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			57.9								9.0	
Intersection Capacity Utilization			69.0%								C	
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 108: Tenth Line & GO Right-in/out

Future Total 2035 Section E - AM Peak
03/30/2026

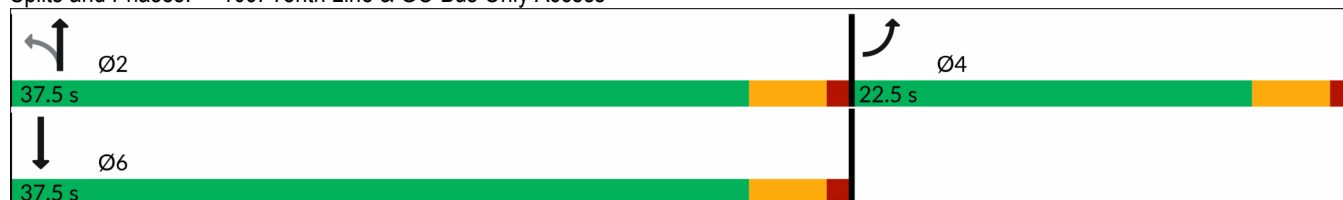
						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	10	0	702	553	324
Future Volume (Veh/h)	0	10	0	702	553	324
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	11	0	763	601	352
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				86	95	
pX, platoon unblocked	0.81	0.85	0.85			
vC, conflicting volume	1364	601	953			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	925	447	859			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	243	526	675			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	11	763	601	352		
Volume Left	0	0	0	0		
Volume Right	11	0	0	352		
cSH	526	1700	1700	1700		
Volume to Capacity	0.02	0.45	0.35	0.21		
Queue Length 95th (m)	0.5	0.0	0.0	0.0		
Control Delay (s/veh)	12.0	0.0	0.0	0.0		
Lane LOS	B					
Approach Delay (s/veh)	12.0	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			40.3%	ICU Level of Service		A
Analysis Period (min)			15			

Timings
109: Tenth Line & GO Bus Only Access

Future Total 2035 Section E - AM Peak
03/30/2026

			
Lane Group	EBL	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	2	789	650
Future Volume (vph)	2	789	650
Turn Type	Prot	NA	NA
Protected Phases	4	2	6
Permitted Phases			
Detector Phase	4	2	6
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5
Total Split (s)	22.5	37.5	37.5
Total Split (%)	37.5%	62.5%	62.5%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	Max	Max
Act Effct Green (s)	5.7	52.0	52.0
Actuated g/C Ratio	0.10	0.95	0.95
v/c Ratio	0.01	0.47	0.39
Control Delay (s/veh)	24.0	2.0	1.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	24.0	2.0	1.7
LOS	C	A	A
Approach Delay (s/veh)	24.0	2.0	1.7
Approach LOS	C	A	A
Intersection Summary			
Cycle Length: 60			
Actuated Cycle Length: 54.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay (s/veh): 1.9		Intersection LOS: A	
Intersection Capacity Utilization 53.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 109: Tenth Line & GO Bus Only Access



HCM Signalized Intersection Capacity Analysis
109: Tenth Line & GO Bus Only Access

Future Total 2035 Section E - AM Peak
03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	0	0	789	650	1
Future Volume (vph)	2	0	0	789	650	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	
Lane Util. Factor	1.00			1.00	1.00	
Frt	1.00			1.00	1.00	
Flt Protected	0.95			1.00	1.00	
Satd. Flow (prot)	1825			1921	1921	
Flt Permitted	0.95			1.00	1.00	
Satd. Flow (perm)	1825			1921	1921	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	0	0	858	707	1
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	2	0	0	858	708	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.0			48.3	48.3	
Effective Green, g (s)	1.0			48.3	48.3	
Actuated g/C Ratio	0.02			0.83	0.83	
Clearance Time (s)	4.5			4.5	4.5	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	31			1591	1591	
v/s Ratio Prot	c0.00			c0.45	0.37	
v/s Ratio Perm						
v/c Ratio	0.06			0.54	0.45	
Uniform Delay, d1	28.2			1.6	1.4	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.9			1.3	0.9	
Delay (s)	29.1			2.9	2.3	
Level of Service	C			A	A	
Approach Delay (s/veh)	29.1			2.9	2.3	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			2.6	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.53			
Actuated Cycle Length (s)			58.3	Sum of lost time (s)		9.0
Intersection Capacity Utilization			53.2%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis 113: Tenth Line & RI/RO North Access

Future Total 2035 Section E - AM Peak
03/30/2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	15	783	8	0	651
Future Volume (Veh/h)	0	15	783	8	0	651
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	851	9	0	708
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			46			48
pX, platoon unblocked	0.87	0.83			0.83	
vC, conflicting volume	1564	856			860	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1144	728			733	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	193	356			735	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	16	860	708			
Volume Left	0	0	0			
Volume Right	16	9	0			
cSH	356	1700	1700			
Volume to Capacity	0.04	0.51	0.42			
Queue Length 95th (m)	1.1	0.0	0.0			
Control Delay (s/veh)	15.6	0.0	0.0			
Lane LOS	C					
Approach Delay (s/veh)	15.6	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		0.2				
Intersection Capacity Utilization		51.7%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 114: Tenth Line & RI/RO Central Access

Future Total 2035 Section E - AM Peak
03/30/2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	31	758	14	0	650
Future Volume (Veh/h)	0	31	758	14	0	650
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	34	824	15	0	707
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			162			177
pX, platoon unblocked	0.88					
vC, conflicting volume	1539	832			839	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1544	832			839	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	91			100	
cM capacity (veh/h)	112	372			804	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	34	839	707			
Volume Left	0	0	0			
Volume Right	34	15	0			
cSH	372	1700	1700			
Volume to Capacity	0.09	0.49	0.42			
Queue Length 95th (m)	2.3	0.0	0.0			
Control Delay (s/veh)	15.6	0.0	0.0			
Lane LOS	C					
Approach Delay (s/veh)	15.6	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		0.3				
Intersection Capacity Utilization		50.7%		ICU Level of Service		A
Analysis Period (min)		15				

Timings

Future Total 2035 Section E - PM Peak

3: Tenth Line (South Leg)/Private Driveway & Main Street

03/30/2026

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	15	331	560	318	130	0	1	0
Future Volume (vph)	15	331	560	318	130	0	1	0
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	29.5	29.5	9.5	29.5	27.5	27.5	27.5	27.5
Total Split (s)	47.0	47.0	35.0	82.0	38.0	38.0	38.0	38.0
Total Split (%)	39.2%	39.2%	29.2%	68.3%	31.7%	31.7%	31.7%	31.7%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	1.5	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.5	4.5	5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Max	Max	None	Max	Max	Max	Max	Max
Act Effect Green (s)		42.4	77.5	76.5	32.5	32.5		32.5
Actuated g/C Ratio		0.35	0.65	0.64	0.27	0.27		0.27
v/c Ratio		0.87	0.97	0.30	0.37	0.89		0.03
Control Delay (s/veh)		50.8	49.8	10.4	38.8	22.6		0.1
Queue Delay		0.0	44.3	8.5	0.0	0.0		0.0
Total Delay (s/veh)		50.8	94.2	18.9	38.8	22.6		0.1
LOS		D	F	B	D	C		A
Approach Delay (s/veh)		50.8		66.2		25.0		0.1
Approach LOS		D		E		C		A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay (s/veh): 46.9

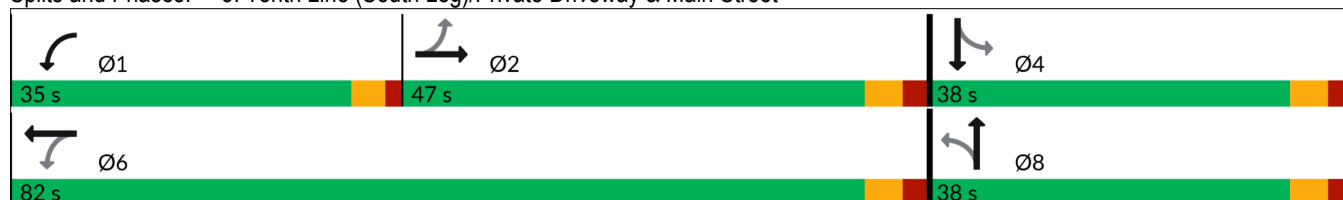
Intersection LOS: D

Intersection Capacity Utilization 118.6%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 3: Tenth Line (South Leg)/Private Driveway & Main Street



HCM Signalized Intersection Capacity Analysis 3: Tenth Line (South Leg)/Private Driveway & Main Street

Future Total 2035 Section E - PM Peak
03/30/2026

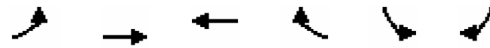
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	331	169	560	318	14	130	0	728	1	0	8
Future Volume (vph)	15	331	169	560	318	14	130	0	728	1	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99		1.00	1.00		1.00	1.00			0.97	
Flpb, ped/bikes		1.00		1.00	1.00		0.98	1.00			1.00	
Frt		0.96		1.00	0.99		1.00	0.85			0.88	
Flt Protected		1.00		0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1810		1825	1905		1796	1633			1625	
Flt Permitted		0.98		0.23	1.00		0.75	1.00			0.73	
Satd. Flow (perm)		1784		451	1905		1420	1633			1199	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	360	184	609	346	15	141	0	791	1	0	9
RTOR Reduction (vph)	0	14	0	0	1	0	0	449	0	0	7	0
Lane Group Flow (vph)	0	546	0	609	360	0	141	342	0	0	3	0
Confl. Peds. (#/hr)	13		7	7		13	6					6
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.4		76.5	76.5		32.5	32.5			32.5	
Effective Green, g (s)		42.4		76.5	76.5		32.5	32.5			32.5	
Actuated g/C Ratio		0.35		0.64	0.64		0.27	0.27			0.27	
Clearance Time (s)		5.5		4.5	5.5		5.5	5.5			5.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		630		626	1214		384	442			324	
v/s Ratio Prot				c0.24	0.19			c0.21				
v/s Ratio Perm		0.31		c0.38			0.10				0.00	
v/c Ratio		0.87		0.97	0.30		0.37	0.77			0.01	
Uniform Delay, d1		36.2		25.2	9.7		35.4	40.4			32.0	
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		14.8		29.0	0.6		2.7	12.4			0.0	
Delay (s)		51.0		54.2	10.3		38.1	52.7			32.0	
Level of Service		D		D	B		D	D			C	
Approach Delay (s/veh)		51.0			37.9			50.5			32.0	
Approach LOS		D			D			D			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			45.6			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				15.5		
Intersection Capacity Utilization			118.6%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

Timings

Future Total 2035 Section E - PM Peak

4: Main Street & Tenth Line (North Leg)

03/30/2026



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	849	208	198	212	114	672
Future Volume (vph)	849	208	198	212	114	672
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.5	32.0	32.0	32.0	31.7	31.7
Total Split (s)	54.0	87.0	33.0	33.0	33.0	33.0
Total Split (%)	45.0%	72.5%	27.5%	27.5%	27.5%	27.5%
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.5	2.7	2.7	2.7	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Max	Max	Max	None	None
Act Effect Green (s)	82.8	81.2	34.7	34.7	15.6	15.6
Actuated g/C Ratio	0.76	0.75	0.32	0.32	0.14	0.14
v/c Ratio	0.87	0.16	0.36	0.35	0.48	0.86
Control Delay (s/veh)	19.4	5.0	34.6	6.5	48.5	14.4
Queue Delay	40.6	1.8	0.0	0.0	0.0	0.0
Total Delay (s/veh)	60.1	6.7	34.6	6.5	48.5	14.4
LOS	E	A	C	A	D	B
Approach Delay (s/veh)		49.6	20.1		19.4	
Approach LOS		D	C		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 108.6

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay (s/veh): 33.7

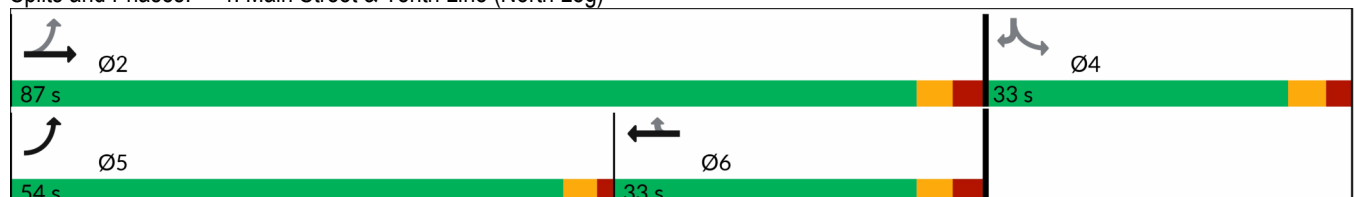
Intersection LOS: C

Intersection Capacity Utilization 91.4%

ICU Level of Service F

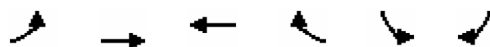
Analysis Period (min) 15

Splits and Phases: 4: Main Street & Tenth Line (North Leg)



HCM Signalized Intersection Capacity Analysis 4: Main Street & Tenth Line (North Leg)

Future Total 2035 Section E - PM Peak
03/30/2026



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	849	208	198	212	114	672
Future Volume (vph)	849	208	198	212	114	672
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.6	3.6	3.5	3.5	3.5	3.5
Total Lost time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1800	1900	1879	1549	1781	1559
Flt Permitted	0.49	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	929	1900	1879	1549	1781	1559
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	913	224	213	228	123	723
RTOR Reduction (vph)	0	0	0	155	0	619
Lane Group Flow (vph)	913	224	213	73	123	104
Confl. Peds. (#/hr)	5			5	1	2
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2			6	4	4
Actuated Green, G (s)	81.3	81.3	34.7	34.7	15.6	15.6
Effective Green, g (s)	81.3	81.3	34.7	34.7	15.6	15.6
Actuated g/C Ratio	0.75	0.75	0.32	0.32	0.14	0.14
Clearance Time (s)	4.5	6.0	6.0	6.0	5.7	5.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1033	1422	600	494	255	223
v/s Ratio Prot	c0.34	0.12	0.11			
v/s Ratio Perm	c0.32			0.05	c0.07	0.07
v/c Ratio	0.88	0.16	0.36	0.15	0.48	0.47
Uniform Delay, d1	8.4	3.9	28.4	26.4	42.8	42.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.1	0.2	1.6	0.6	1.4	1.5
Delay (s)	17.5	4.1	30.0	27.0	44.2	44.2
Level of Service	B	A	C	C	D	D
Approach Delay (s/veh)		14.9	28.5		44.2	
Approach LOS		B	C		D	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			27.6		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.85			
Actuated Cycle Length (s)			108.6		Sum of lost time (s)	16.2
Intersection Capacity Utilization			91.4%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis 5: York Durham Line & Main Street

Future Total 2035 Section E - PM Peak
03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	210	348	423	358	22
Future Volume (Veh/h)	37	210	348	423	358	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	38	214	355	432	365	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1518	376	387			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1518	376	387			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	59	68	70			
cM capacity (veh/h)	93	675	1183			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	38	214	355	432	387	
Volume Left	38	0	355	0	0	
Volume Right	0	214	0	0	22	
cSH	93	675	1183	1700	1700	
Volume to Capacity	0.41	0.32	0.30	0.25	0.23	
Queue Length 95th (m)	12.7	10.3	9.7	0.0	0.0	
Control Delay (s/veh)	68.6	12.8	9.3	0.0	0.0	
Lane LOS	F	B	A			
Approach Delay (s/veh)	21.2		4.2		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay			6.1			
Intersection Capacity Utilization			52.8%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 6: York Durham Line & Bethesda Side Road

Future Total 2035 Section E - PM Peak
03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	267	358	246	236	22
Future Volume (Veh/h)	17	267	358	246	236	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	290	389	267	257	24
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1314	269	281			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1314	269	281			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	63	70			
cM capacity (veh/h)	123	775	1293			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	308	656	281			
Volume Left	18	389	0			
Volume Right	290	0	24			
cSH	592	1293	1700			
Volume to Capacity	0.52	0.30	0.17			
Queue Length 95th (m)	22.8	9.7	0.0			
Control Delay (s/veh)	17.5	6.6	0.0			
Lane LOS	C	A				
Approach Delay (s/veh)	17.5	6.6	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		7.8				
Intersection Capacity Utilization		74.0%		ICU Level of Service		D
Analysis Period (min)		15				

Timings

7: Tenth Line & Bethesda Side Road

Future Total 2035 Section E - PM Peak

03/30/2026

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	79	179	273	81	234	381	615	50	109	585
Future Volume (vph)	79	179	273	81	234	381	615	50	109	585
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8		2		2	6	
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	44.0	44.0	44.0	44.0	44.0	16.0	66.2	66.2	9.8	60.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	13.3%	55.2%	55.2%	8.2%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		36.6	36.6	36.6	36.6	71.5	61.8	61.8	61.5	56.1
Actuated g/C Ratio		0.31	0.31	0.31	0.31	0.61	0.53	0.53	0.52	0.48
v/c Ratio		1.00	0.43	0.36	0.65	0.79	0.67	0.06	0.40	0.84
Control Delay (s/veh)		93.7	6.6	35.6	38.5	29.0	25.0	4.0	15.1	37.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0
Total Delay (s/veh)		93.7	6.6	35.6	38.5	29.0	27.9	4.0	15.1	37.2
LOS		F	A	D	D	C	C	A	B	D
Approach Delay (s/veh)		48.9			38.0		27.2			34.2
Approach LOS		D			D		C			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 117.3

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.00

Intersection Signal Delay (s/veh): 34.9

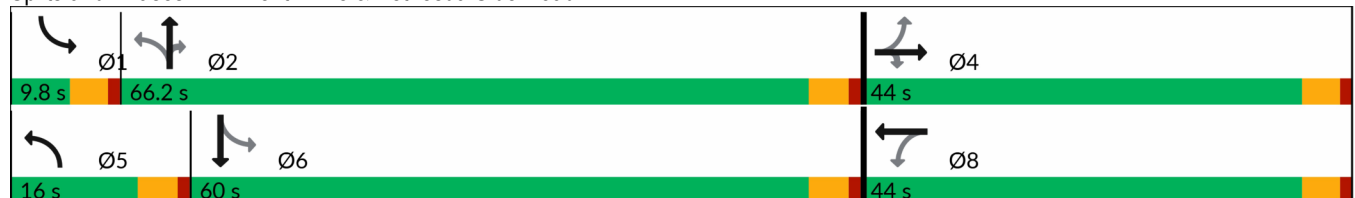
Intersection LOS: C

Intersection Capacity Utilization 95.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 7: Tenth Line & Bethesda Side Road



HCM Signalized Intersection Capacity Analysis

7: Tenth Line & Bethesda Side Road

Future Total 2035 Section E - PM Peak
03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗		↖	↗	↗	↖	↗	
Traffic Volume (vph)	79	179	273	81	234	110	381	615	50	109	585	103
Future Volume (vph)	79	179	273	81	234	110	381	615	50	109	585	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00	1.00	1.00	1.00		0.97	1.00	1.00	1.00	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	0.99		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1892	1633	1825	1816		3541	1921	1633	1825	1874	
Flt Permitted		0.48	1.00	0.42	1.00		0.10	1.00	1.00	0.24	1.00	
Satd. Flow (perm)		914	1633	799	1816		381	1921	1633	461	1874	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	87	197	300	89	257	121	419	676	55	120	643	113
RTOR Reduction (vph)	0	0	191	0	14	0	0	0	26	0	5	0
Lane Group Flow (vph)	0	284	109	89	364	0	419	676	29	120	751	0
Confl. Peds. (#/hr)	1					1	1					1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)		36.6	36.6	36.6	36.6		71.6	61.8	61.8	61.4	56.1	
Effective Green, g (s)		36.6	36.6	36.6	36.6		71.6	61.8	61.8	61.4	56.1	
Actuated g/C Ratio		0.31	0.31	0.31	0.31		0.61	0.53	0.53	0.52	0.48	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		285	509	249	567		529	1012	861	303	897	
v/s Ratio Prot					0.20		c0.07	0.35		0.02	c0.40	
v/s Ratio Perm		c0.31	0.07	0.11			0.41		0.02	0.19		
v/c Ratio		1.00	0.21	0.36	0.64		0.79	0.67	0.03	0.40	0.84	
Uniform Delay, d1		40.2	29.7	31.2	34.7		24.3	20.2	13.3	16.9	26.6	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		52.0	0.2	0.9	2.5		8.0	3.5	0.1	0.9	9.2	
Delay (s)		92.2	29.9	32.1	37.1		32.3	23.7	13.4	17.8	35.7	
Level of Service		F	C	C	D		C	C	B	B	D	
Approach Delay (s/veh)		60.2			36.2			26.3			33.3	
Approach LOS		E			D			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			36.2			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			117.2			Sum of lost time (s)				13.5		
Intersection Capacity Utilization			95.8%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: Road A & Bethesda Side Road

Future Total 2035 Section E - PM Peak
03/30/2026

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	292	46	20	394	30	42
Future Volume (Veh/h)	292	46	20	394	30	42
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.92	0.90
Hourly flow rate (vph)	324	51	22	438	33	47
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	166					
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			375		832	350
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			308		791	280
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		90	93
cM capacity (veh/h)			1193		334	720
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	375	460	80			
Volume Left	0	22	33			
Volume Right	51	0	47			
cSH	1700	1193	488			
Volume to Capacity	0.22	0.02	0.16			
Queue Length 95th (m)	0.0	0.4	4.4			
Control Delay (s/veh)	0.0	0.6	13.8			
Lane LOS		A	B			
Approach Delay (s/veh)	0.0	0.6	13.8			
Approach LOS			B			
Intersection Summary						
Average Delay		1.5				
Intersection Capacity Utilization		47.9%	ICU Level of Service	A		
Analysis Period (min)		15				

Timings

Future Total 2035 Section E - PM Peak

9: Tenth Line & GO Primary Access/Road B/Road B

03/30/2026

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	364	0	50	0	49	672	61	826	23
Future Volume (vph)	364	0	50	0	49	672	61	826	23
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	3	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.5	28.0	9.5	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	9.5	28.0	9.5	28.0	37.5	37.5	37.5	37.5	37.5
Total Split (%)	12.7%	37.3%	12.7%	37.3%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.5	4.0	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	4.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	16.1	10.1	7.2	10.1	31.7	31.7	31.7	31.7	31.7
Actuated g/C Ratio	0.27	0.17	0.12	0.17	0.54	0.54	0.54	0.54	0.54
v/c Ratio	0.85	0.28	0.25	0.03	0.42	0.82	0.53	0.89	0.03
Control Delay (s/veh)	41.6	3.7	24.5	0.1	23.0	21.4	31.0	27.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	22.5	0.0	0.0	0.0
Total Delay (s/veh)	41.6	3.7	24.5	0.1	23.0	43.9	31.0	27.9	0.0
LOS	D	A	C	A	C	D	C	C	A
Approach Delay (s/veh)		32.9		20.8		42.6		27.4	
Approach LOS		C		C		D		C	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 59.2

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.89

Intersection Signal Delay (s/veh): 33.8

Intersection LOS: C

Intersection Capacity Utilization 87.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 9: Tenth Line & GO Primary Access/Road B/Road B

	Ø2		Ø3		Ø4
37.5 s		9.5 s		28 s	
	Ø6		Ø7		Ø8
37.5 s		9.5 s		28 s	

HCM Signalized Intersection Capacity Analysis
9: Tenth Line & GO Primary Access/Road B/Road B

Future Total 2035 Section E - PM Peak
03/30/2026

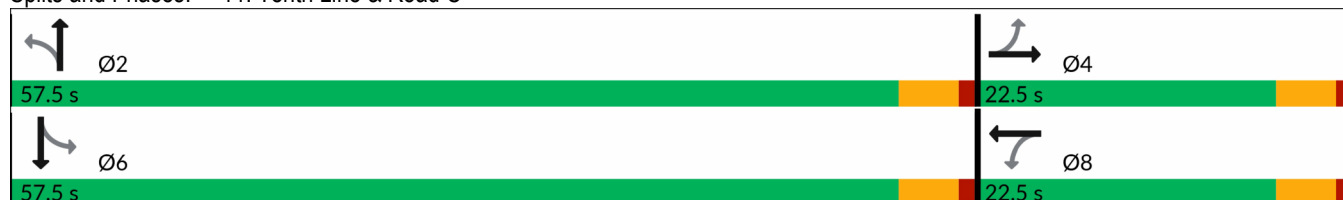
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	364	0	108	50	0	9	49	672	74	61	826	23
Future Volume (vph)	364	0	108	50	0	9	49	672	74	61	826	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1633		1825	1633		1825	1893		1825	1921	1633
Flt Permitted	0.63	1.00		1.00	1.00		0.13	1.00		0.13	1.00	1.00
Satd. Flow (perm)	1201	1633		1921	1633		242	1893		242	1921	1633
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	404	0	120	56	0	10	54	747	82	68	918	26
RTOR Reduction (vph)	0	96	0	0	10	0	0	5	0	0	0	13
Lane Group Flow (vph)	404	24	0	56	0	0	54	824	0	68	918	13
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	20.3	13.0		4.7	1.9		31.7	31.7		31.7	31.7	31.7
Effective Green, g (s)	20.3	13.0		4.7	1.9		31.7	31.7		31.7	31.7	31.7
Actuated g/C Ratio	0.32	0.20		0.07	0.03		0.50	0.50		0.50	0.50	0.50
Clearance Time (s)	4.5	6.0		4.5	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	516	331		136	48		119	937		119	951	808
v/s Ratio Prot	c0.17	0.01		0.02	0.00			0.44			c0.48	
v/s Ratio Perm	c0.08			0.01			0.22			0.28		0.01
v/c Ratio	0.78	0.07		0.41	0.01		0.45	0.88		0.57	0.97	0.02
Uniform Delay, d1	19.2	20.6		28.4	30.1		10.5	14.4		11.4	15.6	8.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.6	0.1		2.0	0.1		12.0	11.6		18.4	21.9	0.0
Delay (s)	26.8	20.7		30.4	30.2		22.5	26.0		29.8	37.5	8.3
Level of Service	C	C		C	C		C	C		C	D	A
Approach Delay (s/veh)		25.4			30.4			25.8			36.3	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			30.1				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			64.0				Sum of lost time (s)			16.5		
Intersection Capacity Utilization			87.5%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Timings
11: Tenth Line & Road C

Future Total 2035 Section E - PM Peak
03/30/2026

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	156	0	52	0	133	642	68	689
Future Volume (vph)	156	0	52	0	133	642	68	689
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	57.5	57.5	57.5	57.5
Total Split (%)	28.1%	28.1%	28.1%	28.1%	71.9%	71.9%	71.9%	71.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effct Green (s)	14.2	14.2	14.2	14.2	55.9	55.9	55.9	55.9
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.71	0.71	0.71	0.71
v/c Ratio	0.68	0.21	0.24	0.06	0.68	0.58	0.20	0.77
Control Delay (s/veh)	43.6	1.0	28.7	0.2	28.0	8.5	6.4	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	43.6	1.0	28.7	0.2	28.0	8.5	6.4	13.3
LOS	D	A	C	A	C	A	A	B
Approach Delay (s/veh)		27.6		18.8		11.6		12.8
Approach LOS		C		B		B		B
Intersection Summary								
Cycle Length: 80								
Actuated Cycle Length: 79.1								
Natural Cycle: 80								
Control Type: Semi Act-Uncoord								
Maximum v/c Ratio: 0.77								
Intersection Signal Delay (s/veh): 14.3				Intersection LOS: B				
Intersection Capacity Utilization 83.8%				ICU Level of Service E				
Analysis Period (min) 15								

Splits and Phases: 11: Tenth Line & Road C



HCM Signalized Intersection Capacity Analysis

Future Total 2035 Section E - PM Peak

11: Tenth Line & Road C

03/30/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	0	94	52	0	28	133	642	63	68	689	224
Future Volume (vph)	156	0	94	52	0	28	133	642	63	68	689	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1633		1825	1633		1825	1895		1825	1850	
Flt Permitted	0.74	1.00		0.69	1.00		0.16	1.00		0.28	1.00	
Satd. Flow (perm)	1416	1633		1325	1633		310	1895		540	1850	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	173	0	104	58	0	31	148	713	70	76	766	249
RTOR Reduction (vph)	0	85	0	0	25	0	0	4	0	0	13	0
Lane Group Flow (vph)	173	19	0	58	6	0	148	779	0	76	1002	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.2	14.2		14.2	14.2		55.9	55.9		55.9	55.9	
Effective Green, g (s)	14.2	14.2		14.2	14.2		55.9	55.9		55.9	55.9	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.71	0.71		0.71	0.71	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	254	293		237	293		219	1339		381	1307	
v/s Ratio Prot		0.01			0.00			0.41			c0.54	
v/s Ratio Perm	c0.12			0.04			0.48			0.14		
v/c Ratio	0.68	0.06		0.24	0.02		0.68	0.58		0.20	0.77	
Uniform Delay, d1	30.3	26.9		27.8	26.7		6.5	5.8		4.0	7.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.3	0.1		0.5	0.0		15.5	1.9		1.2	4.4	
Delay (s)	37.6	27.0		28.4	26.7		22.0	7.6		5.1	11.8	
Level of Service	D	C		C	C		C	A		A	B	
Approach Delay (s/veh)		33.7			27.8			9.9			11.3	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			14.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			79.1				Sum of lost time (s)			9.0		
Intersection Capacity Utilization			83.8%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 108: Tenth Line & GO Right-in/out

Future Total 2035 Section E - PM Peak
03/30/2026

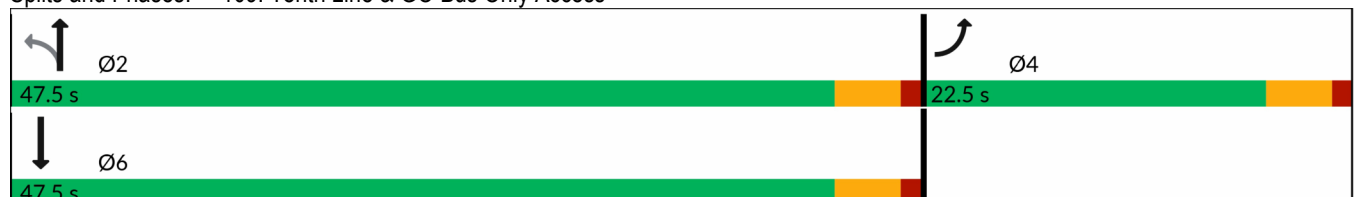
						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	40	0	1045	870	69
Future Volume (Veh/h)	0	40	0	1045	870	69
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	43	0	1136	946	75
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				86	95	
pX, platoon unblocked	0.57	0.65	0.65			
vC, conflicting volume	2082	946	1021			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1142	648	764			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	86	100			
cM capacity (veh/h)	128	308	558			
Direction, Lane #	EB 1	NB 1	SB 1	SB 2		
Volume Total	43	1136	946	75		
Volume Left	0	0	0	0		
Volume Right	43	0	0	75		
cSH	308	1700	1700	1700		
Volume to Capacity	0.14	0.67	0.56	0.04		
Queue Length 95th (m)	3.6	0.0	0.0	0.0		
Control Delay (s/veh)	18.6	0.0	0.0	0.0		
Lane LOS	C					
Approach Delay (s/veh)	18.6	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			58.3%		ICU Level of Service	B
Analysis Period (min)			15			

Timings
109: Tenth Line & GO Bus Only Access

Future Total 2035 Section E - PM Peak
03/30/2026

			
Lane Group	EBL	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	2	807	980
Future Volume (vph)	2	807	980
Turn Type	Prot	NA	NA
Protected Phases	4	2	6
Permitted Phases			
Detector Phase	4	2	6
Switch Phase			
Minimum Initial (s)	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5
Total Split (s)	22.5	47.5	47.5
Total Split (%)	32.1%	67.9%	67.9%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	Max	Max
Act Effct Green (s)	5.7	61.9	61.9
Actuated g/C Ratio	0.09	0.96	0.96
v/c Ratio	0.02	0.48	0.58
Control Delay (s/veh)	26.7	1.9	2.7
Queue Delay	0.0	0.0	0.1
Total Delay (s/veh)	26.7	1.9	2.8
LOS	C	A	A
Approach Delay (s/veh)	26.7	1.9	2.8
Approach LOS	C	A	A
Intersection Summary			
Cycle Length: 70			
Actuated Cycle Length: 64.6			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay (s/veh): 2.5		Intersection LOS: A	
Intersection Capacity Utilization 63.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 109: Tenth Line & GO Bus Only Access



HCM Signalized Intersection Capacity Analysis
109: Tenth Line & GO Bus Only Access

Future Total 2035 Section E - PM Peak
03/30/2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	1	0	807	980	4
Future Volume (vph)	2	1	0	807	980	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.96			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1775			1921	1920	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1775			1921	1920	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	1	0	877	1065	4
RTOR Reduction (vph)	1	0	0	0	0	0
Lane Group Flow (vph)	2	0	0	877	1069	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.1			58.2	58.2	
Effective Green, g (s)	1.1			58.2	58.2	
Actuated g/C Ratio	0.02			0.85	0.85	
Clearance Time (s)	4.5			4.5	4.5	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	28			1636	1636	
v/s Ratio Prot	c0.00			0.46	c0.56	
v/s Ratio Perm						
v/c Ratio	0.07			0.54	0.65	
Uniform Delay, d1	33.1			1.4	1.7	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.1			1.3	2.0	
Delay (s)	34.2			2.6	3.7	
Level of Service	C			A	A	
Approach Delay (s/veh)	34.2			2.6	3.7	
Approach LOS	C			A	A	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			3.3	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			68.3	Sum of lost time (s)		9.0
Intersection Capacity Utilization			63.5%	ICU Level of Service		B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis 113: Tenth Line & RI/RO North Access

Future Total 2035 Section E - PM Peak
03/30/2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	10	785	24	0	984
Future Volume (Veh/h)	0	10	785	24	0	984
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	11	853	26	0	1070
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			46			48
pX, platoon unblocked	0.60	0.83			0.83	
vC, conflicting volume	1936	866			879	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1606	740			756	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	97			100	
cM capacity (veh/h)	70	350			721	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	11	879	1070			
Volume Left	0	0	0			
Volume Right	11	26	0			
cSH	350	1700	1700			
Volume to Capacity	0.03	0.52	0.63			
Queue Length 95th (m)	0.7	0.0	0.0			
Control Delay (s/veh)	15.6	0.0	0.0			
Lane LOS	C					
Approach Delay (s/veh)	15.6	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		55.1%		ICU Level of Service		B
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 114: Tenth Line & RI/RO Central Access

Future Total 2035 Section E - PM Peak
03/30/2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	22	785	42	0	981
Future Volume (Veh/h)	0	22	785	42	0	981
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	24	853	46	0	1066
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			162			177
pX, platoon unblocked	0.21					
vC, conflicting volume	1942	876			899	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3575	876			899	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	93			100	
cM capacity (veh/h)	1	351			764	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	24	899	1066			
Volume Left	0	0	0			
Volume Right	24	46	0			
cSH	351	1700	1700			
Volume to Capacity	0.07	0.53	0.63			
Queue Length 95th (m)	1.7	0.0	0.0			
Control Delay (s/veh)	16.0	0.0	0.0			
Lane LOS	C					
Approach Delay (s/veh)	16.0	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		0.2				
Intersection Capacity Utilization		55.0%		ICU Level of Service		A
Analysis Period (min)		15				

Intersection: 3: Tenth Line (South Leg)/Private Driveway & Main Street

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	L	TR	L	TR	LTR
Maximum Queue (m)	64.5	30.0	63.0	39.4	43.1	9.8
Average Queue (m)	33.8	29.2	49.1	18.1	20.3	1.3
95th Queue (m)	54.7	33.2	77.9	33.1	34.2	6.3
Link Distance (m)	656.6		58.5		288.8	46.5
Upstream Blk Time (%)			9			
Queuing Penalty (veh)			62			
Storage Bay Dist (m)		20.0		20.0		
Storage Blk Time (%)		38	7	7	7	
Queuing Penalty (veh)		106	35	22	9	

Intersection: 4: Main Street & Tenth Line (North Leg)

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	29.9	61.2	38.9	17.0	35.3	55.6
Average Queue (m)	24.6	24.6	18.7	5.7	14.1	42.5
95th Queue (m)	36.0	60.2	33.6	14.6	29.1	58.3
Link Distance (m)		58.5	218.1			85.4
Upstream Blk Time (%)		1				
Queuing Penalty (veh)		5				
Storage Bay Dist (m)	10.0			165.0	70.0	
Storage Blk Time (%)	32	13				
Queuing Penalty (veh)	37	43				

Intersection: 5: York Durham Line & Main Street

Movement	EB	EB	NB
Directions Served	L	R	L
Maximum Queue (m)	14.6	11.5	18.4
Average Queue (m)	3.6	0.4	8.3
95th Queue (m)	11.4	8.1	15.9
Link Distance (m)		526.4	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	95.0		30.0
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: York Durham Line & Bethesda Side Road

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	21.0	29.0
Average Queue (m)	10.0	6.7
95th Queue (m)	16.7	20.1
Link Distance (m)	144.3	101.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Tenth Line & Bethesda Side Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	L	TR	L	T	R	L	TR
Maximum Queue (m)	37.1	23.8	23.8	22.7	40.4	10.1	14.1	45.8
Average Queue (m)	16.4	7.9	9.7	9.7	17.2	2.4	5.0	20.4
95th Queue (m)	29.2	18.1	19.5	18.9	32.3	8.9	13.0	37.3
Link Distance (m)	169.0		142.4		79.0			1141.0
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)		20.0		35.0		30.0	25.0	
Storage Blk Time (%)		1	1	0	1			2
Queuing Penalty (veh)		1	1	0	1			1

Intersection: 8: Road A & Bethesda Side Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	5.4	13.3
Average Queue (m)	0.3	7.0
95th Queue (m)	3.0	11.9
Link Distance (m)	166.0	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Tenth Line & GO Primary Access/Road B/Road B

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	LT	R
Maximum Queue (m)	24.6	13.6	22.9	10.6	33.7	44.7	41.6	7.4
Average Queue (m)	10.8	5.2	10.1	2.6	15.8	24.3	15.9	0.7
95th Queue (m)	20.4	11.0	20.0	9.3	28.2	40.0	31.4	4.5
Link Distance (m)	53.7	53.7				35.7	72.5	
Upstream Blk Time (%)					0	1		
Queuing Penalty (veh)					0	8		
Storage Bay Dist (m)			25.0		40.0			30.0
Storage Blk Time (%)			0		0	1	1	
Queuing Penalty (veh)			0		0	2	0	

Intersection: 10: Road A & Road B

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 11: Tenth Line & Road C

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	44.7	50.9	21.7	12.5	24.3	41.3	10.6	32.9
Average Queue (m)	26.8	12.8	7.3	3.2	6.2	17.3	2.3	17.3
95th Queue (m)	42.1	30.5	16.8	10.4	16.6	34.6	8.4	31.8
Link Distance (m)		196.3				206.4		48.9
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)	25.0		25.0		25.0		25.0	
Storage Blk Time (%)	9	0	0		0	2		2
Queuing Penalty (veh)	12	0	0		0	1		0

Intersection: 12: Road C & Road A

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 101: Road A

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 103: Road B

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 106: Tenth Line & Trudel and Brundale Site Access

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 108: Tenth Line & GO Right-in/out

Movement EB

Directions Served R
Maximum Queue (m) 6.6
Average Queue (m) 1.9
95th Queue (m) 6.7
Link Distance (m) 56.4
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 109: Tenth Line & GO Bus Only Access

Movement EB NB SB

Directions Served LR T TR
Maximum Queue (m) 5.4 15.8 11.6
Average Queue (m) 0.5 0.9 0.7
95th Queue (m) 4.0 8.7 6.9
Link Distance (m) 88.8 166.9 34.6
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 113: Tenth Line & RI/RO North Access

Movement	WB	NB
Directions Served	R	TR
Maximum Queue (m)	10.2	19.9
Average Queue (m)	3.9	2.0
95th Queue (m)	11.2	10.7
Link Distance (m)	35.5	34.6
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 114: Tenth Line & RI/RO Central Access

Movement	WB
Directions Served	R
Maximum Queue (m)	13.0
Average Queue (m)	5.6
95th Queue (m)	13.1
Link Distance (m)	66.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 115: Tenth Line

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 347

Intersection: 3: Tenth Line (South Leg)/Private Driveway & Main Street

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	L	TR	L	TR	LTR
Maximum Queue (m)	615.8	30.0	62.9	69.9	287.0	8.9
Average Queue (m)	462.0	28.6	43.3	57.4	193.8	2.1
95th Queue (m)	779.6	32.8	68.9	94.6	350.5	8.1
Link Distance (m)	656.6		58.5		288.8	46.5
Upstream Blk Time (%)	23		3		25	
Queuing Penalty (veh)	0		22		0	
Storage Bay Dist (m)		20.0		20.0		
Storage Blk Time (%)		29	10	15	83	
Queuing Penalty (veh)		96	37	68	107	

Intersection: 4: Main Street & Tenth Line (North Leg)

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	30.0	64.6	58.7	33.6	38.0	70.6
Average Queue (m)	29.9	61.9	27.2	14.3	11.6	44.7
95th Queue (m)	29.9	65.5	47.6	25.5	27.7	67.3
Link Distance (m)		58.5	218.1			85.4
Upstream Blk Time (%)		33			0	0
Queuing Penalty (veh)		253			0	0
Storage Bay Dist (m)	10.0			165.0	70.0	
Storage Blk Time (%)	72	22				0
Queuing Penalty (veh)	151	122				0

Intersection: 5: York Durham Line & Main Street

Movement	EB	NB
Directions Served	L	L
Maximum Queue (m)	18.1	25.6
Average Queue (m)	6.8	11.4
95th Queue (m)	15.9	21.2
Link Distance (m)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)	95.0	30.0
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 6: York Durham Line & Bethesda Side Road

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	22.0	37.9
Average Queue (m)	11.6	10.1
95th Queue (m)	18.0	27.1
Link Distance (m)	144.3	101.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Tenth Line & Bethesda Side Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	L	TR	L	T	R	L	TR
Maximum Queue (m)	53.0	25.9	22.6	39.8	60.3	12.7	25.8	64.2
Average Queue (m)	26.4	11.5	8.1	17.5	27.1	5.3	10.3	28.8
95th Queue (m)	44.7	21.3	17.6	33.8	51.5	11.5	21.8	53.4
Link Distance (m)	169.0		142.4		79.0			1141.0
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)		20.0		35.0		30.0	25.0	
Storage Blk Time (%)		2	1	2	5		0	7
Queuing Penalty (veh)		2	1	9	9		2	5

Intersection: 8: Road A & Bethesda Side Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	7.2	13.9	14.4
Average Queue (m)	3.6	1.3	7.2
95th Queue (m)	8.3	7.4	11.5
Link Distance (m)	142.4	166.0	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Tenth Line & GO Primary Access/Road B/Road B

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	LT	R
Maximum Queue (m)	58.3	54.4	19.9	10.2	24.6	37.6	74.9	21.5
Average Queue (m)	53.2	20.4	9.1	2.4	8.2	18.5	38.1	1.7
95th Queue (m)	68.7	50.4	19.0	9.0	18.3	34.7	68.4	12.0
Link Distance (m)	53.7	53.7				35.7	72.5	
Upstream Blk Time (%)	43	3			0	1	1	
Queuing Penalty (veh)	0	0			0	3	7	
Storage Bay Dist (m)			25.0		40.0			30.0
Storage Blk Time (%)			0		0	1	12	
Queuing Penalty (veh)			0		0	0	3	

Intersection: 10: Road A & Road B

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 11: Tenth Line & Road C

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	42.3	21.1	16.6	10.1	34.1	41.3	16.1	36.0
Average Queue (m)	21.4	9.7	5.9	2.2	14.5	12.8	4.3	25.3
95th Queue (m)	36.1	17.8	14.1	8.7	28.1	28.0	12.4	37.4
Link Distance (m)		196.3				206.4		48.9
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)	25.0		25.0		25.0		25.0	
Storage Blk Time (%)	6	0	0		3	1	0	7
Queuing Penalty (veh)	5	0	0		10	1	0	3

Intersection: 12: Road C & Road A

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 101: Road A

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 103: Road B

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 106: Tenth Line & Trudel and Brundale Site Access

Movement	B13	B13
Directions Served	T	
Maximum Queue (m)	2.8	1.5
Average Queue (m)	0.1	0.0
95th Queue (m)	1.4	1.0
Link Distance (m)	759.7	759.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 108: Tenth Line & GO Right-in/out

Movement	EB	SB
Directions Served	R	T
Maximum Queue (m)	17.2	24.0
Average Queue (m)	5.7	1.3
95th Queue (m)	13.0	10.6
Link Distance (m)	56.4	79.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 109: Tenth Line & GO Bus Only Access

Movement	EB	NB	SB
Directions Served	LR	T	TR
Maximum Queue (m)	7.2	3.1	10.1
Average Queue (m)	0.7	0.1	0.3
95th Queue (m)	4.5	2.2	5.5
Link Distance (m)	88.8	166.9	34.6
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 113: Tenth Line & RI/RO North Access

Movement	WB	NB	SB
Directions Served	R	TR	T
Maximum Queue (m)	10.2	22.0	1.8
Average Queue (m)	2.7	1.2	0.1
95th Queue (m)	9.4	9.0	1.3
Link Distance (m)	35.5	34.6	35.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 114: Tenth Line & RI/RO Central Access

Movement	WB
Directions Served	R
Maximum Queue (m)	11.5
Average Queue (m)	4.5
95th Queue (m)	11.9
Link Distance (m)	66.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 115: Tenth Line

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 916

Intersection: 3: Tenth Line (South Leg)/Private Driveway & Main Street

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	L	TR	L	TR	LTR
Maximum Queue (m)	91.6	30.0	63.7	53.9	73.5	7.1
Average Queue (m)	40.7	29.6	57.6	23.8	30.7	1.1
95th Queue (m)	74.0	32.0	78.4	43.2	57.0	5.8
Link Distance (m)	656.6		58.5		288.8	46.5
Upstream Blk Time (%)			14			
Queuing Penalty (veh)			134			
Storage Bay Dist (m)		20.0		20.0		
Storage Blk Time (%)		35	4	25	25	
Queuing Penalty (veh)		98	26	94	31	

Intersection: 4: Main Street & Tenth Line (North Leg)

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	29.9	62.7	54.8	24.3	44.5	70.2
Average Queue (m)	29.1	46.2	28.6	9.7	24.4	55.0
95th Queue (m)	33.1	78.6	49.0	18.5	41.8	66.1
Link Distance (m)		58.5	218.1			85.4
Upstream Blk Time (%)		7				
Queuing Penalty (veh)		40				
Storage Bay Dist (m)	10.0			165.0	70.0	
Storage Blk Time (%)	43	22				1
Queuing Penalty (veh)	50	94				1

Intersection: 5: York Durham Line & Main Street

Movement	EB	EB	NB	SB
Directions Served	L	R	L	TR
Maximum Queue (m)	11.7	31.7	21.0	2.6
Average Queue (m)	3.1	1.3	9.8	0.1
95th Queue (m)	10.3	12.6	18.6	1.6
Link Distance (m)		526.4		97.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	95.0		30.0	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: York Durham Line & Bethesda Side Road

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	43.4	32.0	1.3
Average Queue (m)	23.9	10.8	0.0
95th Queue (m)	38.7	23.9	0.9
Link Distance (m)	144.3	101.7	838.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Tenth Line & Bethesda Side Road

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	LT	R	L	TR	L	L	T	R	L	TR
Maximum Queue (m)	74.7	70.5	20.0	36.4	21.7	25.4	59.3	14.4	17.7	89.3
Average Queue (m)	40.1	28.6	8.3	15.6	6.4	14.2	31.4	4.7	8.3	43.6
95th Queue (m)	67.1	53.5	17.3	31.0	15.7	21.5	54.0	12.7	15.8	73.7
Link Distance (m)	167.0	167.0		140.5			78.4			1137.4
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)			20.0		35.0	35.0		30.0	25.0	
Storage Blk Time (%)			1	6			7		0	19
Queuing Penalty (veh)			2	3			17		0	14

Intersection: 8: Road A & Bethesda Side Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	12.6	19.2
Average Queue (m)	1.2	7.8
95th Queue (m)	7.7	14.4
Link Distance (m)	166.0	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Tenth Line & GO Primary Access/Road B/Road B

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (m)	28.6	14.3	23.6	9.0	35.4	43.5	12.5	56.5	8.2
Average Queue (m)	10.5	5.1	10.4	3.0	18.3	31.5	4.4	28.3	1.1
95th Queue (m)	20.8	11.8	19.8	9.7	32.4	45.1	12.0	48.8	5.5
Link Distance (m)	53.1	53.1				35.7	72.8	72.8	
Upstream Blk Time (%)					0	4			
Queuing Penalty (veh)					0	33			
Storage Bay Dist (m)			25.0		40.0				30.0
Storage Blk Time (%)			0		0	4		4	
Queuing Penalty (veh)			0		2	7		0	

Intersection: 10: Road A & Road B

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 11: Tenth Line & Road C

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	44.6	41.6	19.4	12.3	23.0	49.4	10.8	38.6
Average Queue (m)	25.8	14.0	7.3	3.3	8.0	21.3	3.0	25.8
95th Queue (m)	43.4	30.1	16.3	10.3	17.4	40.5	9.7	36.3
Link Distance (m)		196.3				206.4		48.9
Upstream Blk Time (%)								0
Queuing Penalty (veh)								0
Storage Bay Dist (m)	25.0		25.0		25.0		25.0	
Storage Blk Time (%)	11	0	0		0	3		10
Queuing Penalty (veh)	14	1	0		1	2		2

Intersection: 12: Road C & Road A

Movement

Directions Served

Maximum Queue (m)

Average Queue (m)

95th Queue (m)

Link Distance (m)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (m)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 101: Road A

Movement

Directions Served

Maximum Queue (m)

Average Queue (m)

95th Queue (m)

Link Distance (m)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (m)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 103: Road B

Movement

Directions Served

Maximum Queue (m)

Average Queue (m)

95th Queue (m)

Link Distance (m)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (m)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 106: Tenth Line & Trudel and Brundale Site Access

Movement	B13	B13
Directions Served	T	
Maximum Queue (m)	2.2	2.4
Average Queue (m)	0.1	0.1
95th Queue (m)	1.5	1.7
Link Distance (m)	759.7	759.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 108: Tenth Line & GO Right-in/out

Movement	EB
Directions Served	R
Maximum Queue (m)	10.3
Average Queue (m)	2.7
95th Queue (m)	9.5
Link Distance (m)	54.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 109: Tenth Line & GO Bus Only Access

Movement	EB	NB	SB
Directions Served	LR	T	TR
Maximum Queue (m)	5.3	25.7	14.5
Average Queue (m)	0.3	1.9	0.5
95th Queue (m)	2.9	12.6	6.5
Link Distance (m)	88.8	166.9	34.6
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 113: Tenth Line & RI/RO North Access

Movement	WB	NB	SB
Directions Served	R	TR	T
Maximum Queue (m)	14.2	35.5	3.3
Average Queue (m)	4.2	8.6	0.1
95th Queue (m)	12.1	28.1	2.3
Link Distance (m)	35.5	34.6	35.7
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		4	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 114: Tenth Line & RI/RO Central Access

Movement	WB
Directions Served	R
Maximum Queue (m)	10.3
Average Queue (m)	5.0
95th Queue (m)	12.2
Link Distance (m)	66.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 115: Tenth Line

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 670

Intersection: 3: Tenth Line (South Leg)/Private Driveway & Main Street

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	L	TR	L	TR	LTR
Maximum Queue (m)	182.9	30.0	63.4	69.9	293.4	8.8
Average Queue (m)	90.9	29.9	59.6	59.7	293.4	1.7
95th Queue (m)	157.4	30.1	63.1	99.8	293.5	7.1
Link Distance (m)	656.6		58.5		288.8	46.5
Upstream Blk Time (%)			18		97	
Queuing Penalty (veh)			152		0	
Storage Bay Dist (m)		20.0		20.0		
Storage Blk Time (%)		52	11	8	97	
Queuing Penalty (veh)		169	59	53	126	

Intersection: 4: Main Street & Tenth Line (North Leg)

Movement	EB	EB	WB	WB	SB	SB	B14
Directions Served	L	T	T	R	L	R	T
Maximum Queue (m)	29.9	64.0	70.0	49.3	33.9	85.5	1.4
Average Queue (m)	29.9	61.7	38.6	22.2	11.9	60.1	0.0
95th Queue (m)	29.9	63.9	62.3	40.7	26.3	76.5	1.0
Link Distance (m)		58.5	218.1			85.4	287.1
Upstream Blk Time (%)		29				1	
Queuing Penalty (veh)		302				1	
Storage Bay Dist (m)	10.0			165.0	70.0		
Storage Blk Time (%)	58	11				3	
Queuing Penalty (veh)	121	88				4	

Intersection: 5: York Durham Line & Main Street

Movement	EB	NB
Directions Served	L	L
Maximum Queue (m)	15.6	29.5
Average Queue (m)	4.7	12.9
95th Queue (m)	13.2	23.4
Link Distance (m)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)	95.0	30.0
Storage Blk Time (%)		0
Queuing Penalty (veh)		1

Intersection: 6: York Durham Line & Bethesda Side Road

Movement	EB	NB	B22	SB
Directions Served	LR	LT	T	TR
Maximum Queue (m)	37.2	52.4	32.2	8.2
Average Queue (m)	17.5	22.4	5.6	0.7
95th Queue (m)	30.4	64.8	47.1	8.8
Link Distance (m)	144.3	101.7	1831.4	838.2
Upstream Blk Time (%)		4		
Queuing Penalty (veh)		18		
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Tenth Line & Bethesda Side Road

Movement	EB	EB	B26	B26	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	LT	R	T	T	L	TR	L	L	T	R	L	TR
Maximum Queue (m)	182.1	181.8	474.9	476.2	44.9	120.2	45.8	73.5	80.0	27.1	125.0	789.1
Average Queue (m)	171.3	140.1	194.1	194.0	29.1	69.9	21.0	29.4	52.0	6.6	106.9	527.9
95th Queue (m)	215.1	244.6	485.8	487.0	53.9	146.5	36.2	50.6	76.1	18.6	174.2	989.4
Link Distance (m)	167.0	167.0	1614.1	1614.1		140.5			78.4			1137.4
Upstream Blk Time (%)	80	45				17		0	0	0		6
Queuing Penalty (veh)	0	0				71		0	3	0		0
Storage Bay Dist (m)					20.0		35.0	35.0		30.0	25.0	
Storage Blk Time (%)					37	42	1	3	22		2	70
Queuing Penalty (veh)					128	34	6	19	94		12	76

Intersection: 8: Road A & Bethesda Side Road

Movement	EB	WB	B21	NB
Directions Served	TR	LT	T	LR
Maximum Queue (m)	8.4	117.6	66.0	33.8
Average Queue (m)	3.4	36.8	16.7	17.2
95th Queue (m)	8.4	146.7	89.8	48.2
Link Distance (m)	140.5	166.0	144.3	
Upstream Blk Time (%)		13	5	
Queuing Penalty (veh)		50	17	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Tenth Line & GO Primary Access/Road B/Road B

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (m)	57.7	57.6	20.2	16.1	31.4	40.7	24.0	70.2	11.4
Average Queue (m)	52.6	22.8	9.0	2.3	10.3	30.8	9.1	37.1	1.5
95th Queue (m)	67.7	53.1	17.8	9.6	23.1	45.2	19.2	64.5	7.0
Link Distance (m)	53.1	53.1				35.7	72.8	72.8	
Upstream Blk Time (%)	44	6			0	4		0	
Queuing Penalty (veh)	0	0			0	33		1	
Storage Bay Dist (m)			25.0		40.0				30.0
Storage Blk Time (%)			0	0	0	4		8	
Queuing Penalty (veh)			0	0	0	2		2	

Intersection: 10: Road A & Road B

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 11: Tenth Line & Road C

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	41.3	21.7	19.0	10.4	38.9	63.7	14.8	37.7
Average Queue (m)	22.6	10.6	5.9	2.7	18.9	27.6	5.9	28.5
95th Queue (m)	36.9	19.0	15.0	9.6	35.3	53.3	13.8	36.3
Link Distance (m)		196.3				206.4		48.9
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)	25.0		25.0		25.0		25.0	
Storage Blk Time (%)	7	0	0		7	4		12
Queuing Penalty (veh)	6	0	0		44	6		5

Intersection: 12: Road C & Road A

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 101: Road A

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 103: Road B

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 106: Tenth Line & Trudel and Brundale Site Access

Movement	B13
Directions Served	
Maximum Queue (m)	3.4
Average Queue (m)	0.1
95th Queue (m)	2.4
Link Distance (m)	759.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 108: Tenth Line & GO Right-in/out

Movement	EB	NB	SB
Directions Served	R	T	T
Maximum Queue (m)	16.5	32.7	13.4
Average Queue (m)	7.9	2.3	0.8
95th Queue (m)	15.9	15.1	6.9
Link Distance (m)	54.8	72.8	78.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 109: Tenth Line & GO Bus Only Access

Movement	EB	NB	SB
Directions Served	LR	T	TR
Maximum Queue (m)	8.8	28.2	27.3
Average Queue (m)	0.9	3.0	1.6
95th Queue (m)	5.1	16.2	11.3
Link Distance (m)	88.8	166.9	34.6
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 113: Tenth Line & RI/RO North Access

Movement	WB	NB	SB
Directions Served	R	TR	T
Maximum Queue (m)	10.5	35.6	8.9
Average Queue (m)	2.5	9.6	0.3
95th Queue (m)	9.2	30.8	4.5
Link Distance (m)	35.5	34.6	35.7
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		4	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 114: Tenth Line & RI/RO Central Access

Movement	WB
Directions Served	R
Maximum Queue (m)	13.0
Average Queue (m)	4.5
95th Queue (m)	12.0
Link Distance (m)	66.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 115: Tenth Line

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 1710

Intersection: 3: Tenth Line (South Leg)/Private Driveway & Main Street

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	L	TR	L	TR	LTR
Maximum Queue (m)	82.2	30.0	62.9	40.4	41.4	10.2
Average Queue (m)	39.6	29.4	52.2	18.6	20.9	1.2
95th Queue (m)	68.1	32.1	76.1	32.9	34.7	6.2
Link Distance (m)	656.6		58.5		288.8	46.5
Upstream Blk Time (%)			8			
Queuing Penalty (veh)			58			
Storage Bay Dist (m)		20.0		20.0		
Storage Blk Time (%)		35	8	10	8	
Queuing Penalty (veh)		100	40	31	10	

Intersection: 4: Main Street & Tenth Line (North Leg)

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	29.9	61.6	46.2	19.8	31.1	54.8
Average Queue (m)	25.4	25.2	18.1	7.3	13.3	42.0
95th Queue (m)	35.9	61.4	35.6	16.0	27.7	58.9
Link Distance (m)		58.5	218.1			85.4
Upstream Blk Time (%)		1				
Queuing Penalty (veh)		4				
Storage Bay Dist (m)	10.0			165.0	70.0	
Storage Blk Time (%)	41	13				0
Queuing Penalty (veh)	47	46				0

Intersection: 5: York Durham Line & Main Street

Movement	EB	EB	NB	SB
Directions Served	L	R	L	TR
Maximum Queue (m)	9.1	13.0	22.3	3.9
Average Queue (m)	3.3	0.4	9.1	0.1
95th Queue (m)	10.3	6.6	17.5	1.6
Link Distance (m)		526.4		97.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	95.0		30.0	
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Intersection: 6: York Durham Line & Bethesda Side Road

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	19.0	26.3
Average Queue (m)	9.5	6.6
95th Queue (m)	15.0	18.7
Link Distance (m)	144.3	101.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Tenth Line & Bethesda Side Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	L	TR	L	T	R	L	TR
Maximum Queue (m)	36.5	16.3	26.3	27.4	43.9	12.7	16.4	53.0
Average Queue (m)	17.4	7.5	9.8	10.2	17.5	2.3	4.8	19.9
95th Queue (m)	30.4	15.6	20.4	20.9	34.3	9.1	13.2	41.0
Link Distance (m)	169.0		142.4		79.0			1141.0
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)		20.0		35.0		30.0	25.0	
Storage Blk Time (%)		1	1	0	1		0	3
Queuing Penalty (veh)		1	1	0	1		0	1

Intersection: 8: Road A & Bethesda Side Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	7.3	14.7
Average Queue (m)	0.4	7.4
95th Queue (m)	3.3	12.3
Link Distance (m)	166.0	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Tenth Line & GO Primary Access/Road B/Road B

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	LT	R
Maximum Queue (m)	22.2	11.1	20.8	14.2	32.9	40.7	43.5	7.7
Average Queue (m)	10.0	5.1	9.8	3.7	14.2	26.7	17.9	0.6
95th Queue (m)	19.3	11.3	18.6	11.4	27.1	41.7	33.3	3.8
Link Distance (m)	53.7	53.7				35.7	72.5	
Upstream Blk Time (%)					0	2		
Queuing Penalty (veh)					0	11		
Storage Bay Dist (m)			25.0		40.0			30.0
Storage Blk Time (%)			0		0	2	1	
Queuing Penalty (veh)			0		0	3	0	

Intersection: 10: Road A & Road B

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 11: Tenth Line & Road C

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	42.8	29.2	20.5	13.0	17.0	44.5	10.7	33.9
Average Queue (m)	23.6	10.8	9.2	5.4	6.4	19.0	3.6	17.7
95th Queue (m)	37.0	20.6	17.6	12.7	14.3	35.6	10.5	31.3
Link Distance (m)		196.3				206.4		48.9
Upstream Blk Time (%)								0
Queuing Penalty (veh)								0
Storage Bay Dist (m)	25.0		25.0		25.0		25.0	
Storage Blk Time (%)	6	0	0		0	3		2
Queuing Penalty (veh)	8	0	0		0	1		1

Intersection: 12: Road C & Road A

Movement

Directions Served

Maximum Queue (m)

Average Queue (m)

95th Queue (m)

Link Distance (m)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (m)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 101: Road A

Movement

Directions Served

Maximum Queue (m)

Average Queue (m)

95th Queue (m)

Link Distance (m)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (m)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 103: Road B

Movement

Directions Served

Maximum Queue (m)

Average Queue (m)

95th Queue (m)

Link Distance (m)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (m)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 106: Tenth Line & Trudel and Brundale Site Access

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 108: Tenth Line & GO Right-in/out

Movement

EB

Directions Served R
Maximum Queue (m) 6.6
Average Queue (m) 1.9
95th Queue (m) 6.6
Link Distance (m) 56.4
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 109: Tenth Line & GO Bus Only Access

Movement

EB

NB

SB

Directions Served LR T TR
Maximum Queue (m) 8.7 9.9 14.1
Average Queue (m) 0.5 0.6 0.5
95th Queue (m) 3.9 4.9 4.8
Link Distance (m) 88.8 166.9 34.6
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 113: Tenth Line & RI/RO North Access

Movement	WB	NB
Directions Served	R	TR
Maximum Queue (m)	11.9	29.1
Average Queue (m)	3.2	3.3
95th Queue (m)	10.4	15.9
Link Distance (m)	35.5	34.6
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 114: Tenth Line & RI/RO Central Access

Movement	WB
Directions Served	R
Maximum Queue (m)	14.0
Average Queue (m)	5.1
95th Queue (m)	12.8
Link Distance (m)	66.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 115: Tenth Line

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 363

Intersection: 3: Tenth Line (South Leg)/Private Driveway & Main Street

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	L	TR	L	TR	LTR
Maximum Queue (m)	575.4	30.0	63.4	69.9	290.4	12.6
Average Queue (m)	370.3	29.1	46.8	64.4	243.3	1.8
95th Queue (m)	688.0	32.7	70.7	91.5	357.6	9.4
Link Distance (m)	656.6		58.5		288.8	46.5
Upstream Blk Time (%)	13		4		41	
Queuing Penalty (veh)	0		26		0	
Storage Bay Dist (m)		20.0		20.0		
Storage Blk Time (%)		30	10	18	86	
Queuing Penalty (veh)		98	39	83	111	

Intersection: 4: Main Street & Tenth Line (North Leg)

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	30.0	64.4	55.4	35.2	35.6	68.2
Average Queue (m)	29.9	61.8	31.1	16.7	12.9	47.9
95th Queue (m)	30.0	64.2	50.5	28.0	27.1	66.5
Link Distance (m)		58.5	218.1			85.4
Upstream Blk Time (%)		33				
Queuing Penalty (veh)		258				
Storage Bay Dist (m)	10.0			165.0	70.0	
Storage Blk Time (%)	64	18				0
Queuing Penalty (veh)	133	104				0

Intersection: 5: York Durham Line & Main Street

Movement	EB	NB
Directions Served	L	L
Maximum Queue (m)	16.2	22.2
Average Queue (m)	7.0	11.7
95th Queue (m)	16.2	20.1
Link Distance (m)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)	95.0	30.0
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 6: York Durham Line & Bethesda Side Road

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	22.1	22.6
Average Queue (m)	11.2	7.5
95th Queue (m)	17.3	20.0
Link Distance (m)	144.3	101.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Tenth Line & Bethesda Side Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	L	TR	L	T	R	L	TR
Maximum Queue (m)	53.8	29.7	21.4	36.4	62.6	12.7	29.5	61.2
Average Queue (m)	26.4	12.3	7.6	17.0	28.6	5.1	11.2	30.7
95th Queue (m)	44.3	24.1	16.2	31.0	52.5	11.1	23.0	52.3
Link Distance (m)	169.0		142.4		79.0			1141.0
Upstream Blk Time (%)					0			
Queuing Penalty (veh)					0			
Storage Bay Dist (m)		20.0		35.0		30.0	25.0	
Storage Blk Time (%)		4	1	1	5		1	8
Queuing Penalty (veh)		4	0	5	9		4	6

Intersection: 8: Road A & Bethesda Side Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	8.7	13.8	13.4
Average Queue (m)	4.2	1.2	7.3
95th Queue (m)	8.8	7.0	13.3
Link Distance (m)	142.4	166.0	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Tenth Line & GO Primary Access/Road B/Road B

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	LT	R
Maximum Queue (m)	58.3	58.3	19.2	8.9	18.4	39.3	73.3	45.1
Average Queue (m)	51.1	18.6	9.2	2.7	7.4	20.0	40.8	3.0
95th Queue (m)	69.1	46.6	18.7	9.4	16.3	36.2	71.5	19.6
Link Distance (m)	53.7	53.7				35.7	72.5	
Upstream Blk Time (%)	34	2				1	1	0
Queuing Penalty (veh)	0	0				3	8	0
Storage Bay Dist (m)			25.0		40.0			30.0
Storage Blk Time (%)			0			1	13	
Queuing Penalty (veh)			0			0	3	

Intersection: 10: Road A & Road B

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 11: Tenth Line & Road C

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	36.7	18.2	20.5	12.8	37.4	35.4	24.1	38.0
Average Queue (m)	18.9	9.2	8.7	4.2	14.6	13.7	8.3	26.2
95th Queue (m)	31.7	16.5	17.8	11.9	27.3	28.4	18.2	38.2
Link Distance (m)		196.3				206.4		48.9
Upstream Blk Time (%)								0
Queuing Penalty (veh)								0
Storage Bay Dist (m)	25.0		25.0		25.0		25.0	
Storage Blk Time (%)	3	0	0		2	1	0	8
Queuing Penalty (veh)	3	0	0		6	1	1	5

Intersection: 12: Road C & Road A

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 101: Road A

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 103: Road B

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 106: Tenth Line & Trudel and Brundale Site Access

Movement	B13
Directions Served	
Maximum Queue (m)	3.3
Average Queue (m)	0.1
95th Queue (m)	2.4
Link Distance (m)	759.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 108: Tenth Line & GO Right-in/out

Movement	EB	NB	SB
Directions Served	R	T	T
Maximum Queue (m)	18.7	1.7	39.5
Average Queue (m)	5.5	0.1	2.4
95th Queue (m)	13.6	1.2	19.4
Link Distance (m)	56.4	72.5	79.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			1
Queuing Penalty (veh)			1

Intersection: 109: Tenth Line & GO Bus Only Access

Movement	EB	NB	SB
Directions Served	LR	T	TR
Maximum Queue (m)	9.0	7.5	16.9
Average Queue (m)	0.6	0.3	0.6
95th Queue (m)	4.1	3.9	6.1
Link Distance (m)	88.8	166.9	34.6
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 113: Tenth Line & RI/RO North Access

Movement	WB	NB
Directions Served	R	TR
Maximum Queue (m)	10.1	15.7
Average Queue (m)	2.7	0.8
95th Queue (m)	9.5	6.3
Link Distance (m)	35.5	34.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 114: Tenth Line & RI/RO Central Access

Movement	WB
Directions Served	R
Maximum Queue (m)	10.3
Average Queue (m)	4.7
95th Queue (m)	11.9
Link Distance (m)	66.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 115: Tenth Line

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 912

Intersection: 3: Tenth Line (South Leg)/Private Driveway & Main Street

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	L	TR	L	TR	LTR
Maximum Queue (m)	104.6	30.0	63.2	56.7	67.4	8.6
Average Queue (m)	42.0	29.6	56.1	23.6	30.5	0.8
95th Queue (m)	79.1	31.8	79.3	45.1	57.9	4.8
Link Distance (m)	656.6		58.5		288.8	46.5
Upstream Blk Time (%)			12			
Queuing Penalty (veh)			122			
Storage Bay Dist (m)		20.0		20.0		
Storage Blk Time (%)		35	5	23	25	
Queuing Penalty (veh)		99	34	89	32	

Intersection: 4: Main Street & Tenth Line (North Leg)

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	29.9	63.1	51.2	22.2	47.7	73.2
Average Queue (m)	28.2	46.0	28.7	9.2	25.9	55.1
95th Queue (m)	36.4	77.5	48.5	19.2	45.4	66.5
Link Distance (m)		58.5	218.1			85.4
Upstream Blk Time (%)		7				
Queuing Penalty (veh)		39				
Storage Bay Dist (m)	10.0			165.0	70.0	
Storage Blk Time (%)	42	23				1
Queuing Penalty (veh)	48	100				2

Intersection: 5: York Durham Line & Main Street

Movement	EB	EB	NB
Directions Served	L	R	L
Maximum Queue (m)	11.7	40.7	20.8
Average Queue (m)	2.8	3.1	9.4
95th Queue (m)	9.9	20.3	17.9
Link Distance (m)		526.4	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	95.0		30.0
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 6: York Durham Line & Bethesda Side Road

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	48.2	27.9	1.8
Average Queue (m)	24.9	10.4	0.1
95th Queue (m)	40.1	23.7	1.3
Link Distance (m)	144.3	101.7	838.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Tenth Line & Bethesda Side Road

Movement	EB	EB	B26	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	LT	R	T	L	TR	L	L	T	R	L	TR
Maximum Queue (m)	82.6	78.0	2.3	22.4	40.3	19.6	35.5	76.4	26.3	20.4	107.3
Average Queue (m)	40.3	28.4	0.1	8.5	17.1	7.1	15.6	45.3	6.7	9.3	57.9
95th Queue (m)	66.0	54.2	2.3	18.5	33.2	17.1	28.1	72.0	19.1	17.9	96.9
Link Distance (m)	167.0	167.0	1614.1		140.5			78.4			1137.4
Upstream Blk Time (%)								0	0		
Queuing Penalty (veh)								1	0		
Storage Bay Dist (m)				20.0		35.0	35.0		30.0	25.0	
Storage Blk Time (%)				1	8			17		0	27
Queuing Penalty (veh)				2	4			38		1	20

Intersection: 8: Road A & Bethesda Side Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	9.0	15.8
Average Queue (m)	0.4	7.7
95th Queue (m)	3.5	13.2
Link Distance (m)	166.0	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Tenth Line & GO Primary Access/Road B/Road B

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (m)	26.0	15.1	23.9	11.4	35.6	45.9	15.1	55.6	6.9
Average Queue (m)	11.5	4.7	10.6	2.9	20.3	31.6	4.3	30.6	0.5
95th Queue (m)	22.2	11.5	20.1	9.9	35.3	45.9	12.7	49.9	3.9
Link Distance (m)	53.1	53.1				35.7	72.8	72.8	
Upstream Blk Time (%)					1	5			
Queuing Penalty (veh)					0	39			
Storage Bay Dist (m)			25.0		40.0				30.0
Storage Blk Time (%)			1		1	5		5	
Queuing Penalty (veh)			0		5	8		0	

Intersection: 10: Road A & Road B

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 11: Tenth Line & Road C

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	43.6	27.6	22.9	10.2	28.9	69.4	11.8	38.0
Average Queue (m)	24.5	13.3	9.9	4.1	7.5	23.3	3.4	26.9
95th Queue (m)	39.7	22.3	19.5	11.2	19.1	47.2	10.1	37.1
Link Distance (m)		196.3				206.4		48.9
Upstream Blk Time (%)								0
Queuing Penalty (veh)								0
Storage Bay Dist (m)	25.0		25.0		25.0		25.0	
Storage Blk Time (%)	8	0	0		0	3		12
Queuing Penalty (veh)	10	1	0		0	2		3

Intersection: 12: Road C & Road A

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 101: Road A

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 103: Road B

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 106: Tenth Line & Trudel and Brundale Site Access

Movement	B13
Directions Served	
Maximum Queue (m)	3.1
Average Queue (m)	0.1
95th Queue (m)	2.2
Link Distance (m)	759.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 108: Tenth Line & GO Right-in/out

Movement	EB	NB
Directions Served	R	T
Maximum Queue (m)	9.2	14.1
Average Queue (m)	3.0	0.8
95th Queue (m)	9.8	6.5
Link Distance (m)	54.8	72.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 109: Tenth Line & GO Bus Only Access

Movement	EB	NB	SB
Directions Served	LR	T	TR
Maximum Queue (m)	6.9	30.6	10.6
Average Queue (m)	0.3	3.1	0.5
95th Queue (m)	2.8	19.7	5.3
Link Distance (m)	88.8	166.9	34.6
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 113: Tenth Line & RI/RO North Access

Movement	WB	NB
Directions Served	R	TR
Maximum Queue (m)	12.9	35.7
Average Queue (m)	4.1	9.0
95th Queue (m)	12.0	29.0
Link Distance (m)	35.5	34.6
Upstream Blk Time (%)		1
Queuing Penalty (veh)		7
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 114: Tenth Line & RI/RO Central Access

Movement	WB
Directions Served	R
Maximum Queue (m)	14.2
Average Queue (m)	6.0
95th Queue (m)	13.7
Link Distance (m)	66.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 115: Tenth Line

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 707

Intersection: 3: Tenth Line (South Leg)/Private Driveway & Main Street

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	L	TR	L	TR	LTR
Maximum Queue (m)	211.3	30.0	64.1	69.9	293.4	14.2
Average Queue (m)	115.6	29.9	59.9	58.6	293.4	3.5
95th Queue (m)	223.7	30.2	63.7	100.2	293.4	12.6
Link Distance (m)	656.6		58.5		288.8	46.5
Upstream Blk Time (%)			17		96	
Queuing Penalty (veh)			149		0	
Storage Bay Dist (m)		20.0		20.0		
Storage Blk Time (%)		50	9	5	97	
Queuing Penalty (veh)		165	51	40	126	

Intersection: 4: Main Street & Tenth Line (North Leg)

Movement	EB	EB	WB	WB	SB	SB	B14
Directions Served	L	T	T	R	L	R	T
Maximum Queue (m)	30.0	63.9	61.1	50.1	53.9	90.3	3.0
Average Queue (m)	29.9	61.7	34.0	22.7	14.2	60.7	0.1
95th Queue (m)	30.1	63.9	55.1	40.4	36.5	79.6	1.6
Link Distance (m)		58.5	218.1			85.4	287.1
Upstream Blk Time (%)		31			0	1	
Queuing Penalty (veh)		326			0	4	
Storage Bay Dist (m)	10.0			165.0	70.0		
Storage Blk Time (%)	59	11				4	
Queuing Penalty (veh)	123	92				5	

Intersection: 5: York Durham Line & Main Street

Movement	EB	NB
Directions Served	L	L
Maximum Queue (m)	15.6	32.2
Average Queue (m)	5.7	13.7
95th Queue (m)	14.4	24.9
Link Distance (m)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)	95.0	30.0
Storage Blk Time (%)		0
Queuing Penalty (veh)		1

Intersection: 6: York Durham Line & Bethesda Side Road

Movement	EB	NB	B22	SB
Directions Served	LR	LT	T	TR
Maximum Queue (m)	52.9	63.7	43.6	14.6
Average Queue (m)	19.0	22.5	6.4	1.0
95th Queue (m)	36.6	63.0	59.9	12.5
Link Distance (m)	144.3	101.7	1831.4	838.2
Upstream Blk Time (%)		4		
Queuing Penalty (veh)		16		
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Tenth Line & Bethesda Side Road

Movement	EB	EB	B26	B26	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	LT	R	T	T	L	TR	L	L	T	R	L	TR
Maximum Queue (m)	182.1	181.8	510.8	509.4	44.9	135.4	57.8	78.2	81.9	53.0	125.0	629.9
Average Queue (m)	174.1	126.0	234.4	232.9	28.9	81.3	31.6	46.9	70.3	9.6	78.5	369.9
95th Queue (m)	213.1	240.8	526.9	525.1	56.7	149.9	51.3	79.8	91.9	35.6	167.5	669.2
Link Distance (m)	167.0	167.0	1614.1	1614.1		140.5			78.4			1137.4
Upstream Blk Time (%)	85	39				12		0	5	0		
Queuing Penalty (veh)	0	0				49		0	49	0		
Storage Bay Dist (m)					20.0		35.0	35.0		30.0	25.0	
Storage Blk Time (%)					29	55	10	19	30		7	63
Queuing Penalty (veh)					100	45	63	128	131		48	68

Intersection: 8: Road A & Bethesda Side Road

Movement	EB	WB	B21	NB
Directions Served	TR	LT	T	LR
Maximum Queue (m)	9.7	88.5	30.2	29.5
Average Queue (m)	3.2	27.9	11.9	13.6
95th Queue (m)	8.4	121.8	76.5	35.0
Link Distance (m)	140.5	166.0	144.3	
Upstream Blk Time (%)		8	3	
Queuing Penalty (veh)		29	12	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Tenth Line & GO Primary Access/Road B/Road B

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (m)	57.7	57.7	23.8	10.4	31.6	41.0	26.8	76.0	33.8
Average Queue (m)	53.9	23.4	10.4	2.0	10.0	32.8	10.3	44.6	2.6
95th Queue (m)	68.0	54.5	19.8	8.4	23.7	46.9	20.7	73.4	16.9
Link Distance (m)	53.1	53.1				35.7	72.8	72.8	
Upstream Blk Time (%)	56	6			0	8		1	0
Queuing Penalty (veh)	0	0			0	60		3	0
Storage Bay Dist (m)			25.0		40.0				30.0
Storage Blk Time (%)			0		0	8		13	
Queuing Penalty (veh)			0		0	4		3	

Intersection: 10: Road A & Road B

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 11: Tenth Line & Road C

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	43.4	23.9	24.3	14.3	41.6	85.9	24.4	46.5
Average Queue (m)	23.4	10.7	9.4	4.7	19.5	29.5	9.3	29.3
95th Queue (m)	39.2	18.7	19.1	12.7	35.3	60.5	19.4	41.3
Link Distance (m)		196.3				206.4		48.9
Upstream Blk Time (%)								0
Queuing Penalty (veh)								0
Storage Bay Dist (m)	25.0		25.0		25.0		25.0	
Storage Blk Time (%)	9	0	0		8	5	0	13
Queuing Penalty (veh)	8	0	0		53	7	2	9

Intersection: 12: Road C & Road A

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 101: Road A

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 103: Road B

Movement

Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 106: Tenth Line & Trudel and Brundale Site Access

Movement	B13
Directions Served	
Maximum Queue (m)	3.3
Average Queue (m)	0.1
95th Queue (m)	2.3
Link Distance (m)	759.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 108: Tenth Line & GO Right-in/out

Movement	EB	NB	SB
Directions Served	R	T	T
Maximum Queue (m)	18.5	75.5	38.0
Average Queue (m)	7.5	23.9	2.8
95th Queue (m)	16.2	69.5	18.4
Link Distance (m)	54.8	72.8	78.4
Upstream Blk Time (%)		1	
Queuing Penalty (veh)		7	
Storage Bay Dist (m)			
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 109: Tenth Line & GO Bus Only Access

Movement	EB	NB	SB
Directions Served	LR	T	TR
Maximum Queue (m)	10.1	32.9	30.0
Average Queue (m)	1.0	4.5	2.4
95th Queue (m)	5.8	19.5	15.5
Link Distance (m)	88.8	166.9	34.6
Upstream Blk Time (%)			0
Queuing Penalty (veh)			1
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 113: Tenth Line & RI/RO North Access

Movement	WB	NB	SB
Directions Served	R	TR	T
Maximum Queue (m)	13.1	35.9	14.8
Average Queue (m)	2.8	14.4	0.7
95th Queue (m)	10.1	36.4	7.4
Link Distance (m)	35.5	34.6	35.7
Upstream Blk Time (%)		1	0
Queuing Penalty (veh)		9	0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 114: Tenth Line & RI/RO Central Access

Movement	WB
Directions Served	R
Maximum Queue (m)	14.2
Average Queue (m)	5.2
95th Queue (m)	12.9
Link Distance (m)	66.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 115: Tenth Line

Movement	SB
Directions Served	T
Maximum Queue (m)	1.8
Average Queue (m)	0.1
95th Queue (m)	1.3
Link Distance (m)	88.2
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1988

APPENDIX G

Cross-Section and Block Plan Review

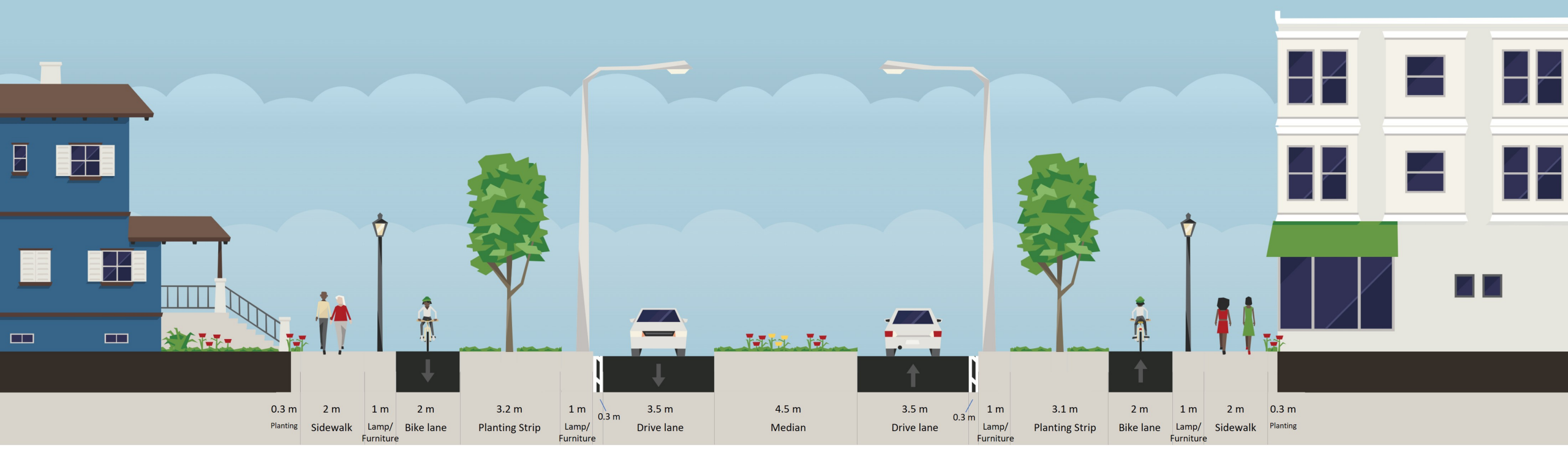
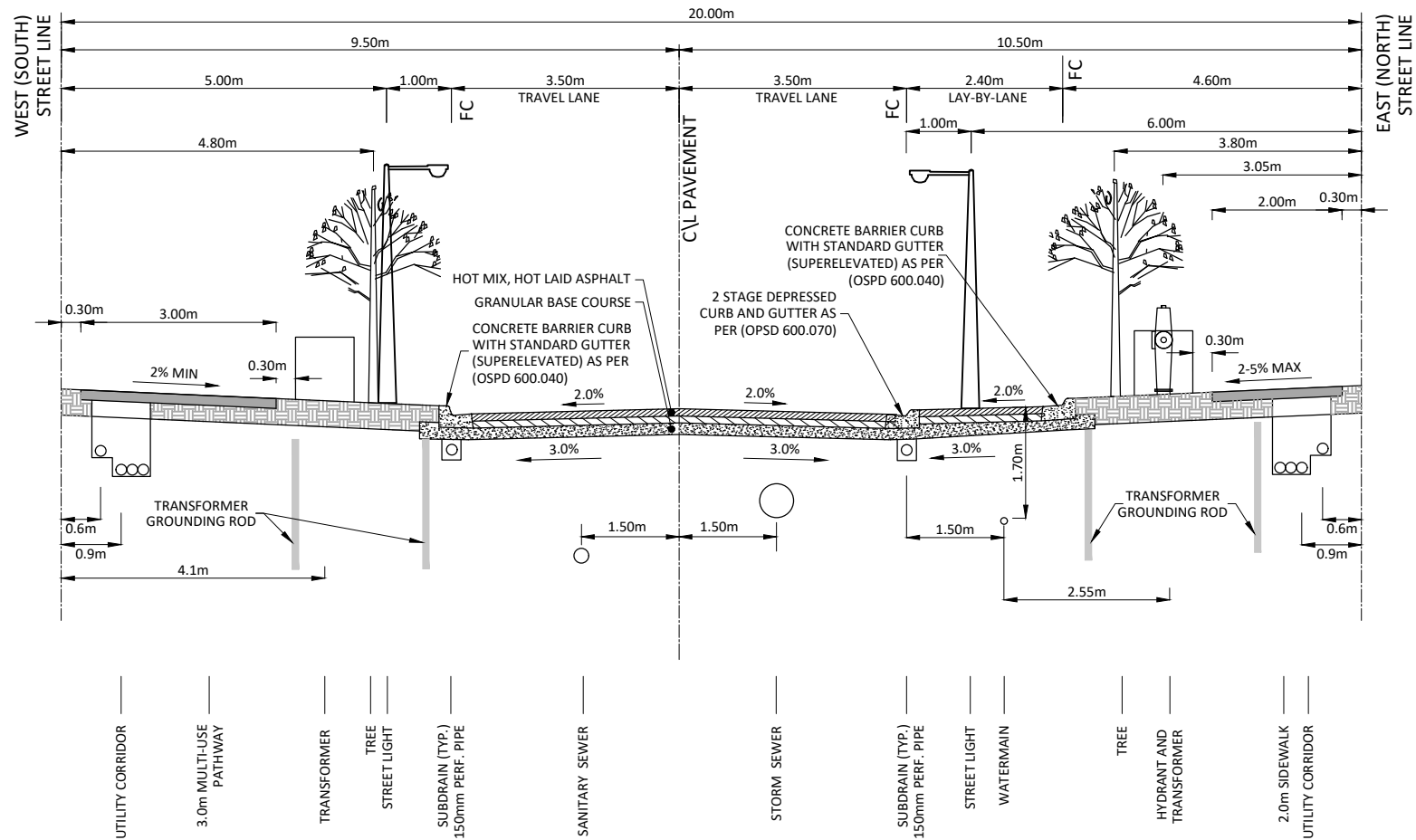




Exhibit 25: Conceptual Typical Cross Section for Bethesda Side Road, Intersection Approach with Left-Turn Lane.

Note: The above cross-section represents a typical intersection approach requiring a left-turn lane. While a 4m multi-use pathway is shown, a separate sidewalk and bike lane may be considered in consultation with stakeholders. Further study is required to determine a preferred roadway plan considering location specific needs.



NOTES:

1. LAY-BY PARKING TO BE PROVIDED WITH SIDEWALK RAMP CONNECTIONS TO THE IN BOULEVARD PEDESTRIAN CORRIDOR AT 18m+ INTERVALS IN ACCORDANCE WITH OPSD 310.033
2. 2.00 m SIDEWALKS ARE REQUIRED IN MTSA LOCATIONS AND CONNECTING NEIGHBOURHOODS
3. SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY
4. PAVEMENT DESIGN TO BE DETERMINED BY SOILS REPORT / MINIMUM TOWN STANDARDS
5. 150mmØ SUBDRAINS SHALL BE INSTALLED UNDER ALL CURBS
6. BOULEVARDS TO BE SODDED ON 300mm TOPSOIL WITH No. 1 NURSERY SOD
7. ALL UNITS ARE IN METRES UNLESS OTHERWISE NOTED
8. LAY-BY PARKING SPOTS & PEDESTRIAN ACCESS POINTS TO BE OUTLINED WITH PAINTED LINES

*NOTE: LAYOUT IS SCHEMATIC ONLY, DETAILS TO BE PROVIDED AT DETAILED DESIGN STAGE.

NORTHCAPE - TENTH LINE, STOUFFVILLE

FSSR

20.0m ROW



30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

DESIGNED BY: N.D.M.

CHECKED BY: S.M.S.

PROJECT No:

FIGURE No:

SCALE: 1:1000

DATE: MARCH 2026

2076

C.1

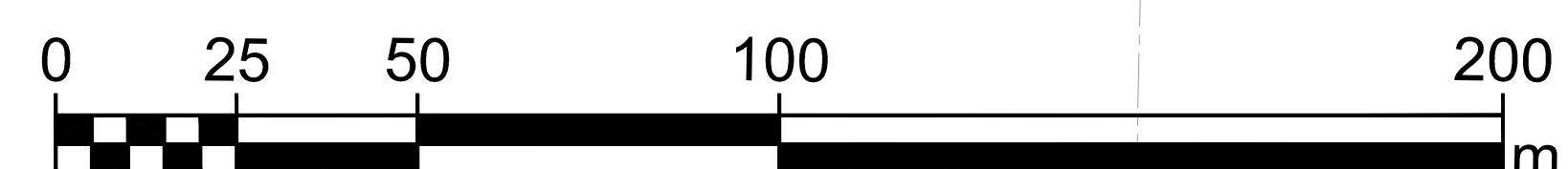


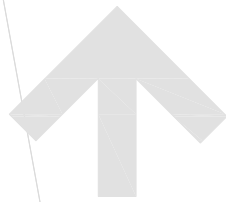
ESTIMATED UNIT COUNT	18360 - 134cp	March 23, 2026
4.5m On-Street Towns	8%	12
4.5m Rear Lane Towns	21%	33
6.4m Back-to-Back Towns	48%	76
5.6m Stacked Towns	23%	36
Total	100%	157 units

-  **PMTSA Boundary**
(2.19 ha within PMTSA Boundary)
-  **Multi-Use Path**
-  **Sidewalk**
-  **Cycle Track**



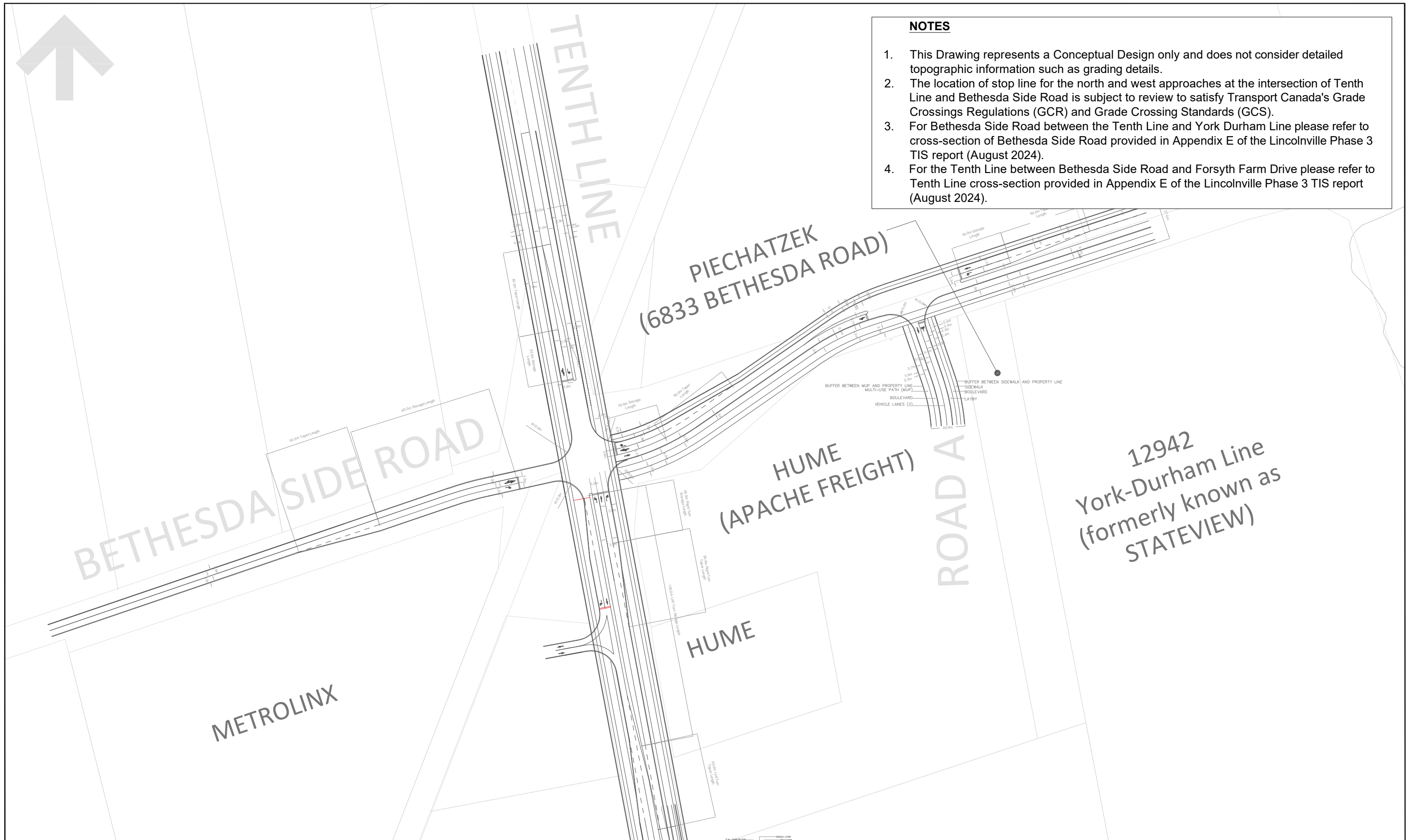
3 Church Street, Suite 200, Toronto, Ontario M5E 1M2
P (416) 947-9744 | F (416) 947-0781 | E bousfields@bousfields.ca

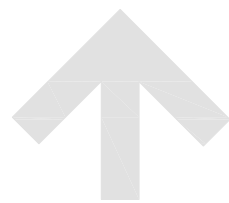




NOTES

1. This Drawing represents a Conceptual Design only and does not consider detailed topographic information such as grading details.
2. The location of stop line for the north and west approaches at the intersection of Tenth Line and Bethesda Side Road is subject to review to satisfy Transport Canada's Grade Crossings Regulations (GCR) and Grade Crossing Standards (GCS).
3. For Bethesda Side Road between the Tenth Line and York Durham Line please refer to cross-section of Bethesda Side Road provided in Appendix E of the Lincolnville Phase 3 TIS report (August 2024).
4. For the Tenth Line between Bethesda Side Road and Forsyth Farm Drive please refer to Tenth Line cross-section provided in Appendix E of the Lincolnville Phase 3 TIS report (August 2024).





BETHESDA SIDE ROAD

NOTES

1. This Drawing represents a Conceptual Design only and does not consider detailed topographic information such as grading details.
2. For Tenth Line between Bethesda Side Road and Forsyth Farm Drive please refer to cross-section of Tenth Line provided in Appendix E of the Lincolnville Phase 3 TIS report (August 2024).

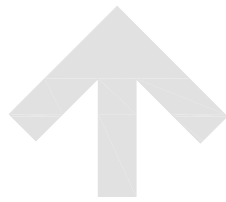
TENTH LINE

Right-in/
Right-out
Access

TYLin

Lincolnville MTSA Study
Conceptual Design Plan
Tenth Line and GO Station Right-in and Right-out Access

SCALE:	1:750	DATE:	2026-APR-27
DRAWING No.	CD - 02		



Access

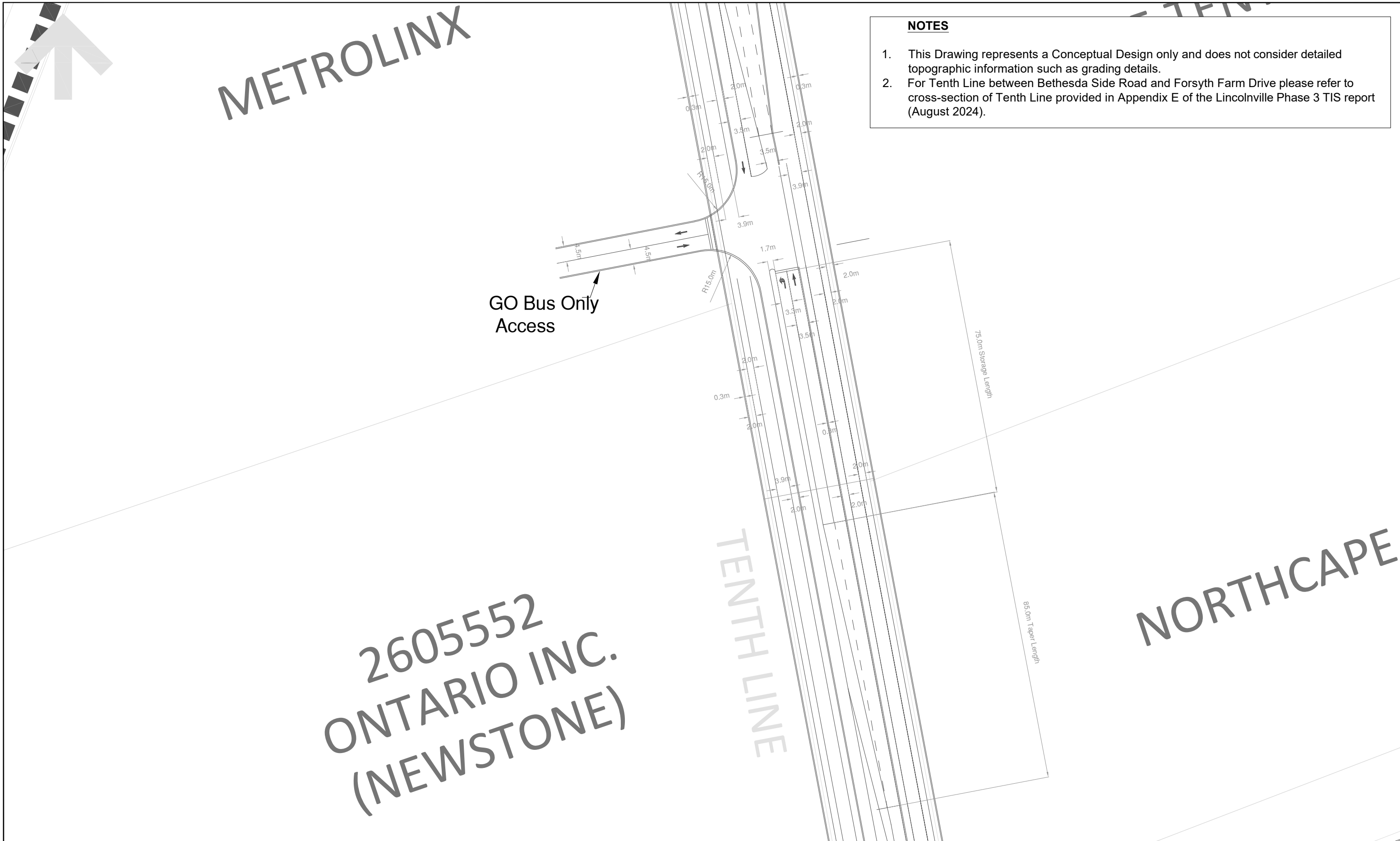
NOTES

1. This Drawing represents a Conceptual Design only and does not consider detailed topographic information such as grading details.
2. For Tenth Line between Bethesda Side Road and Forsyth Farm Drive please refer to cross-section of Tenth Line provided in Appendix E of the Lincolnville Phase 3 TIS report (August 2024).

GO Bus Access

TENTH LINE

ROAD B



NOTES

- 1. This Drawing represents a Conceptual Design only and does not consider detailed topographic information such as grading details.
- 2. For Tenth Line between Bethesda Side Road and Forsyth Farm Drive please refer to cross-section of Tenth Line provided in Appendix E of the Lincolnville Phase 3 TIS report (August 2024).

