

June 4, 2022

Mayor Burton and Members of Council
Town of Oakville
1225 Trafalgar Road
Oakville, ON
L6H 0H3

Attn: Town Clerk

Dear Mayor Burton and Members of Council:

**RE: TOWN OF OAKVILLE INITIATED OFFICIAL PLAN AMENDMENT – MIDTOWN
OAKVILLE URBAN GROWTH CENTRE (File No. 42.15.59)
GENERAL ELECTRIC LANDS (420-468 SOUTH SERVICE ROAD EAST, OAKVILLE)
OUR FILE: 20406A**

MacNaughton Hermesen Britton Clarkson Planning Limited (“MHBC”) is currently retained by General Electric Canada (“GE”) in relation to the lands municipally located at 420 to 468 South Service Road East in the Town of Oakville (hereinafter the “GE Lands”). The GE Lands are 11.08 ha in area and currently vacant with the exception of the remnant building façade from the former office building on the site.

The GE lands represent one of the largest singly owned properties within Midtown Oakville and as such one of the most significant opportunities for redevelopment to achieve the requirements of Provincial, Regional and Town policies for intensification and growth in the Town’s most important Strategic Growth Area.

Background and Development of a Conceptual Master Plan for the GE Lands

Since the release of the draft Midtown Official Plan Amendment (“Midtown OPA”) in early March 2021, GE has met with and worked with Town staff on several occasions, presented its concept plans for the GE Lands in a design workshop format, and provided a number of comments on the draft policies and schedules.

On March 21, 2021, GE submitted comments on the initial draft Midtown OPA and provided a presentation at the public meeting. GE highlighted its initial responses including its support for

the increased heights and densities for the area as well as the added residential and mixed use permissions. GE noted its concerns with the extensive road infrastructure requirements on its lands, the splitting of land use designations on the site, the constraints of the proposed height schedule notwithstanding the additional height transfers, and concerns with the block design and cost sharing policies.

In the previous draft Midtown OPA, the public realm and parkland policies were flexible and would allow parkland objectives to be planned and achieved through the block plans. This was extremely important to GE. Given the size of its lands and the already heavy overlay of roads, an ability to design the site with flexibility on delivering public realm elements including active transportation routes, all accessible to the public, would allow optimization of the development while delivering the public realm through publicly accessible park space, open space areas, pedestrian connections and even private roads on its lands.

Following the public meeting in March 2021 and over the past year, GE has committed substantial resources and time to develop a conceptual master plan for the GE Lands. GE retained BDP Quadrangle Architects and WSP as part of its project team and worked with Town staff to develop the concept for the master plan in order to address the Town's needs and objectives. Following meetings with Town planning and transportation staff on March 1, 2021, May 3, 2021, September 17, 2021 (Design Charrette), October 5, 2021 (follow up Design Charrette), November 1, 2021 (Transportation), and March 2, 2022 (proposed GE policy modifications) a letter was prepared and sent to staff on March 13, 2022 which set out the final draft recommended modifications to the March 2021 version of the draft Midtown OPA that would provide for the implementation of the GE Lands conceptual master plan.

May 12, 2022 Draft Midtown OPA Comments

GE has had an opportunity to review the revised Midtown OPA, the Town staff report dated May 24, 2022, and also meet with Town staff on May 30, 2022 to further understand the major changes in policies and the rationale for these changes. The following is a summary of GE's comments on the revised Midtown OPA. GE hopes to continue to work with the Town to address these issues.

Overall Concerns

While GE appreciates the work completed by staff, the Company is extremely disappointed in the proposed changes. After GE retained experts and worked for over a year with staff to develop a conceptual master plan and implementing policy framework that would meet the Region's and Town's planning goals, the shift in policies came without any disclosure to or knowledge of GE. GE feels its commitment and work has not been reflected to allow the GE Lands to be developed in the way envisioned through the master plan. The shift in the plan creates a new policy framework that pushes development into four quadrants on the GE Lands, dominated by height and built form, to create extremely tall towers that will achieve the new FSI and parking requirements (even if substantially reduced) as set out in the Town's proposed plan for the GE Lands. The vision to provide for mid-rise and tall buildings cannot be achieved for the reasons stated below which further affects the ability to provide for a broader housing unit mix within the development.

The added road infrastructure and increased rights-of-way and required publicly conveyed park areas were not identified as proposed changes during any of the meetings with staff. There does not appear to be anything in the staff report that provides an assessment or evidence to support these changes and additions, which disproportionately burden the GE lands.

Land Uses

The revisions to the land use schedule to apply the Urban Core designation to all of the GE Lands is appreciated and will allow for a full range of uses as developed for the conceptual master plan. The disconnect however with the new policies is the relationship between those uses and the resulting built form based on the massive widths of publicly conveyed land created through the rights-of-way and public parks. In some cases, the separation of development blocks is almost 60 metres, which does not reflect a fine-grained street network in an urban context.

Height and Density Changes

While GE supports the removal of the height limits and use of FSI to direct density, it is not feasible or achievable to optimize density and meet the growth objectives for Midtown Oakville and specifically the GE Lands. As noted, the conceptual master plan provided for the ability to achieve the many development and design objectives set out by the Town through the integration of public and private elements. The master plan ensured connectivity and integration, allowing the person on the ground to experience a public realm without a distinction between publically owned versus private lands, enabling a streetscape and park space that complemented the scale of development. Again the new plan pushes the development into small development blocks, resulting in extremely tall towers in each with multiple levels of below and above ground parking to achieve even the minimum density envisioned for these lands, with little to no integrated public realms, and mostly Town owned and separated parks.

Removal of Developable Lands

The revised policies and schedules introduce substantially increased road rights-of-way over the GE Lands as well as new required public parks to be conveyed. As a result of the revised schedules, the GE Lands are now reduced from 11.08 ha of land to 6.7 ha (i.e., approximately 40 percent of the site is being required for public roads and parks). No other lands within Midtown Oakville have the same level of public conveyance requirements. This represents a disproportionate removal of lands from the site compared to other areas and has the most impact given the size of the GE Lands as the largest redevelopment block to achieve the Town's objectives and meet the Provincial requirements to optimize development in growth areas.

Road Requirements

GE had provided a number of comments related to the proposed road network and its constraints and barriers to development. GE has also met with transportation staff to present the conceptual master plan and illustrate how the road network can be reduced and revised while still maintaining adequate movement, access and connectivity for both transit and active transportation. One example stressed during discussions and in our submissions is the inability to provide for connections for open spaces and underground parking as a result of the flyover road

constraint, which is now proposed to increase to 36 metres through the whole site. This creates a significant barrier to redevelopment.

It is still not clear why or how this flyover will be needed or how it is envisioned to serve Midtown with its intended design. Furthermore, it is now proposed to extend across the rail line to connect to Cornwall Road, which was never raised in any discussions with the Town. This new road segment will change its dynamic from a locally serving road facility to more of a 'through road', which is likely to attract more traffic that is not destined to Midtown but rather using it as a 'cut through' opportunity. This change does not represent good transportation planning from the perspective of achieving the objectives for a transit oriented community and urban growth centre.

Instead of reducing roads as a key objective for a key transit oriented community and urban growth centre, the revised Midtown Oakville OPA has increased the number of roads and the right-of-ways. This is completely in conflict with Provincial and Regional policies. There is no transportation analysis or report to support this shift. Evidence based planning has proven that when road rights of way are reduced, travel patterns evolve and shift behaviours and travel modes. Midtown Oakville is served by Oakville GO and is to become a "self-sufficient urban community". Staff's own report states that the policies and schedules are intended to continue to establish Midtown as both a transit oriented community and complete community which facilitates less reliance on vehicles and address climate change and the biggest contributors of greenhouse gas emissions which includes energy for transportation. However, reducing roads for vehicles is not what has been provided. In fact the opposite has been provided by introducing additional roads and increased rights-of-way. The Town has not provided updated cross sections of the rights-of-way but based on the current cross sections there appears to be wasted width for features for the north south flyover (such as a two-way left-turn lane down the centre of the road – which should not be included for this road through Midtown), bike lanes in both directions, and a trail on one side and a sidewalk on the other. There seem to be redundancies that should be addressed to streamline this road (and others) to reflect a well-planned road that minimizes the rights-of-way and is reflective of the transit function the Town has stated the road is intended to serve.

The Provincial Policy Statement 2020 provides policies in Section 1.6.7 and 1.6.8 to direct municipalities to address its land use and transportation policies in a way that reduces car use and supports transit and active transportation. Section 1.6.7.4 states that land use patterns, densities and mix of uses should be promoted in ways that "minimize length and number of vehicle trips and support current and future use of transit and active transportation". Section 1.6.8.5 states that the co-location of linear infrastructure should be promoted, where appropriate". As noted above, it is unclear how infrastructure is being efficiently provided and how reduced vehicle use is being proposed with the addition of added streets for road use.

The Growth Plan for the Greater Golden Horseshoe 2020 is very clear in its policies for compact built form which is to be developed in Priority MTSAs and Urban Growth Centres. Compact built form is defined in the Growth Plan to reflect a land use pattern that includes a street network that efficiently uses land and provides for walkable neighbourhoods characterized by roads laid out in

a well connected network and minimizing new infrastructure. The roads are to be well connected and focused on a pedestrian friendly environment that encourages active transportation. Increased modal share for active transportation and transit is to be the focus of the design of the street network. The current added roads and added rights-of-way appear to move away from this policy direction with an emphasis on vehicle movement and use.

The Regional Official Plan Amendment No. 48 specifically requires municipalities to adopt alternative design standards for roads through Strategic Growth Areas. It is not clear how this has been achieved as the Town has stated it has increased the rights-of-way to match its current Town-wide rights-of-way which reflect more typical suburban standards. This shift is counter to Provincial and Regional objectives for an MTSA and Priority Transit Corridor.

There is also no discussion or ability to provide for private roads or active transportation routes that serve the exact same functions as public roads in the report. The staff report references Vaughan Metropolitan Centre as an example of a Major Transit Station Area similar to Midtown Oakville that is now achieving its growth objectives through development. What is not referenced is the flexibility in Vaughan's plan to allow for stratification where public lands are required for underground parking or connections, and the direction to allow for private streets to serve network functions.

Parking

Reductions to parking should be a key objective for Midtown as directed by ROPA 48 which states that parking standards and policies in Strategic Growth Areas should promote active transportation and public transit and not increased vehicle use. The goal of the transportation infrastructure appears to be focused on vehicle traffic and car movement, which would increase parking demands, when it should be focusing more on promoting the use of public transit.

Parks and Public Realm

The new park policies both identify and prescribe the location and size of required parks. This is ahead of what staff has identified will be a Town-wide park strategy and updated parkland dedication by-law that will apply to Midtown Oakville to be presented on June 14, 2022.

GE worked with staff to identify and provide for public park space in its master plan and agree to the importance of providing good quality public open space in an intensification area with high density development. Achieving public open space in higher order growth areas presents challenges not experienced in other areas and has to take a different approach in planning than traditional public land conveyance. The policies do not reflect the need to provide for alternative approaches which should include Town acquisition of additional lands to serve the needs of the entire area. Other municipalities like the City of Vaughan have employed a lower parkland standard in higher order growth areas like the Vaughan Metropolitan Centre.

The revised Midtown OPA policies require the conveyance from the GE Lands of a promenade that is 20 m wide along Davis Road (that was previously the Cross Avenue extension), two urban squares and two connector corridors with a minimum width of 20 metres. In addition the policies require a further 5% as privately owned publicly accessible open space ("POPS"). The total land

required for open space is approximately 20% of the GE Lands. Similar to the road requirements, this is disproportional on the GE Lands. It does not reflect a “win-win” scenario as described in the staff report and is not an incentive for the redevelopment. Further, a fixed percentage requirement for POPS also severely limits development opportunities on this site. Any POPS policies need to be flexible so as not to unduly constrain a site’s developability and ability to develop much needed housing and employment uses within this area.

The shift in policy actually moves away from the Town’s objective of achieving public space and public realm in a timely and efficient manner. Public conveyance of the large areas will require the Town to maintain and service these areas. Given the size of GE Lands and the phasing of development, it is also not clear how the public conveyance will provide for the parks in a timely manner unless there is an assumption that the developers are also designing and delivering the spaces, in which case the lands would be best delivered through a POPS form of parks. Most growth centres, including the VMC, utilize POPS to optimize the delivery and development of parks and the public realm. It is unclear why the policy shift has been made away from this in the current Midtown Oakville OPA.

If as staff state “the provision of adequate and appropriately designed parks and open space within Midtown is critical to its success”, why is POPS not the primary means to achieve the objective?

Servicing and Costs

The staff report notes that the Town will use a combination of tools to deal with the coordination of the infrastructure costs of redevelopment. Understanding with certainty, the process and costs for development in order to achieve financially viable and sustainable development, is key to the success of Midtown.

The staff report notes that Halton Region recently undertook an update of its Servicing Plan for Midtown which it states could take 18 months to complete. The report states that the Region’s Servicing Master Plan update will require the approved Midtown OPA to estimate servicing capacity. It goes on to state the Midtown Oakville Area Servicing Plan will then need to be updated. Following all of that, the Region will then update its Development Charges By-law to fund the servicing required.

Midtown Oakville is not a new development area. The Region has known of the requirement to service Midtown Oakville for the minimum 200 jobs and persons per hectare since 2006 when the Places to Grow Act and the Growth Plan for the Greater Golden Horseshoe was brought into effect. The servicing and infrastructure needs of Midtown Oakville should be a priority and needs to advanced soon so that the vision set out in the proposed Midtown Oakville plan can be realized.

While GE is disappointed with the shift in the policy framework especially as it relates to roads and parks, it is still committed to working with the Town to achieve what can be an incredible redevelopment of its lands that achieves the requirements for transit oriented growth and development and complete communities. GE is committed to continue to refine its conceptual master plan which aligns with the Provincial, Regional and Town objectives for new housing,

employment, access and connectivity, urban design, architectural quality, attractive streetscapes, accessible parks and open space as well as sustainable and energy efficient servicing and design to address climate change.

Thank you for the receipt and consideration of our comments at this time.

Sincerely,

MHBC

A handwritten signature in black ink, appearing to read 'Dana Anderson', written over the 'MHBC' text.

Dana Anderson, FCIP, RPP
Partner

Cc. Karen Simons, General Electric Canada



June 7, 2022

GSAI File: 1370-001

Town of Oakville
Building, Planning & Development Department
1225 Trafalgar Road
Oakville, ON L6H 0H3

Attn: Geoff Abma
Senior Planner

RE: Midtown Oakville Growth Area Review Comment Letter
Davis Road GP Inc.
354 Davis Road, Town of Oakville

Dear Mr. Abma,

Glen Schnarr & Associates Inc. ('GSAI') is the planning consultant to Davis Road GP Inc. (the 'Owner'), the Owner of the lands municipally known as 354 Davis Road (the 'Subject Lands'), in the Town of Oakville (the 'Town'). In particular, the Subject Lands are located on the south side of Davis Road, east of South Service Road East, and are considered within 'Midtown Oakville'. The Subject Lands are currently improved with a 6-storey office building and surface parking area. Given that the structure was built in 2013, and is relatively new, the Owner does not currently contemplate development on the Subject Lands.

On behalf of the Owner and further to our previous correspondence, we are pleased to provide this Comment Letter in relation to the ongoing Midtown Oakville Growth Area Review (the 'Midtown Review').

GSAI has been actively participating in the Midtown Review and the concurrent Town Official Plan Review process. We understand that, when complete, the Midtown Review will culminate in an Official Plan Amendment ('OPA') that will modify policy permissions for lands across the Midtown community, including the Subject Lands.

We have reviewed the draft Midtown Oakville Official Plan Amendment ('Draft Amendment'), dated May 2022, and offer the following comments.

Overall, the Draft Amendment directs that the greatest heights within the Midtown Oakville community are to be directed to lands in proximity to the Queen Elizabeth Way ('QEW'). The Subject Lands are located south of the QEW and thus would meet this criterion. As such, the Subject Lands are an appropriate and desirable location for development to occur. We support the concentration of development in the location(s) outlined on Schedule L2, Midtown Oakville Density.

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The Draft Amendment presents refined land use policies. More specifically, the Subject Lands are proposed to be re-designated from 'Office Employment' to 'Urban Core'. The draft 'Urban Core' policies direct that a range of uses are permitted. We support the re-designation of the Subject Lands.

The Draft Amendment continues to propose refinements to the local road pattern. More specifically, Schedule L3, Midtown Oakville Transportation Network, directs that South Service Road East and Davis Road are to be re-aligned and classified as 'Future Arterial' with ultimate Right-of-Way widths of 35 metres. Additionally, a new Arterial Road, referred to as Station Road, with a 35 metre ultimate Right-of-Way width, is to be provided along the Subject Land's southern edge. As currently contemplated, the proposed alignments of South Service Road East, Davis Road and Station Road will require additional land from and may negatively impact the current functions and site circulation patterns on the Subject Lands once constructed. We note that the widths and alignments contemplated are also a departure from what was previously presented at prior Public Meetings and in previous iterations of the Draft Amendment. Collectively, the proposed refinements to the local road pattern are concerning to the Owner as they relate to the Subject Lands. We request further detail be provided.

Similarly, Section 20.3.6.e) states that vehicular access to parking, service facilities and loading areas shall be planned from local roads. This proposed policy is concerning to the Owner. The Subject Lands have two vehicular accesses – one *via* Davis Road ('Davis Road Access') and one *via* South Service Road East ('South Service Road Access'). As outlined above, both Davis Road and South Service Road East are to be re-classified as Arterial Roads. This could mean that, once re-classified as Arterial Roads, the Owner will no longer be permitted to use the Davis Road Access or the South Service Road Access to access the Subject Lands. If this is the intent of the policy, it is our opinion that this policy is inappropriate as currently drafted, as it does not recognize that there may be instances, such as the South Service Road Access, where arterial roads are appropriate to use for access. Notwithstanding that the South Service Road East is proposed to be re-classified as an Arterial Road, it is also proposed to be realigned in a straighter, and thus safer, manner. In addition, the proposed intersection of South Service Road East and the QEW off-ramp has been relocated northward, farther from the existing South Service Road Access, thus eliminating another constraint to maintaining the current access location. As such, it is our opinion that access *via* South Service Road East should still be permitted (as it currently is) even if the road is re-classified as Arterial and that the policy be revised accordingly.

The Davis Road Access is located on the portion of Davis Road which is proposed to be abandoned (see Schedule L3) and replaced by a new re-aligned segment of Davis Road located to the north of the existing right-of-way. This re-aligned Davis Road is proposed to intersect South Service Road East directly across from the intersection of the QEW off-ramp and South Service Road East.

The Draft Amendment currently identifies the Subject Lands as being subject to site-specific Exception Policy 20.5.5. This draft policy permits the existing 6-storey office building and surface parking, and states that "*access shall be provided to the existing property at the time of construction of the future Davis Road and future ramp as identified on Schedule L3, or as determined through an approved environmental assessment*". In our opinion, the draft policy should be revised to: "*... access shall be provided to the existing property from Davis Road at the time of construction of the future Davis Road and future ramp as identified*".



on Schedule L3, and as determined through an approved environmental assessment, and access shall be provided to the existing property from South Service Road East substantially in accordance with the current access location at the time of construction of the future South Service Road East". To summarize, the Draft Amendment policies should permit these accesses notwithstanding that they may be from Arterial Roads.

If these current accesses are not permitted, and access from a local road is required, this may necessitate one or more access easements between the Owner and adjacent landowners because accessing the Subject Lands from a local road would require travelling over lands owned by others. As such, it is our opinion that site-specific Exception policy 20.5.5 should be revised to facilitate the South Service Road Access substantially in accordance with its current location and require the replacement of the Davis Road Access to another location on Davis Road at the time of construction of the realigned Davis Road.

The Owner is concerned about the Draft Amendment and requests that modifications be considered, particularly to draft policies 20.3.6.e) and 20.5.5. The Owner also requests more detail to be provided on the proposed alignments of South Service Road East, Davis Road and Station Road as outlined in Schedule L3 of the Draft Amendment.

We thank you for the opportunity to provide comments and wish to be included in the future Midtown Oakville Growth Area Review initiatives. We ask that you notify us of any future updates and meetings.

Please feel free to contact the undersigned if you have any questions.

Yours very truly,
GLEN SCHNARR & ASSOCIATES INC.


Stephanie Matveeva, MCIP, RPP
Associate

cc. Owner
Town Clerk

June 7, 2022

Mayor Burton and Members of Council
c/o the Town Clerk
Town of Oakville, Clerk's department,
1225 Trafalgar Road, Oakville, ON L6H 0H3

TownClerk@oakville.ca

Dear Mayor Burton and Members of Council:

RE: PROPOSED DRAFT MIDTOWN OAKVILLE PLAN AMENDMENT
599 Lyons Lane
OUR FILE: 11162 I

MacNaughton Hermsen Britton Clarkson Planning Ltd. (MHBC) represents the landowners of 599 Lyons Lane, Oakville, Ontario. The property is located south of the QEW highway and South Service Road East, and east of Sixteen Mile Creek within the western-most area of Midtown Oakville. MHBC appreciates that the Town of Oakville Council is receiving property owner comments and recommendations regarding the proposed amendment to Livable Oakville, under the *Planning Act*.

The recommendation to repeal Livable Oakville, section 20, Midtown Oakville, and applicable Schedules L1 to L3 (Land Use, Building Heights, Transportation Network) and replace with new policy text and schedules, forms the basis of this submission. The following provides an overview of: subject land context; previous development applications submitted to the Town of Oakville; the impact of the proposed policies on the subject lands; and recommendations regarding the amendment.

Subject Lands: Context

The subject lands are contained within the policy area boundary of Midtown Oakville. This area is identified as the Town's Urban Growth Centre, and in the existing Livable Oakville Plan, is designated as 'High Density Residential' within the Schedule L1, Midtown Oakville Land Use map.

The subject property is approximately 0.89 ha (2.2 acres) in area with frontage along the west side of Lyons Lane, north of Cross Avenue. The lot is currently vacant and only accessible via one public roadway, Lyons Lane. To the west is Sixteen Mile Creek, while to the east are the commercial retail uses that are generally 2 storeys in height. To the south, across Cross Avenue, is the Metrolinx multi-lot surface parking serving the Oakville GO station.

Previous Submissions and Town Undertakings

As a prime site within the Urban Growth Centre of Midtown Oakville, the land has been subject to an Ontario Municipal Board settlement in 2009, that resulted in a site-specific Official Plan Amendment and Zoning By-law amendment. These amendments were included within the Livable Oakville plan as well as the Town's inZone Zoning By-law and permitted a maximum building height of 26 storeys.

Within the OMB 2009 settlement, the Road and Infrastructure Improvements were approved through Schedule C and dated March 30, 2009.

In June, 2014, the Town completed the Midtown Oakville Transportation and Storm water Municipal Class Environmental Assessment for Midtown Oakville. Within the subject land area, modifications were recommended for Cross Avenue and South Service Road in conjunction with improvements to the QEW / Trafalgar Road interchange. The proposed road network modifications had no impact on the 599 Lyons Lane site. The traffic generated by the subject development was included in the modelling for the Midtown EA.

July 16 2020, an application was submitted to the Town of Oakville to remove the Holding provisions of the site-specific Zoning By-law. The Town, through File No. Z.1614.75, provided comments to the landowner on November 12, 2020. Conservation Halton indicated that the preliminary re-alignment design of Lyons Lane is dependent on the Geotechnical Investigation that has been requested by Conservation Halton.

Pre-consultation meeting was held on April 14, 2021 for Site Plan Application. Town felt it premature. Town states that Geotech Report needs to be completed.

May 13, 2021, EXP Services Inc. completed a Preliminary Geotechnical Investigation and Slope Stability Analyses for the Town of Oakville regarding Lyons Lane and Adjacent Sixteen Mile Creek. Part 1 of the Analyses indicated the following purpose of the preliminary study:

*The Town of Oakville is reviewing the future road network in the Midtown area, further to an Environmental Assessment completed in 2014. Lyons Lane is a two-lane local road with a rural cross-section. It is located on the west side of Midtown and runs north from Cross Avenue and ends in a cul-de-sac just south of the QEW. The road is immediately adjacent to the Sixteen Mile Creek valley. **It is anticipated that Lyons Lane will be reconstructed as a two-lane urban roadway with future development in the Midtown area.***

The EXP engineers provided with the following concluding opinion:

Pavement Design and Construction

The results of the slope stability analysis show that the long-term stable slope line is located on the existing roadway. If the roadway is to remain at its current alignment, stabilization measures will be required in order to satisfy the required minimum factor of safety. Measures such as rebuilding the slope using reinforced earth or stabilization using soil nails etc. may be considered to improve the stability of the slope. Further consultation with Conservation Halton is required prior to advancing these recommendations.

Region Official Plan Amendment 48 (ROPA 48)

Halton Region's approved ROPA 48, through Map 1H "Regional Urban Structure", has delineated Midtown Oakville as being a Strategic Growth Area, and the Town's Urban Growth Centre and priority Oakville GO Major Transit Station Area. The minimum MTSA density will be 200 people and jobs/hectare. This signifies that the subject lands are intended to accommodate significant growth.

This being a Strategic Growth Area, the Region indicates through policy, s. 79.3(7.3) that "It is the policy of the Region to":

"Ensure that Strategic Growth Areas are development-ready by: a) making available at the earliest opportunity water, waste water and transportation service capacities to support the development densities prescribed for Strategic Growth Areas."

Halton Region, through ROPA 48 indicates on Map 3 Functional Plan of Major Transportation Facilities indicates that Lyons Lane is a "Major Road", similar to Kerr Street, Chartwell Road, Morrison Road and Maple Grove Road (all south of the QEW). Policy 173(1.1) of the current ROP, states that it is the policy of the Region to:

"Work with the Province and Local Municipalities to plan for and protect planned corridors and rights-of-way for transportation and transport facilities, as shown on Map 3, to meet current and projected needs. Development shall not preclude or negatively affect the use of the planned corridor for the purpose(s) for which it was identified or being actively planned.

Policy 173(1.2) also says that it is the policy of the Region to:

"Require Local Municipalities, in consultation with and to the satisfaction of the Province, to develop official plan policies that provide protection for planned corridors to ensure that development shall not predetermine or preclude the planning and/or implementation of the corresponding transportation facilities on Map 3."

Given that Lyons Lane is identified as a major road on ROP Map 3, as consolidated in November 2021, that the current road provides the traffic volume capacity to support the proposed growth in this area of Midtown Oakville.

Midtown Oakville: Proposed Official Plan Amendment June, 2022 Draft Policies Applicable to Subject Land

The Town of Oakville proposes to repeal all of Livable Oakville's section 20, Midtown Oakville policies, as well as Schedules L1 to L3, and replace it with revised policies and schedule maps. The purpose of the amendment, in part, is to conform to Halton Region ROPA 48 that establishes Midtown Oakville as the Town's main Urban Growth Centre where a minimum target of 200 persons and jobs per hectare is to be achieved by 2051. ROPA 48 also reinforced the Oakville GO MTSA boundary.

While the proposed policies are generally similar to the existing Midtown Policies, the following provides the policy amendments that affect 599 Lyons Lane.

- Schedule L1 Land Use – 599 Lyons Lane no longer designated “High Density Residential”; now identified as “Urban Core” designation (this removes the existing policy 20.5.4 wherein ‘no maximum residential density’ applied to subject lands);
- Schedule L2’s ‘building heights’ amended to a new Schedule L2 ‘density’ that provides a range from 4.0 to 10.0 FSI;
- Schedule L3 ‘transportation network’ identifies **Lyons Lane** as a “**road to be abandoned**”;
- Schedule L3 ‘transportation network’ also indicates that all future roads have increased in road width, thereby reducing the developable area of lots;
- Maximum building height is identified as 255 metres (s.20.3.8.f) where the permitted density allows for this height;
- Building Height exception s.20.6.2.a that permitted a 26 storey structure is deleted; and,
- ‘Exception’ policy 20.6.2.b (new number 20.5.2.a) is retained and permits that underground structures/architectural features may encroach into the 15 m setback, dependent upon Conservation Halton requirements/regulations.

Impacts for 599 Lyons Lane

The proposed draft amendment to the Midtown Oakville Official Plan policies will have both positive and negative impacts:

- Positive Impacts
 - Increased FSI
 - Common land use designation throughout

The proposed policies that increase FSI will support investment and population/job growth in the area.

- Negative Impacts
 - Proposed Lyons Lane closure
 - Unknown Regional water and wastewater service provision for proposed Growth to conform with Strategic Growth Area’s Growth Plan targets

Policy Recommendations

Having reviewed the proposed new policies for section 20 of Livable Oakville that will guide development of Midtown Oakville for the next decade to 2051, under the current Halton Region Official Plan, the following recommendations are provided for consideration:

1. Remove the reference that Lyons Lane is a “road proposed to be abandoned” on proposed Schedule L3.

The Town’s reliance on a preliminary Geotechnical Report is not a valid basis to abandon the only access road to the subject lands.

2. Reduce the proposed road widths of the 'future' roads as the intention of active transportation is not solely to ensure that each street in the road hierarchy is a 'complete street';
3. With the introduction of public realm policies and goal of increasing landscaping, trees and street fixtures, it is assumed that the Town of Oakville will be investing significantly in the publicly-owned spaces and fixtures and will operate and maintain this increase of public spaces;
4. Verify/confirm that Halton Region has the servicing capacity to accommodate the ROPA 48 and upcoming ROPA 49 growth targets within Midtown Oakville as the preeminent Urban Growth Centre.

The above policy recommendations ensure that development may occur on the lands at 599 Lyons Lane with public road frontage. While the Town has a vision of a Midtown Oakville as an historic, high-rise downtown area with a new local grid street pattern, any attempt to construct such a road network through existing buildings and registered lot lines may not be feasible in the next decade to 2031 or to 2051.

While it is very disappointing that the Town is basing a public road closure (to a parcel of land wherein that road represents the lot frontage and the only access to the site) on a preliminary geotechnical report, we are pleased that the subject lands remain within the Town's Urban Growth Centre. We hope that the Town of Oakville considers the above policy recommendations to ensure that 599 Lyons Lane remains accessible via the only public roadway, as well as a viable and developable property that can support the vision for Midtown Oakville growth.

Thank you.

Yours Truly,

MHBC



Oz Kemal, BES, MCIP, RPP

cc. T. Wallace, M. Zakaria

June 7, 2022

Mayor Burton and Members of Council
c/o the Town Clerk
Town of Oakville, Clerk's department,
1225 Trafalgar Road, Oakville, ON L6H 0H3

TownClerk@oakville.ca

Dear Mayor Burton and Members of Council:

**RE: UPDATED DRAFT MIDTOWN OAKVILLE OPA – SECOND COMMENT LETTER
HOME DEPOT OF CANADA INC.
MHBC FILE: 9316HA-28**

On behalf of our client, Home Depot of Canada Inc., we have reviewed the most recent (updated) Draft Midtown Oakville OPA policies and mapping (herein "updated Draft OPA") issued on May 12, 2022, in conjunction with our previous (original) comment letter submitted to the Town on March 22, 2021. As you are aware, Home Depot owns and operates one of its stores located in the Trafalgar Village Mall at 99 Cross Avenue (i.e. the Subject Site), and is located within the "Lyons District" as identified in the updated Draft OPA, which is identified as an area that is intended to evolve from its current focus on strip malls and large format retail uses into an urban mixed use neighbourhood.

While Home Depot remains its position of not being fundamentally opposed to the overall mixed use vision for the Subject Site and the Lyons District, we provide the following comments for the Town's consideration prior to finalizing the Draft OPA for Council adoption.

1. **Section 20.6.2 (Phasing/Transition)** (previously Section 20.8.1)

We appreciate that these current policies of the updated Draft OPA continue to recognize the permission of legally existing uses prior to the adoption of the OPA. However, we understand that the following policy (previously 20.8.1e) has been removed from the updated Draft OPA policies:

e) The redevelopment of existing low-rise commercial centres and uses may occur gradually in a phased manner. Notwithstanding the minimum heights shown on Schedule L2, building additions, alterations and/or replacements may be permitted, where they can be demonstrated not to preclude the long-term redevelopment of the property as set out in this Plan.

We request that this policy be reinstated in the Midtown Oakville Draft OPA policies relative to "Phasing/Transition", as this would clearly allow for "building additions, alterations and/or replacements", so long as they would not preclude the long-term redevelopment of the Subject Site as set out in this Plan. Otherwise, this precludes the existing Home Depot store from any future modifications / expansions to their operations, which does not protect for the existing use (as even a

minor expansion such as a garbage enclosure would not be considered part of the existing use). A policy that clearly allows for “building additions, alterations and/or replacements” more effectively protects for the existing use and potential minor modifications/expansions to the existing and its operations.

2. Previous Section 20.8.4 (Landowners’ Agreement(s) / Cost Sharing) – Removed

We appreciate that the Town has considered our previous comments by removing the previous Section 20.8.4 of the previous Draft OPA relative to Landowners’ Agreement(s)/Cost Sharing. We support this policy removal as per the updated Draft OPA.

3. Section 20.6.3 (Area Design Plans) (previously Section 20.8.2 – Block Design Plans)

While the policies of this section in the updated Draft OPA now make reference to “area design plan” requirements instead of a “block context plan” (as per the previous Draft OPA), these policies still require applicants submitting “any development application in Midtown Oakville” to submit an “area design plan”. It is requested that the Town clarify the specific “development applications” that would trigger this requirement and revise this policy language accordingly, given that “any development application in Midtown Oakville” covers a very broad range of applications that require approval under the *Planning Act*, including applications that may not warrant this requirement (e.g. minor variance applications, minor site plan amendments).

4. Schedule L3 (Midtown Oakville Transportation Network)

The current proposed future road network as shown on Schedule L3 (Midtown Oakville Transportation Network) of the updated Draft OPA has not been revised to reflect the existing Home Depot store operations (i.e. parking, access, loading, etc.). In fact, the “Future 26m Collector Lane (2-Lane)” and “Future Bike Lane” as shown on updated Draft OPA Schedule L3 continues to bisect the existing Home Depot store at the south end, as opposed to following the existing driveway alignment that clearly avoids the existing store and its operations. As such, and regardless of Policy 20.3.5d) of the updated Draft OPA (which identifies that changes to Schedule L3 will not trigger an OPA), our client continues to take issue with any future (final) road alignments that compromise the function of the Home Depot store (which Schedule L3 clearly continues to do). Considering that Home Depot does not have any long-term redevelopment intentions at this time, its store operations cannot be compromised, even through general layouts that clearly do not work with the current store operations. Given that we know that this currently alignment is not functional and compromises the existing Home Depot store, this should be corrected now (before being adopted by Council), as opposed to being addressed through any future application(s) and associated studies.

Our client reserves the right to respond accordingly following Council’s decision on the Draft OPA, including any other issues that may arise through our review of the final OPA.

If you have any further questions please do not hesitate to contact the undersigned.

Thank you.

Yours truly,
MHBC



David A. McKay, MSc MCIP, RPP
Vice President and Partner



Andrew Palumbo, MCIP, RPP
Associate

cc.: *Geoff Abma, Town of Oakville*
Kimberly Koenig, Home Depot

June 7, 2022

Mayor Burton and Members of Council
c/o the Town Clerk
Town of Oakville, Clerk's department,
1225 Trafalgar Road, Oakville, ON L6H 0H3

TownClerk@oakville.ca

Dear Mayor Burton and Members of Council:

**RE: PROPOSED MIDTOWN OAKVILLE PLAN AMENDMENT
359 DAVIS ROAD
OUR FILE: 17270A**

Kard Properties Limited, owners of land at 359 Davis Road, have retained MacNaughton Hermsen Britton Clarkson Planning Ltd. (MHBC) to represent their land interests in Oakville, Ontario. The property is located south of the QEW highway and east of Trafalgar Road central to the Midtown Oakville area. Kard Properties, through MHBC, is grateful that the Town of Oakville Council is receiving property owner comments and recommendations regarding the proposed amendment to Livable Oakville, under the *Planning Act*.

The virtual statutory public meeting on June 7 is being hosted by the Town to receive feedback with respect to revised Midtown Oakville policies through section 20, and applicable Schedules L1 to L4 (Land Use, Density, Transportation Network, and Public Realm) and replace the section with new policy text and schedules forms the basis of our input. The following provides an overview of: subject land context; previous comments submitted to the recent Midtown Oakville Official Plan Amendment (OPA) of 2017 and 2021; the impact of the proposed policies on the subject lands; and recommendations regarding the amendment.

Subject Lands: Context

The subject lands are contained within the policy area boundary of Midtown Oakville. This area is identified as the Town's Urban Growth Centre, and is currently designated 'Office Employment' within the Trafalgar District on Schedule L1, Midtown Oakville Land Use of the Livable Oakville Plan.

The subject property is approximately 0.51 ha (1.26 acres) in area and is located on the east side of Trafalgar Road, south of the QEW with frontage along Davis Road. There is an existing two storey structure on site that contains a commercial servicing use (auto collision repair) with a building footprint occupying 50%+ of the lot. To the east and west are existing one storey structures, and to the south is a six storey office building surrounded by three large areas of paved surface parking lots.

A significant number of adjacent parcels of land are vacant (or contain surface parking) as a result of current and ongoing appeals to OPA 4 (Midtown Oakville) and Zoning By-law 014-2014 (“InZone”). The zoning by-law appeals pertain to proposed Part 7, Schedule 19(8b) and through Table 7.2: “legal uses of land, buildings, and structures existing on the lot as of the effective date of this By-law.” (Feb. 25, 2014). The proposed amendments and subsequent appeals have resulted in vacant and unbuilt lands in the surrounding area of the subject lands.

Previous Submissions – 2017 and 2021

On September 20, 2017, Kard Properties voiced their concerns in a written submission to Town of Oakville Planning Services Department staff, regarding a Town-initiated Official Plan Amendment to the Transportation Network. Part of the amendment proposed a road realignment of Cross Avenue (By-law 2017-082, File No. 42.25.004). While supportive of the proposed OPA Schedule L3 transportation network, the submission noted that the Town-initiated Official Plan Review was proposing a new transportation network through a revised Schedule L3. The comments were as follows:

*Under the Official Plan Review, a future 28 metre minor arterial road (Cross Avenue extension) is proposed to extend in an east-west direction, therefore horizontally bisecting the subject lands. This new vision for the Transportation Network throughout the Midtown presents major issues for all of the properties located on the north side of Davis Road, including the subject lands. Furthermore, the proposed road configuration would be running through existing occupied buildings. The future 28 metre minor arterial road would negatively impact the subject lands as they are currently occupied by a building with surface parking which appears to be horizontally bisecting the subject lands, and running through the center of the existing building.
<Kard Properties is> not supportive of the current road configuration as consideration to existing businesses in the area should be included as part of any future road alignment patterns.*

Council should be advised that existing businesses were not included in any discussions for the current and proposed Cross Avenue extension and its impacts to landowners.

Similar concerns were raised in 2021 with respect to the transportation network and the 28 metre minor arterial horizontally bisecting the subject lands.

Midtown Oakville: Proposed Official Plan Amendment Draft Policies Applicable to Subject Land

The Town of Oakville proposes to repeal all of Livable Oakville’s section 20, Midtown Oakville policies, as well as Schedules L1 to L3, and replace it with revised policies and schedule maps. The purpose of the amendment, in part, is to reflect Halton Region’s delineation of the Oakville GO Major Transit Station Area (MTSA) boundary and to impose a new grid transportation network throughout the area. The revised vision for this MTSA is intended to create a transit-supportive and complete community with the town’s highest density mix of residential, commercial institutional and community uses. Midtown Oakville is an urban growth centre with a planned minimum gross density of 200 residents and jobs combined per hectare – a minimum 20,600 residents and jobs.

20.3.3 Public Realm

Midtown Oakville is intended to feature public realm comprised of public streets, parks and open spaces as well as privately-owned publicly accessible open spaces – designed

to create a desirable place for residents, workers and visitors alike. Schedule L4 identifies where the public realm elements are intended to be located.

While the majority of policies are tied to Schedule L4, we note that policy 20.3.3(m) reads as follows, *“In addition to the parkland identified on Schedule L4, a minimum of 5 percent of the site area should be provided through the development as privately-owned publicly accessible open space at grade that is connected and integrated with the public realm.”*

We would like clarification on this item, as it appears to be requesting that each development provides a minimum of 5 percent as privately-owned publicly accessible open space in addition to required parkland contributions that will be required under redevelopment scenarios. We request clarification as to whether the additional 5 percent is being credited (fully or partially) towards a development's overall parkland contribution.

Several key proposed amendments include:

- Reconfiguration of Roads
Existing roads and road networks are proposed to be abandoned, realigned, widened or replaced based on the new Schedule L3: Transportation Networks.

Schedule L3 has been revised from previous versions and now shows the new arterial road aligned with Davis Road. We do note that the right of way width of the arterial has been modified from 28 metres to 35 metres. Davis Road is identified as a multipurpose arterial road.
- Block Design:
Development blocks formed through the planned transportation network are to be designed comprehensively. Where Block Design cannot be consolidated, it is anticipated that development will not preclude the development of the remainder of the block.
- Built Form:
It is intended that the tallest buildings will be located in Midtown Oakville and will be of high quality architecture and detail to help create an active pedestrian environment and distinct skyline. Towers are to be separated by 25 metres apart, and podium bases for tall buildings should be no greater than 80 percent of the width of the adjacent right of way, but no taller than 6 storeys. Rooftop amenity and green roofs is encouraged.
- Development Density:
In lieu of maximum heights, Schedule L2 has been modified to be expressed as FSI. The subject lands are identified as having a density ranging from 4.0 to 10.0. The portion of density on a lot that is to be transferred to the Town can be transferred to the retained lot or block as increased density beyond the maximum density prescribed. In addition, development density allows for exclusions from the overall density calculations. The policies also includes a maximum height cap for all of Midtown of 255 metres. Lands for public parks, community uses operated by a public authority, and above ground parking structures operated by a public authority are excluded by the minimum density calculations.

- Phasing/Transition:
Existing buildings and uses will be permitted to continue, but are intended to redevelop as envisioned by the proposed policies and schedules. Redevelopment of Midtown is subject to the availability of required infrastructure.
- Parking:
Reduced and maximum parking standards shall be considered in implementing zoning by-laws. Parking structures above grade that abut a road, other than a local road, shall incorporate commercial office, or residential uses between the exterior walls and area designated for parking.
- Area Design Plan
An Area Design Plan may be required at the discretion of the Town. The Area Design Plan is required to demonstrate a variety of items including, but not limited to the following:
 - An approved terms of reference;
 - Comprehensive development scheme for the entirety of the block;
 - Identify built form, density and building heights as well as mixture of uses, and housing types including affordability;
 - Identify road patterns including active transportation, transit facilities, streetscape and public realm enhancements and on-street parking;
 - **Address coordination with land uses**, road patterns, and conceptual redevelopment of lands outside, but adjacent to, the lands which are the subject of the area design plan;
- Schedule L3: Midtown Oakville Transportation Network
Davis Road is proposed to be maintained and widened into a 4 lane, 35 metre cross-section following existing road patterns although the final road alignment will be subject to further study.

South Service Road East appears to be maintained for the segment paralleling Trafalgar Road, between Trafalgar Road to the south and northward to the rear of the Subject Lands. South Service Road will loop back into the existing road network for Midtown.

Impacts for 359 Davis Road

The proposed amendment to the Midtown Oakville Official Plan policies will have both positive and negative impacts:

- Positive Impacts
 - Increased development density
 - Increased population and employment densities
 - Realignment of arterial road, subject to further study.

The proposed policies that allow for greater densities will support investment and population/job growth in the area.

- Negative Impacts
 - Creation of a non-conforming use
 - Private land investment converted to a public road
 - 35 metre cross-section arterial road along Davis Road
 - Block Design/Area Design Plan

Overall, the proposed policy modifications and realignment of road appear to be a positive with respect to the property at 359 Davis Road. We have concerns with the general right of way widths as Davis Road is proposed to almost double in width, which equates to a road taking of almost 10% of the subject property area. While we recognize that density transfers are permitted, the loss of land along with the requirement of an additional 5% of land for publicly accessible private space in addition to the parkland requirements will make redevelopment of the lands very challenging. We also note that the potential requirement for an Area Plan and Block Design requires willing neighbours/landowners to participate in such a process and may be challenging depending on individual circumstances.

Policy Recommendations

Having reviewed the proposed new policies for section 20 of Livable Oakville that will guide development of Midtown Oakville to 2031, under the current Halton Region Official Plan (ROPA 48), and recognizing that Halton Region intends to adopt ROPA 49, which will guide development to 2051, the following recommendations are provided for consideration:


1. Maintain the proposed road network of the current Schedule L3 Midtown Oakville Transportation Network, but revert back to the rights of way widths that were originally provided as the intent of the right of way was generally identical. Let an EA process dictate the appropriate right of way widths. If the intent is that the public realm is going to fully be provided with the Town's increased right of way, then the public realm policies should be modified to reflect this. It would be beneficial to see how a 35 metre cross section is envisioned for Midtown.
2. Add policies that identify how the Town will provide land exchanges at fair market value for any properties that are made undevelopable as a result of the new road network.
3. We are interested to see how the new Midtown Oakville policies will be coordinated with the Community Benefits Strategy and Community Benefits Charge By-law (CBC), and the role that the Town will play in the provision of community benefits.
4. Clarity with respect to the separation of public and private open spaces and parks and credit thereto.

We appreciate the Town's consideration for the above-policy modifications and also appreciate the Town's revisions to the transportation schedule as it relates to the alignment of the Davis Road. We do question the right of way width proposed as it's significantly wider than previous versions, so we would like additional information with respect to this to understand the rationale.

Thank you.

Yours Truly,

MHBC



Oz Kemal, BES, MCIP, RPP

cc. G.Bryant, D.D'Silva, R.D'Silva, Tony Canade, K.D'Silva, J.Meader



Tuesday, June 7, 2022

Town of Oakville
1225 Trafalgar Road,
Oakville, Ontario
L6H 0H3

Attention: | **Geoff Abma, Senior Planner**

Re: | Statutory Public Meeting (June 7, 2022): Midtown Oakville Official Plan Amendment
Formal Comments to the Proposed Amendment to the Livable Oakville Plan

On behalf of 1539059 Ontario Inc. (Client), Corbett Land Strategies Inc. (CLS) together with C.F. Crozier & Associates Inc. (Crozier) are pleased to provide this written delegation to Council for the June 7, 2022, Statutory Public Meeting.

Our client owns the lands legally described as Part of Lot 12 Concession 3 South of Dundas Street, Town of Oakville, municipally known as 349 Davis Road (Subject Lands). The Subject Lands are located south of Queen Elizabeth Way and east of Trafalgar Road. The lands are occupied by an existing one (1) storey brick office building operated by Powell Insurance Brokers. The lands have a total site area of 0.42 hectares (1.05 acres) with a frontage of approximately 54 metres onto Davis Road.

Purpose

Through this submission, we would like to provide comments on the Draft Midtown Oakville Growth OPA, dated May 12, 2022. The comments presented in this letter are related to areas of interest including Cross Avenue realignment and the proposed land use designations. We would also take this opportunity to introduce to Council the proposed development of the subject lands with a mixed-use 20-storey building comprised of commercial, office, and residential apartment uses, which is further described in the sections below. The relevance of this project is to make Council aware of the current development interests of the Client on their land holdings and to illustrate potential impacts of the proposed OPA on development. Please note, the proposed mixed-use development on the subject lands has been presented to staff on two preconsultation meetings (as further detailed below).

In support of this submission, a letter prepared by C.F. Crozier & Associates Inc. (Crozier), has been appended which provides a summary of their review and professional commentary and analysis of the Midtown Oakville Class Environmental Assessment (MOCEA) (2014) findings along with the Liveable

Oakville Plan (2021) and draft Midtown Oakville Official Plan Amendment Schedules L1-L4. Crozier's review and commentary is directly related to the road realignment. It is our full intent with this review to provide alternative road realignment options as presented in the letter. Please see Appendix B for the full letter of memorandum.

The proposed amendments are intended to enable the Town's highest density mix of residential, commercial and community land uses within this Major Transit Station Area (MTSA). Our client wishes to advance a specific development proposal for their lands at 349 Davis Road that will directly implement the planning objectives for this MTSA. Unfortunately, the proposed official plan amendment for Midtown Oakville eradicates the development potential for these lands, through the imposition of a new road network design (Cross Avenue extension) and parkland designation.

Background

On November 23, 2021, CLS submitted its formal comments to the Draft Midtown Oakville Growth OPA, dated February 2022. The comments included concerns regarding the proposed extension of Cross Avenue based on the approved EA, which would ultimately result in an expropriation that would create land fragmentation which will greatly undermine the development potential of the subject lands and broader area.

Following this submission, a preconsultation meeting was convened with Town staff to present the proposed development. A second preconsultation meeting was held on May 11, 2022, to provide further detail and was attended by the Client's architect, Studio VMA and Crozier Engineering Consultants, who are the civil and traffic engineers for the project.

To date, a new version of the Draft Midtown Oakville Growth OPA, dated May 12, 2022, has been issued. The proposed Cross Avenue extension and the introduction of a park designation, which recently introduced in the May 2022 Draft OPA, impedes the ability for the landowners and potential developers to develop the lands and contribute to the density targets by the Town of Oakville.

Proposed Development

The proposed mixed-use development will comprise of a 20-storey mixed-use building which consists of six (6) units of commercial, ten (10) units of office, and 97 units of residential apartment. It will have two (2) levels of underground parking, three (3) levels of above-ground parking, and surface parking located at back of proposed building with a total of 238 parking spaces. Furthermore, the proposed development will incorporate landscaping features that will contribute to the envisioned public realm by the Town of Oakville and will provide roof top amenities for future residents.

The proposed development aims to provide for a building that is aesthetically pleasing and contributes to the overall public realm experience. Retail spaces are proposed on the ground floor which will encourage pedestrian activity along Cross Avenue. Other architectural elements of the building are envisioned to include above-grade levels setback to be in keeping with urban design guidelines, landscaping features, screened above-ground parking, and an overall architectural focus on the building corner to facilitate the creation of a space for the public to experience positively. Moreover, amenities including roof tops terraces for gatherings are envisioned. The proposed units will be a mix of one-to-three-bedroom units' conducive for households of all types of incomes and sizes.

The overall development will assist the Town of Oakville to achieve its density and intensification target as the proposed development will have a population yield of approximately 154 residents and an employment yield of approximately 79 employees.

Formal Comments to Draft Proposed Midtown Oakville OPA, dated May 12, 2022

The following are intended to serve as formal comments on the Draft Midtown Oakville Growth OPA.

1. *Road Network Configuration - Schedules L1, L2, L3, and L4*

As illustrated on Schedules L1, L2, L3, and L4, the new road configuration is proposed to dissect the subject lands which in turn would create two undevelopable parcels, proposed to be designated as “Urban Core”, and “Parks and Open Space”.

We understand that there is a perceived need to realign Cross Avenue for better urban mobility in Midtown Oakville. However, the proposed extension of Cross Avenue would result in a potential expropriation of lands which will unnecessarily fragment the land and would undermine the development potential of the area. The expropriation of lands limits the landowners and potential developers to develop and contribute to the required density targets by the Town of Oakville.

It is the opinion of the development team, that utilizing the existing Davis Road alignment will be more efficient and effective road alignment as this will utilize existing municipal infrastructures and will allow for opportunities for potential development on lands which would otherwise be compromised or expropriated, such as the subject lands and/or those located at the north side of Davis Road. This alternative option would maintain a grid network of streets which would be more attractive and encouraging to pedestrians and non-automobile forms of transportation navigating the urban area as envisioned in the Midtown Oakville Secondary Plan. Further, by maintaining the existing road network, it would allow the future developments of lands along Davis Road to achieve density targets more expeditiously through the creation of regular size and shape parcels.

We respectfully ask that the Town to provide further information on the rationale for the new proposed realignment of Cross Avenue. Specifically, we would like to understand the rationale behind abandoning the existing road network in favour of creating a new road network which would be more costly and result in minimal transportation improvements. We respectfully request to be provided with a cost/benefit analysis to assess the planning merits and impacts of the proposed road extension.

Overall, we would like to request from the Town reconsider the direction of the realignment of Cross Avenue and provide rationale as to why the extension of Davis Road is not considered within the preferred road realignment.

2. *Land Use Designations, Density and Intensification Targets*

The designations proposed on the subject lands are “Urban Core” and “Parks and Open Space”. In reviewing the schedules, it appears that the fragmentation of the subject lands, as a result of the

preferred road network (as noted above), have resulted in the assigned designation unsuitable for designation as “Urban Core”. It is our opinion that these small parcels of lands be designated as “Parks and Open Space” and 349 Davis Road should be designated as entirely Urban Core (See Figure Below).

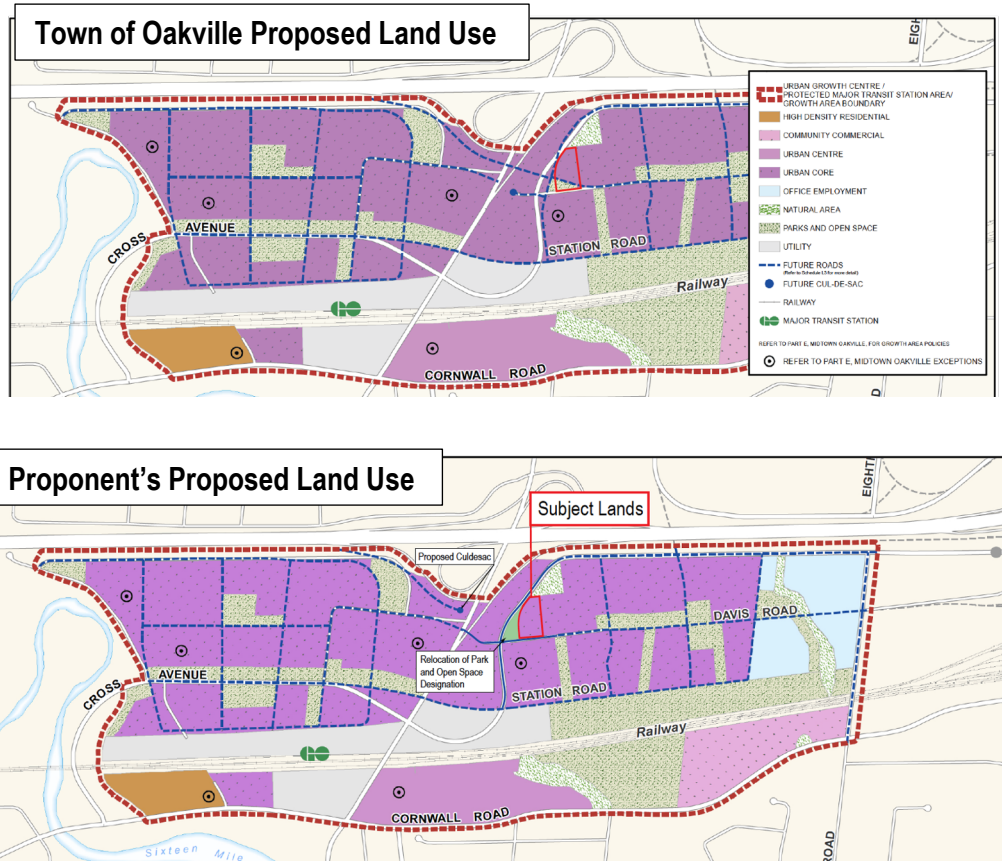


Figure 1 – Proposed Land Use Designations

In reviewing the policies permitted within the “Urban Core” and “Urban Centre” designations and the proposed new densities for the Midtown Oakville area, we observed a disconnect between the proposed density and permitted uses. While the proposed densities shown on Schedule L2 encourages intensification, the draft OPA lacks specificity on the type and location of permitted uses within these designations.

Further, the intent of the Draft OPA is to create a transit oriented and complete communities supported by extensive parks and open spaces. However, designations of parks and open spaces into the Midtown Oakville alone will not guarantee active and passive recreation uses. Instead, appropriate uses such as mixed-use development which encourages intensification and pedestrian activities in an urban setting can be more fulfilling to achieving these goals. Other uses that will complement park and open space uses includes community facilities, cultural uses including commercial galleries, and mixed of retail and office uses.

This sentiment is a central pillar for the proposed development for the subject lands as it will assist the Town of Oakville in achieving its overall vision for the Midtown Oakville Urban Growth Centre. The proposed development will yield an appropriate density for a total population of approximately 154 residents and an employment yield of approximately 79 employees. The proposed mixed-use building will maintain the urban design policies and guidelines as identified in Livable by Design Manual and guidelines in Designing Midtown Part 1 and 2.

It is our opinion that planning staff explore permitted uses that will encourage intensification and achieve the density targets for the Town. For instance, specify what permitted uses are allowed on lands fronting a main street, and permitted uses allowed on lands fronting a promenade. Identifying the permitted uses in these areas will assist the town to achieve a transit oriented and complete community for Midtown Oakville.

3. *Urban Form*

In addition to the above comment, the objectives presented in the draft official plan specifically states:

- “20.2.1 *To create a vibrant, people-oriented, transit-supportive and urban complete community;*
- 20.2.2 *To created transit-supportive communities; and,*
- 20.2.3 *To enable the evolution of Midtown Oakville as an urban growth centre and the Town’s primary growth.”*

The draft OPA describes that the Midtown Oakville growth centre shall be designed with a compact urban form with tall and midrise buildings framing a pedestrian-oriented public realm that promotes walking, cycling and transit use. While the revised schedules support this objective through a range of density targets and designated areas for natural area, and parks and open space, the policies presented in the draft does not achieve the type of urban form the town envisioned for Midtown Oakville.

We encourage planning staff to explore and specify the type of compact urban form for Midtown Oakville. Policies should imply how the town will encourage multi-modal transportation and how to facilitate public transit ridership through permitted uses such as a mix of residential, commercial, institutional, parks and open space, environmental and employment uses.

Furthermore, to direct new developments in the Midtown Oakville, policies should include a schedule that demonstrate where the concentration of activities should be located as this will assist in identification of residential communities, promote the evolution and growth of Midtown Oakville, and provide opportunities for multi-use institutional and community facilities.

Policies should also specify what range of commercial uses and identify location of these uses in the draft official plan. This will promote the development of a mixed-use residential and commercial shopping district focused on the main street and urban squares. This will also establish the mixed-use residential and commercial shopping district as an integral component of a pedestrian-friendly urban environment which is conveniently accessible by public transit, bicycle, and on foot from the

surrounding community. Lastly, it should be specified in the plan to direct auto-oriented retail uses and large single storey retail uses be located outside of Midtown Oakville growth centre area.

Given the above, permitting the proposed development of a 20-storey mixed use building will assist the town with their density and intensification targets, and achieving a compact built form contributing to a transit-supportive, active, and vibrant public realm and complete community envisioned for the Midtown Oakville urban growth centre.

4. *Midtown's Main Streets*

The draft OPA describes that Davis Road shall become an active urbanized main street that is to become a spine of the Midtown neighborhood. Realigning Davis Road would reverse this intention and designating the lands to Parks and Open Space does not guarantee active pedestrian activities and vibrant public realm. The proposed designation undermines the potential of the subject lands to not only contribute to the density and intensification target but also to not achieving a transit-oriented and complete community that the Official Plan is envisioning.

However, creating policies which facilitate the proposed mixed-use development on the subject lands will contribute to an urbanized main street for several reasons. The proposed retail commercial fronting Davis Road will create an active frontage which will encourage pedestrian activities. The proposed commercial uses will be designed to complement its streetscapes to enhance the public realm.

Allowing the redevelopment of lands on 349 Davis Road will provide retail/commercial services to the adjacent six (6) storey office building located at 354 Davis Road. The commercial component of the proposed mixed-use building will accommodate retail spaces, and restaurant spaces which will create a pedestrian hub for local activities, thus, maintaining the intention and purpose of the draft OPA.

Road Realignment: QEW Off Ramp and South Service Road Reconfiguration

As mentioned, the proposed extension of Cross Avenue will result in the land fragmentation and eventual expropriation of the subject lands which would undermine the development potential of the subject lands. Crozier Engineering has prepared a Transportation Impact Study in support of the proposed mixed-use development located at 349 Davis Road. Crozier evaluated the transportation related impacts of the proposed development on the boundary road network and determined that the development can be accommodated within the existing road network within impact.

Through the approved Study Terms of Reference, a horizon year of the expected full development buildout (2025), along with the five-year (2030) and ten-year (2035) horizons were used for the purposes of analysis. Growth rates were established through the Terms of Reference correspondence and applied to the existing traffic volumes to forecast future background traffic growth. The following background developments in the study area were identified and accounted for under future background conditions.

- 157 Cross Avenue
- 271 Cornwall Road and 485 Trafalgar Road
- 320 Davis Road

- 166 South Service Road East (2030 and 2035 horizons only)

Traffic Generation Chart

Intersection	Control	Level of Service		
		2025	2030	2035
Trafalgar Road and QEW WB ramps / North Service Road E.	Signal	C	C	C (AM) D (PM)
Trafalgar Road and QEW EB ramps	Signal	C	C	C (AM) E (PM)
Trafalgar Road and South Service Road East / Cross Avenue	Signal	D	D	D
Trafalgar Road and Cornwall Road	Signal	C (AM) D (PM)	C (AM) D (PM)	D
South Service Road East and Davis Road	Signal and Stop (Minor)	B	B	B (AM) A (PM) and C (AM) B (PM)
South Service Road East and 320 Davis Road Access	Stop (Minor)	-	-	B
Davis Road and Site Access	Stop (Minor)	A	A	A

The boundary road network is expected to operate adequately into the 2035 ultimate horizon year. The addition of site generated traffic to the boundary road network is not expected to materially impact traffic operations. Therefore, the proposed development is supportable from a traffic operations perspective. The traffic generation in the area is minimal that is does not warrant the extension of Cross Avenue.

The traffic generated from the proposed residential development will not materially impact operations of the boundary road network. The Official Plan Amendment and Zoning By-Law Amendment (ZBA) applications for the 349 Davis Road residential development can be supported from a traffic operations perspective as the boundary road system can accommodate the minor increase in traffic volumes attributable to the proposed development.

Impacts of the Road Realignment

Given the above, it is our opinion that the impact of realignment of road realignment are the following:

- The proposed extension will impede development that is now highly desired by the Secondary Plan. It is imperative that a Cost Benefit Analysis is provided that will show the feasibility of the extension to the site.

- The proposed extension will create land fragmentation which will greatly undermine the development potential of the area.
- The proposed realignment is unsustainable based on our conducted traffic study, the traffic generation in the area is minimal and does not warrant the extension of Cross Avenue.

We request planning staff to highly consider utilizing the existing Davis Road alignment for the proposed extension to be more efficient and sustainable as this alternative option will both utilize existing municipal infrastructures.

Recommendation

The Client's Transportation Engineer conducted a review and provided commentary and analysis on the MOCEA findings along with the Liveable Oakville Plan (2021) and draft TIMO-OPA Schedules L1-L4. Please see Appendix B for the full letter of memorandum prepared by Crozier Consulting Engineers.

The following are the recommendations presented by Crozier:

1. The "Cross Avenue off-ramp underpass" should not be pursued as part of the Midtown Oakville Road Network for the following reasons including:
 - a. Alternatives for realignment should be explored given the volume forecast by the MOCEA Synchro Analysis and the potential cost of the Cross Avenue underpass.
 - b. It is expected that a sizable portion of the traffic demand attributable to the Cross Avenue off-ramp underpass in the MOCEA 2031 preferred network will instead utilize this off-ramp should it not be built. Operations at the off-ramp are expected to be free flowing and no major impacts beyond the findings of the MOCEA to the intersection of the off-ramp/Cross Avenue and Chartwell Road is forecast.
 - c. An alternative realignment on Chartwell as opposed to the Cross Avenue off-ramp is expected to provide similar overall operations to boundary road traffic at a lesser cost.
2. A mid-block connection at Eighth Line / Chartwell Road should be pursued rather than the MOCEA location. Please refer to Schedule B for further information.

Although we are largely in support of the Midtown Oakville proposal and the draft OPA proposal, we respectfully request the Council and Town of Oakville planning staff to consider the following request:

- Change land-use designation of the 349 Davis Road lands from "Park and Open Space" to "Urban Core".
- Elimination of the QEW Off- ramp underpass connection to South Service Road and retain existing configuration of South Service Road.
- Retain the existing 2-lane Davis Road as a local roadway for the segment west of the North-South Road.
- Consider relocating the North-South Roadway to the Chartwell Road/ Eighth Line location to enhance north south traffic flow similar to Trafalgar Road and eliminate external traffic through the core of the Midtown Oakville lands.

Through this submission, we would like to enclose the following materials for your review, which are intended to support the provided commentary :

1. Proposed Mixed-Use Development Site Plan Package, prepared by SVMA, dated April 8, 2022;
2. EA Road Network Adjustments Memo Letter, prepared by Crozier, dated June 2022; and,
3. Traffic Impact Study (Draft), prepared by Crozier, dated May 2022.

We hope that the above comments will be considered in the approval of the Draft Midtown Oakville Growth OPA. We will continue to participate in the discussions on this important endeavour and appreciate the effort gone into this work to date. Please do not hesitate to contact the undersigned should you have any questions or required anything further.

Sincerely,

John Corbett

John B. Corbett, M.C.I.P., R.P.P.

Corbett Land Strategies Inc.

President

john@corbettlandstrategies.ca

Schedule A – Proposed Mixed-Use Development Site Plan Package

Schedule B – EA Road Network Adjustments Memo Letter

Schedule C – Traffic Impact Study (Draft)

Schedule D – 349 Davis Road Map Overlay

Schedule A
Proposed Mixed-Use Development Site Plan Package

349 Davis Road : Proposed Mixed-Use Development

**Second Preconsultation Meeting
May 11, 2022**

Location & Description



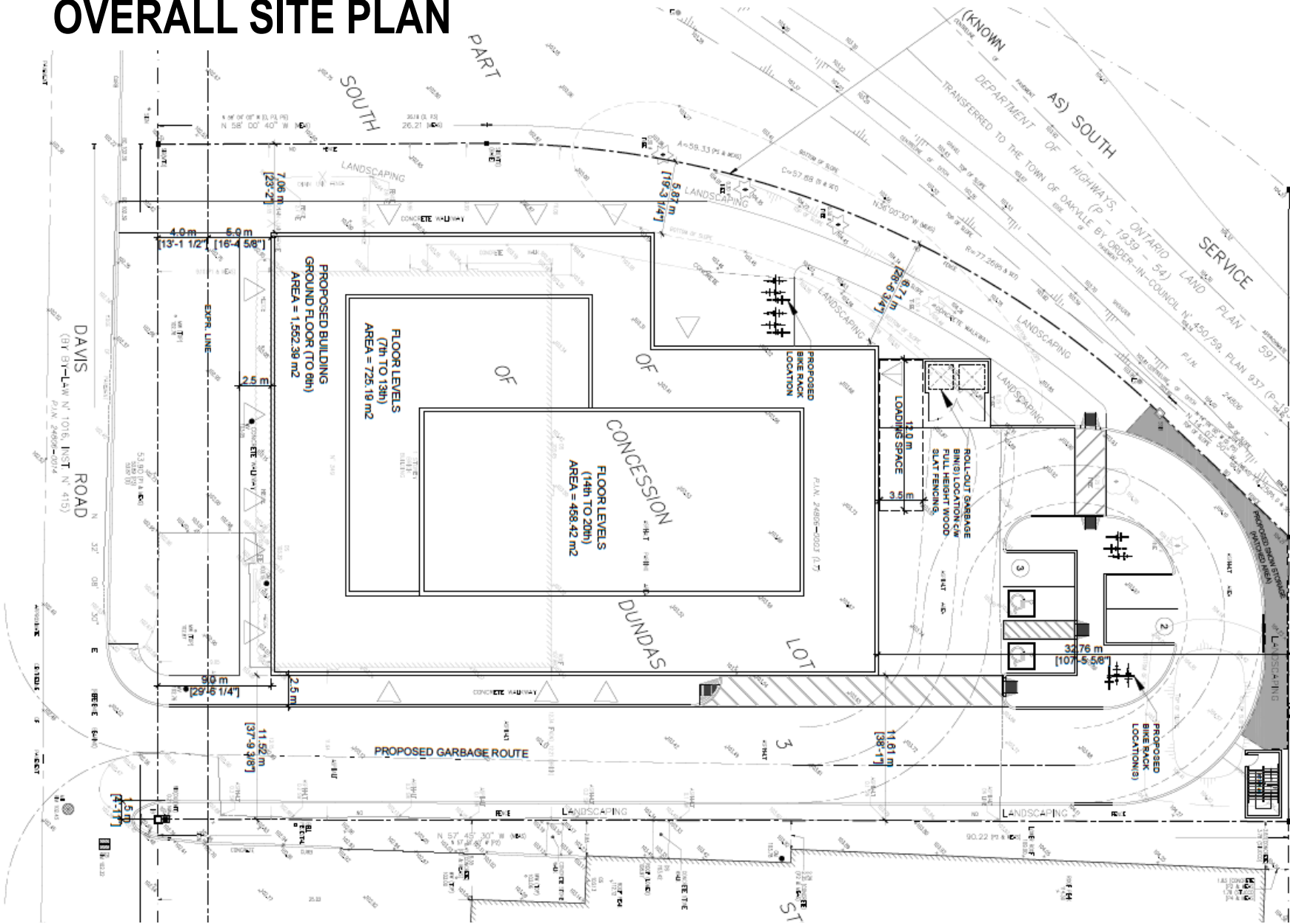
Legal Description: Part of Lot 12
Concession 3 South of Dundas Street

Municipal Description: 349 Davis Road,
Town of Oakville

Total site area: 0.42 hectares (1.05 acres)

Existing use: One (1) storey brick office
building occupied by Powell Insurance
Brokers.

OVERALL SITE PLAN

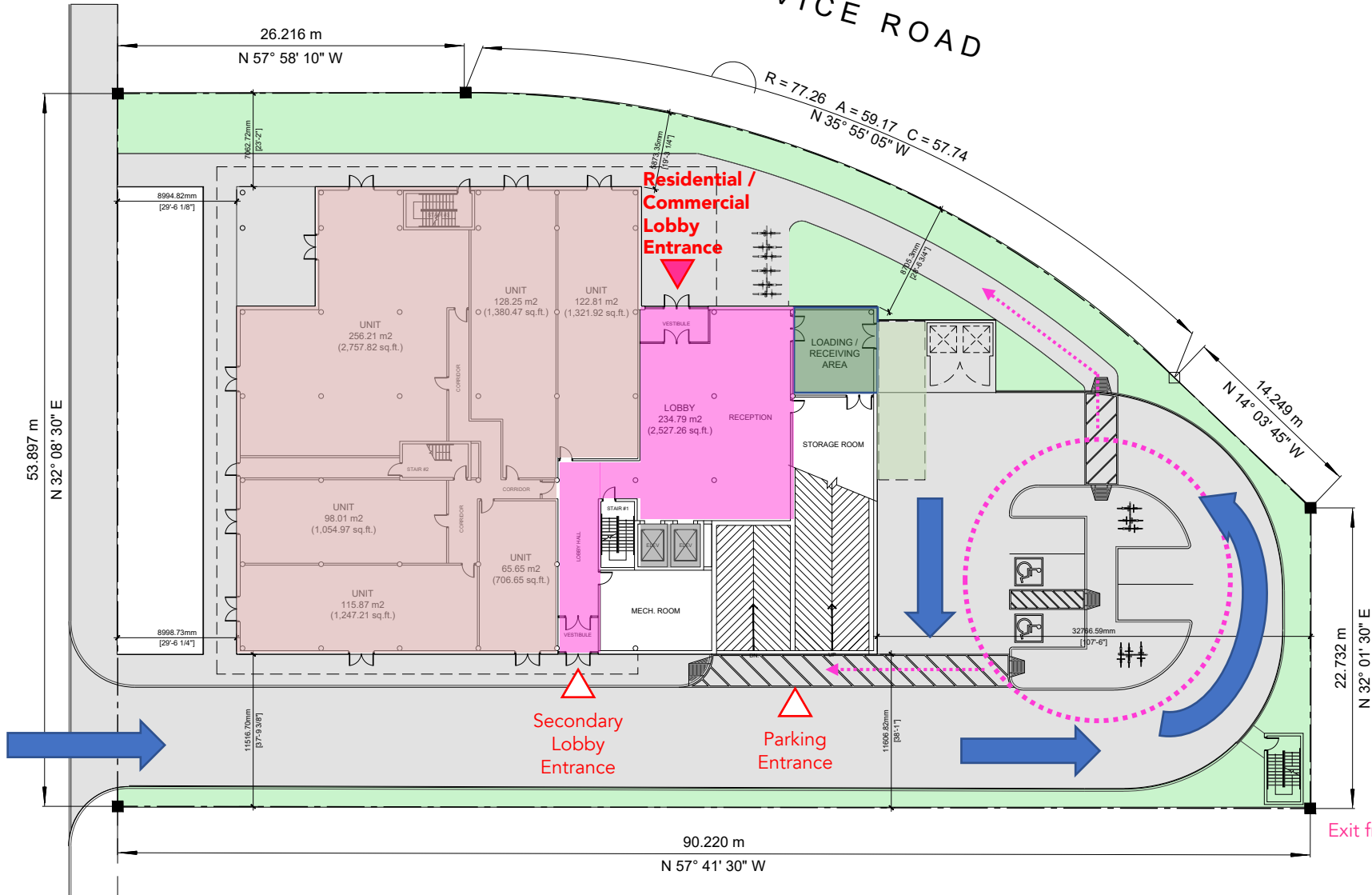


ZONING STATISTICS By-law 2014-14		
Zoned MTE - Midtown Transitional Employment		
Proposed MU4 Mixed Use Zone - Urban Core		
MTE REGULATIONS	REQUIRED	PROPOSED
Min. Lot Frontage	Shall be as legally existing as of the effective date of this By-law.	53.90m (existing)
Min. Lot Area		0.42 Ha (existing)
Max. Lot Coverage		36.58%
MU4 REGULATIONS		
Min. Front Yard	1.0m	5.0m (from 4.0m expr. line)
Max. Front Yard	5.0m	5.0m (from 4.0m expr. line)
Min. Interior Side Yard	0.0m	5.87m (W); 11.52m (E)
Min. Rear Yard	0.0m	32.76m
Min. No. of Storeys	8 storeys	20 storeys
Max. No. of Storeys	12 storeys	20 storeys
Min. First Storey Height	4.5m	4.5m
Min. Height	25.5m	61.5m
Max. Height	43.0m	61.5m
Max. Net Floor Area	1,400m ²	1,552.39m ²



DAVIS ROAD

SOUTH SERVICE ROAD



Site Area: 1.05 acres (0.42 ha)
4,243 SM (45,673 SF)

Proposed Bldg Footprint:
1,522 SM (16,709 SF)

Total Area: 17,435.65 SM
(187,675.77 SF)

Lot Coverage: 36.58%

Height to Roof: 61.5m + Penthouse
20 storeys above ground

Parking at Grade: 5 spots total spots
Total Parking: 238 Parking Spaces
(including 7 barrier-free)

Bicycle Parking: 121 parking spaces
(racks)

Loading Spaces: 1



Horizontal Expression
through Balcony

Wind Façade for Above
Ground Parking Enclosure



Residential Amenity
Terrace

Residential Terrace
Vegetation for Sustainability

Sun Shading for Sustainability
Office Terrace

Canopy for Pedestrian Experience

View Looking at South-West Corner
Davis Road and South Service Road

Davis Road

Enhanced Corner Treatment

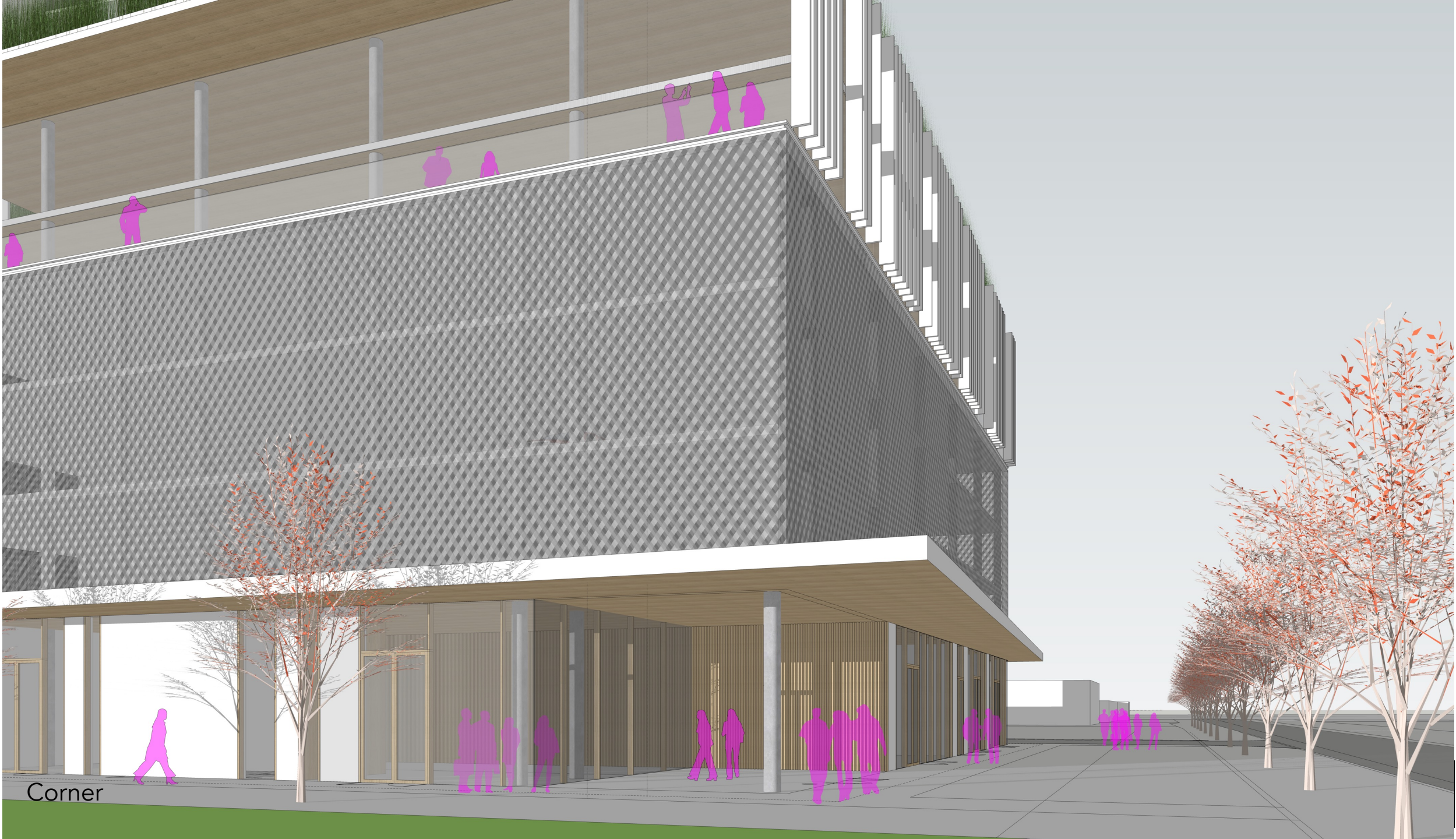




View looking of South-East Corner, Davis Road and South Service Road



View along South Service Road



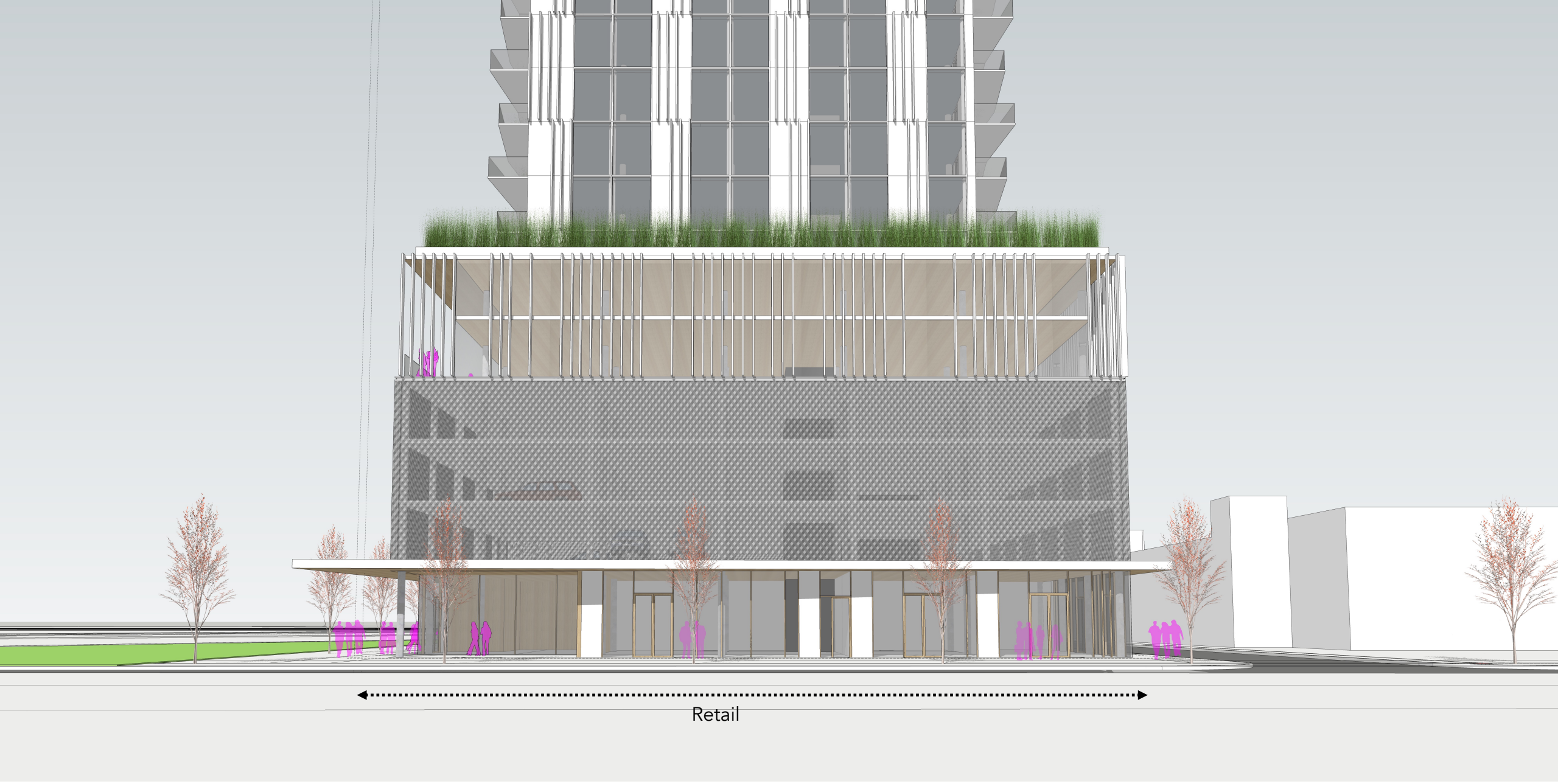
Corner

Vegetated Screen for Loading – Pedestrian Experience



Pedestrian Experience, Residential/Commercial Entrance

View looking east from QEW



View along Davis Road

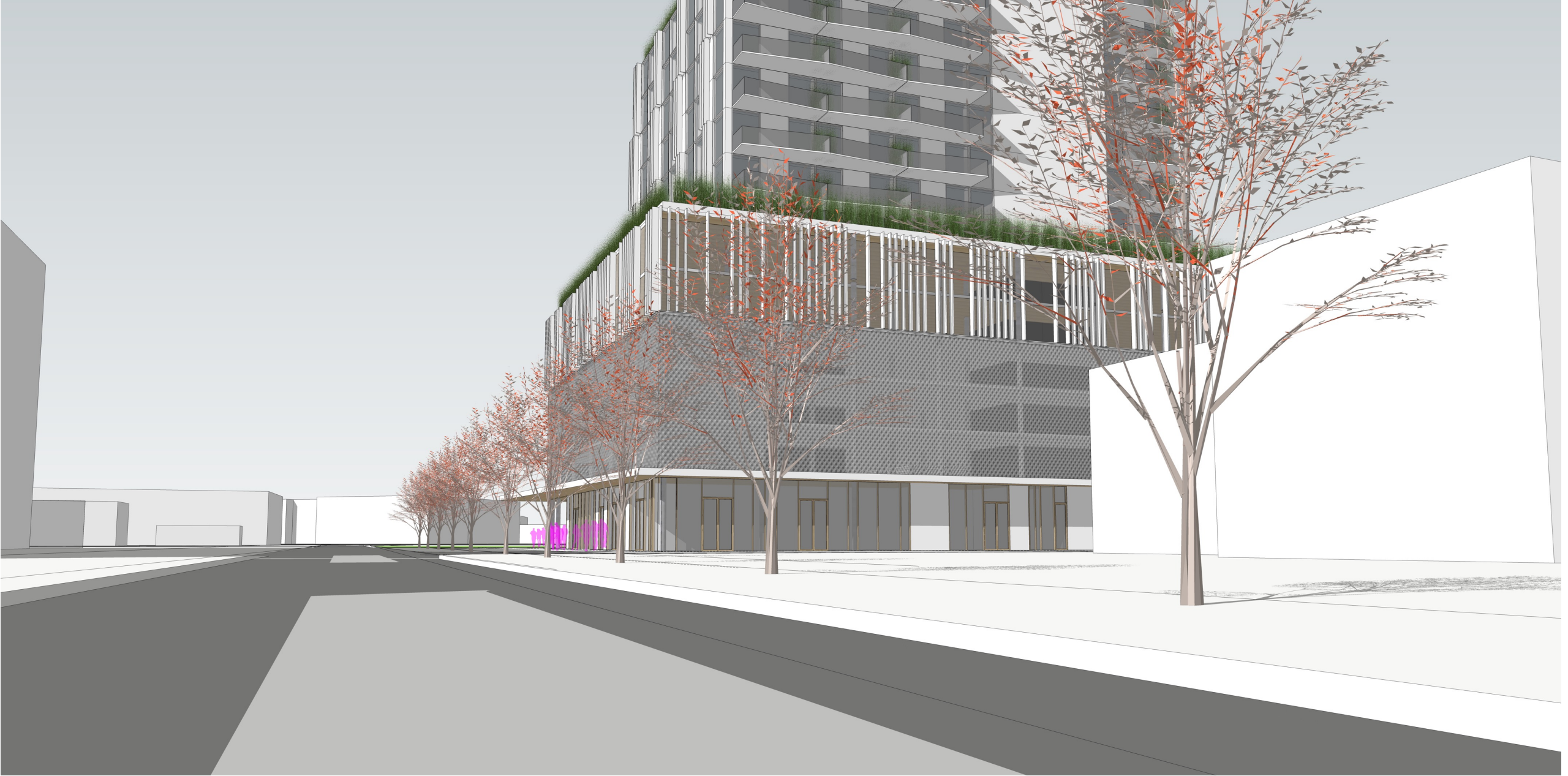


View at Residential / Commercial Entrance



View looking West along Davis Road





View looking West along Davis Road





CORBETT LAND STRATEGIES INC.

VISION • EXPERTISE

Thank You!

Schedule B
EA Road Network Adjustments Memo Letter

JUNE 6, 2022

PROJECT NO: 2259-6324

**SENT VIA: EMAIL
GEOFF.ABMA@OAKVILLE.CA**

Town of Oakville
1225 Trafalgar Road
Oakville, ON L6H 0H3

**Attention: Geoff Abma
Senior Planner**

**RE: STAKEHOLDER COMMENTS LETTER – LIVEABLE OAKVILLE OPA
MIDTOWN OAKVILLE GROWTH AREA REVIEW
PROPOSED FUTURE LAND-USE & ROAD NETWORK ADJUSTMENT**

Dear Geoff,

Corbett Land Strategies (CLS) and C.F. Crozier & Associates Inc. (Crozier) are the Planning and Transportation Engineering consultants respectively for the 349 Davis Road property owned by 1539059 Ontario Inc. CLS and Crozier are currently preparing Official Plan Amendment and Zoning By-Law Amendment applications for the subject property which are anticipated to be submitted to the Town shortly.

On behalf of the Proponent, Crozier and CLS (also referred to as “we”, “us”, “our”) would like to provide commentary on the ongoing Town initiated Official Plan Amendment for the Midtown Oakville area (By-law 2023, dated May 12, 2022), in advance of the related statutory public meeting on June 7, 2022. Specifically, we seek to provide commentary on land use and transportation network adjustments for the Midtown Oakville area that should be considered to support policy objectives and future growth as well as enhance developability of lands including the subject 349 Davis Road lands.

1.0 Background

According to the Liveable Oakville Official Plan (2021), Midtown Oakville is a neighbourhood located north of Cornwall Road and south of the Queen Elizabeth Way (QEW), centred around Trafalgar Road and the Oakville GO Station.

To support the planned intensification of the Midtown Oakville Area, the Midtown Oakville Class Environmental Assessment (MOCEA) was completed in 2014 which outlines infrastructure improvements to accommodate the future growth planned for Midtown Oakville. The improvements outlined in the MOCEA are reflected in Schedules L1 to L3 of the Liveable Oakville Plan (2021). The Town Initiated Midtown Oakville Official Plan Amendment (TMO-OPA) proposes significant changes to Section 20 (Midtown Oakville) of the Oakville Official Plan, including updates to policies, land use and roadway improvements to support evolution of the Midtown Oakville urban growth centre to 2051.

The aforementioned reports, including Appendix C "Traffic Analysis", Appendix F "Evaluation of Alternatives", and Appendix K "Preliminary Design" of the MOCEA were reviewed as part of the preparation of this letter. Refer to relevant background study excerpts in **Attachment-2**

The subsequent sections presents our commentary on potential changes to the MOCEA to further support the urban growth area similar to the goal of the TIMO-OPA and also ensure developability of the 349 Davis Road lands. We trust that our input is timely and will be considered with all other stakeholder inputs that is received at the upcoming statutory public meeting with regards to changes to the Liveable Oakville Official Plan.

2.0 Land-Use Designation

Schedule L1 of the Liveable Oakville Plan identifies the portion of the Midtown Oakville area east of Trafalgar Road as largely office employment lands including the 349 Davis Road site. Schedule L1 of the TIMO-OPA however identifies the subject areas as largely urban core with some areas of park and open space lots.

The subject 349 Davis Road site is identified as partly urban core and partly parks /open spaces. We request that the entire subject lands be designated urban core. The development will assist the Town of Oakville to achieve its density and intensification target as the proposed development will have a population yield of approximately 154 residents and an employment yield of approximately 79 employees.

The proposed mixed-use development will comprise of a 20-storey mixed-use building which consists of six (6) units of commercial, ten (10) units of office, and 97 units of residential apartment. It will have two (2) levels of underground parking, three (3) levels of above-ground parking, and surface parking located at back of proposed building with a total of 238 parking spaces. Furthermore, the proposed development will incorporate landscaping features that will contribute to the envisioned public realm by the Town of Oakville and will provide roof top amenities for future residents.

The proposed development aims to provide for a building that is aesthetically pleasing and will contribute to the overall public realm experience. Pedestrian experience will be provided through above ground retail spaces, architectural elements of the building such as setback towers, landscaping features, screened above-ground parking, and architectural focus on the building corner to create a space for the public to experience. Amenities are provided through roof tops for gatherings. Lastly, the proposed units will be a mixed of one-to-three-bedroom units' perfect for all types of people and family sizes.

3.0 Alternative to QEW EB off-ramp at Cross Avenue

It was identified as part of the MOCEA that the QEW ramp terminal intersections at Trafalgar Road are operationally constrained, and that transportation network improvements are required to alleviate the untenable delays and queues forecasted in the 2031 "Do Nothing" scenario. For example, the microsimulation model results of the "Do Nothing" scenario (detailed in the June 2, 2014, Memorandum by Cole Engineering) outlined maximum queue forecasts beyond 500m, where only 325m and 300m of storage is currently provided. This situation will create operational impacts and safety hazard for mainline QEW traffic, and thus, we concur with MOCEA findings that road network improvements are required to support future growth in Midtown Oakville area.

The road network improvements identified in the MOCEA which support operational improvements specifically for the eastbound Trafalgar Road and QEW ramp terminal are listed below:

- A QEW eastbound off-ramp to Royal Windsor Drive at The Canadian Road and Cross Avenue (westbound only) just west of Royal Windsor Drive.
- An off-ramp connection from the existing QEW eastbound Trafalgar Road off-ramp under Trafalgar Road to Cross Avenue.

We are of the opinion that, while the former improvement is necessary and should be pursued by the Town, the latter QEW eastbound off-ramp underpass improvement to Cross Avenue (herein referred to as the "Cross Avenue off-ramp underpass" should not be pursued as part of the Midtown Oakville Road Network for the following reasons:

- The MOCEA Synchro Analysis forecasts 521 and 84 vehicles on the Cross Avenue off-ramp underpass during the 2031 preferred network a.m. and p.m. peak hours, respectively. Given the subject volume forecast and considering the potential cost for the associated road improvement for the underpass, alternatives should be considered.
- The planned QEW eastbound off-ramp to Cross Avenue (east of Chartwell Road) will provide the lands east of Trafalgar Road within Midtown Oakville with an alternative route to the QEW eastbound off-ramp at Trafalgar Road. It is expected that a sizable portion of the traffic demand attributable to the Cross Avenue off-ramp underpass in the MOCEA 2031 preferred network will instead utilize this off-ramp should it not be built. Operations at the off-ramp are expected to be free flowing and no major impacts beyond the findings of the MOCEA to the intersection of the off-ramp/Cross Avenue and Chartwell Road is forecast.
- Per the MOCEA 2031 preferred network scenario, operations at the intersection of Trafalgar Road and the QEW eastbound off-ramp are forecast at a LOS "D" or better during the peak hours, indicating some capacity to accommodate some of the proposed Cross Avenue off-ramp underpass traffic as well.
- Therefore, in addition to the opportunity provided by the QEW off-ramp via Cross Avenue and Chartwell Road, an additional right-turn storage lane for the eastbound off-ramp connection to Trafalgar Road along with dual southbound left turn storage lanes at Trafalgar Road and South Service intersection will provide additional capacity for the future traffic growth in the Midtown Oakville area.

The above alternative to the Cross Avenue off-ramp underpass is expected to provide similar overall operations to boundary road traffic at a lesser cost, subject to a cost benefit analysis by the Midtown Oakville Growth Area Review team and the Ministry of Transportation (MTO). Nevertheless, should the underpass still be pursued, we request that the existing South Service Road alignment remain and that the existing east approach (cul-de-sac) connection to the South Service Road East and Davis Road intersection be considered as the connecting point of the MOCEA QEW eastbound off-ramp to enable developability of the subject 349 Davis Road lands.

Conceptual sketches of the identified alternative road improvements to support operational improvements to the Trafalgar Road QEW EB off-ramp are outlined in **Figure 3**.

4.0 Comments on Midtown Oakville Road Network

We have undertaken a high-level review of the planned transportation network for Midtown Oakville based on the MOCEA findings, along with the Liveable Oakville Plan (2021) and draft TIMO-OPA Schedules L1-L4. Following our review, we are supportive of the Midtown Oakville transportation improvements but will like to offer the following comments for municipal staff consideration:

- As discussed under Section 3, we recommend maintaining South Service Road configuration (i.e., no realignment) and removal of the proposed QEW ramp underpass connection to South Service Road.
- We are of the opinion that a mid-block connection at Eighth Line / Chartwell Road should be pursued rather than the MOCEA location based on the following rationale:
 - The North-South Crossing does not serve as a particularly effective north-south travel alternative to Trafalgar Road. The route is of a short span and connects to Trafalgar Road close to the ramp terminals, which may create congestion at the McCraney Street East and Trafalgar Road intersection. Further, the route may result in external traffic not destined for the Midtown Oakville area rerouting through the area to avoid Trafalgar Road during the peak hours.
 - Apart from Trafalgar Road, there are an absence of north-south roadways available in the vicinity of Midtown Oakville. The Sixteen Mile Creek, the CN Oakville Rail Yard and the Ford Oakville Assembly complex represent significant barriers which force traffic from a large catchment area onto Trafalgar Road. An attractive alternative should be pursued to serve both existing demand and the future growth planned for Midtown Oakville. Eighth Line and Chartwell Road are aligned and could serve as a potential parallel roadway to Trafalgar Road for several kilometers in either direction away from the QEW. Therefore, with a connection across the QEW, the Eighth Line / Chartwell Road route would become an effective secondary north-south option to Trafalgar Road, thereby improving overall network traffic operations.
 - A midblock connection at the Eighth Line and Chartwell gap was explored as part of the MOCEA alternative evaluation as "Combination Option #2". The option was deemed less preferable than the "Combination Option #3" that was selected due in part to poor traffic operations at the Eighth Line and Iroquois Shore Road intersection. However, the analysis did not incorporate the planned widening of Eighth Line between Iroquois Shore Road and Falgarwood Drive that was identified in the Town's Switching Gears Transportation Master Plan (2017), which would have resulted in more acceptable intersection operations. Similarly, widening of Chartwell Road is proposed between South Service and Cornwall Road from 2 to 4 lanes by 2024 per the Town's 2018-2027 Capital Forecast, and the associated Class Environmental Assessment for the project is expected to commence shortly per the 2021-2030 Capital Forecast. Furthermore, "Combination Option 2" was also deemed less preferable due to the additional midblock crossing (similar to the MOCEA "North-South Crossing") that connected into the Trafalgar Road and Leighland Avenue / Iroquois Shore Road intersection in an irregular and unsafe configuration while at the same time creating higher capital costs for this option,

which was a major disadvantage for this option. It is our opinion a second midblock crossing is not necessary for this option given one midblock crossing was sufficient to accommodate projected traffic demands in the preferred Option 3. Therefore, we recommend Conceptual Network Alternative 1, outlined in **Figure 4**, to be considered by the Town as part of the proposed Official Plan Amendment process.

- It is anticipated that the Eighth Line / Chartwell Road midblock crossing is conditional on a grade separation being provided across the Oakville GO corridor to avoid potential queuing and safety issues at the intersections with Cornwall Road and the east-west arterial road (Cross Avenue in the MOCEA). Should this grade separation not be feasible at this location, then returning to the MOCEA North-South Crossing alignment is likely ideal. In this case, a North-South Crossing grade separation over the Lakeshore West GO corridor to Cornwall road should be pursued by the Town. The Conceptual Network Alternative #2A, outlined in **Figure 5**, was prepared to demonstrate the feasibility of this potential alternative. Other alternatives provided in **Figures 6 and 7** should be considered should the North-South Crossing be kept and the grade-separated crossing of the rail corridor not be pursued.
- As identified on Schedule L3 of the draft TIMO-OPA, we recommend that consideration be given to reconfiguring the future 4-lane arterial east-west roadway entirely along Station Road. With the removal of the QEW off-ramp underpass connection to South Services, there will be no need to make the segment of Davis Road west of the North-South Roadway an arterial and should continue to retain current local roadway designation and two-lanes. This recommendation is similar to Option D3 of the MOCEA Appendix E preliminary alternative evaluation.
- It is understood that this option (D3) was not pursued for “not providing balanced development opportunities through the Midtown Core, since it is located just north of the Hydro Corridor”. Its our opinion that this justification is insufficient on its own, especially given all other options (including the preferred) has impacts to properties along Davis Road were pursued for detailed evaluation. It does not appear that the benefits of the alignment along the Station Road corridor were thoroughly evaluated. We therefore concur with the draft TIMO-OPA proposal to reroute through Station Road and also propose no realignment be considered for South Service Road.

5.0 Conclusion

This letter has presented our input on behalf of the owner of the 349 Davis Road lands located within the Midtown Oakville growth area. In summary, we are largely in support of the Midtown Oakville proposal and the draft OPA proposal. We however request the following (as summarized in **Attachment-1**):

- Change land-use designation of the 349 Davis Road lands from “Park and Open Space” to “Urban Core”.
- Removal of the QEW Off- ramp underpass connection to South Service Road and retain existing configuration of South Service Road.
- Retain the existing 2-lane Davis Road as a local roadway for the segment west of the North-South Road.

- Consider relocating the North-South Roadway to the Chartwell Road/ Eighth Line location to enhance north south traffic flow similar to Trafalgar Road and eliminate external traffic through the core of the Midtown Oakville lands.

We trust that our commentary and request will be given due attention and considered as part of the Liveable Oakville Official Plan Amendment. Please contact the undersigned should you have any question.

Sincerely,

C.F. CROZIER & ASSOCIATES INC.



Peter Apasnore MASc., P.Eng.,PTOE
Email: Papasnore@cfcrozier.ca
Phone: 416-842-0029

CORBETT LAND STRATEGIES INC.

John Corbett
Email: john@corbettlandstrategies.ca
Phone: 416-806-514

c.c. Aquisha Khan, P. Eng., Town of Oakville
Judith Powell, Powell Insurance Brokers

J:\2200\2259- 1539059 Ontario Inc\6324- 349 Davis Road\Letters\2022.06.02 EA Road Network Alternatives Letter.docx

Encl.

Attachment 1 – DRAFT OPA CLS and Crozier Markups

Attachment 2 – Relevant Background Study Excerpts

Figure 1 – Existing Road Classifications

Figure 2 – Official Plan Roadway Classifications per Schedule L3 (2021)

Figure 3 – QEW EB off-ramp Conceptual Alternatives

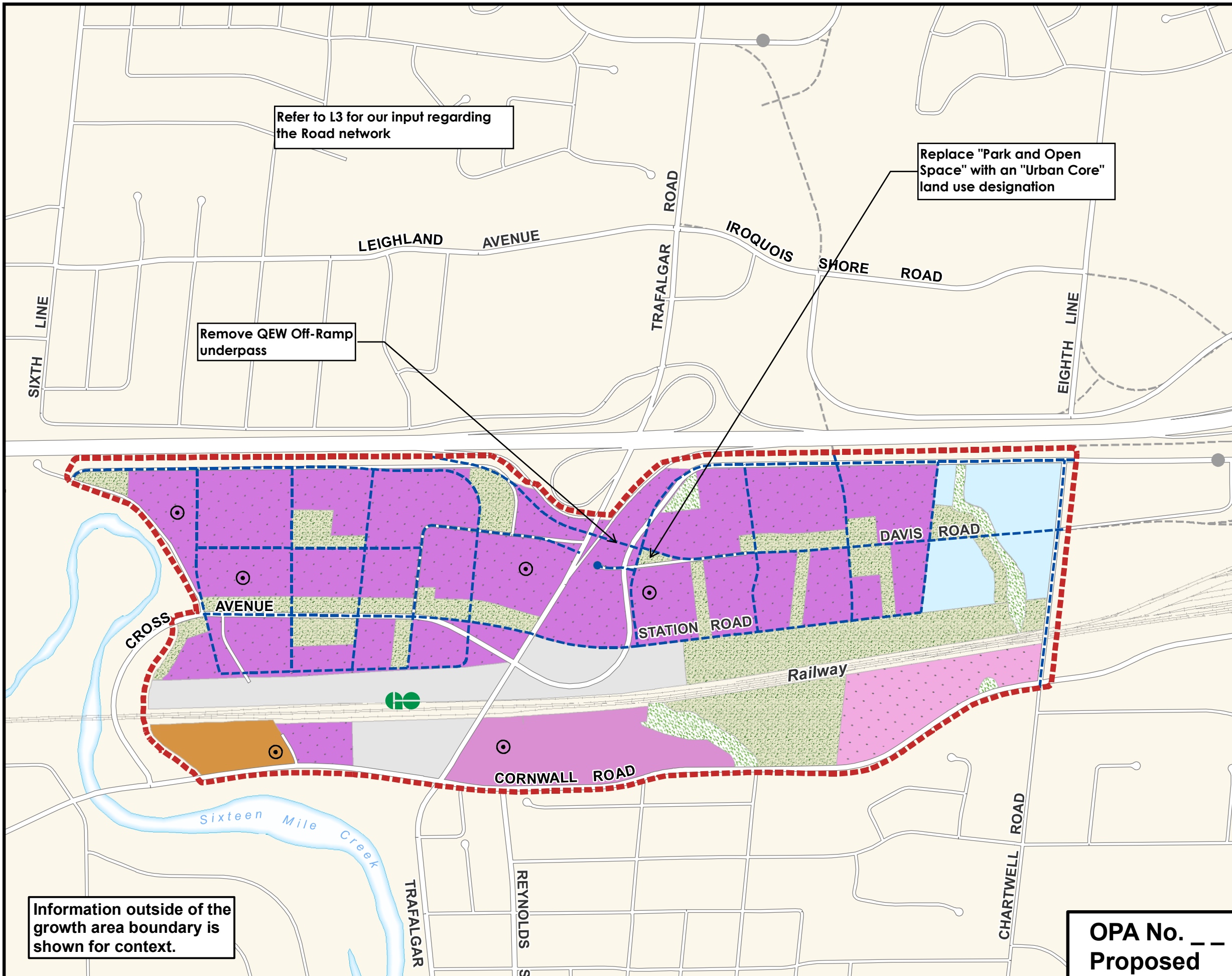
Figure 4 – Conceptual Network Alternative #1

Figure 5 – Conceptual Network Alternative #2A

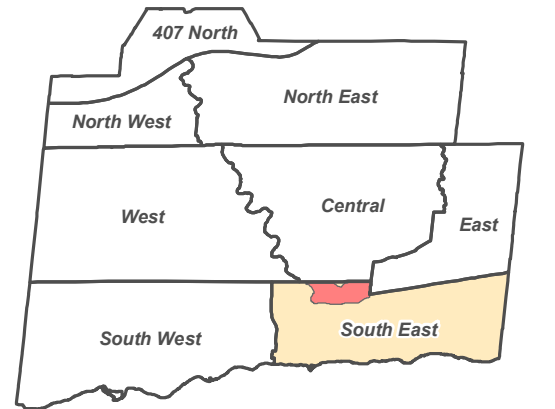
Figure 6 – Conceptual Network Alternative #2B

Figure 7 – Conceptual Network Alternative #2C

ATTACHMENT 1



SCHEDULE L1 MIDTOWN OAKVILLE LAND USE



- URBAN GROWTH CENTRE / PROTECTED MAJOR TRANSIT STATION AREA / GROWTH AREA BOUNDARY
 - HIGH DENSITY RESIDENTIAL
 - COMMUNITY COMMERCIAL
 - URBAN CENTRE
 - URBAN CORE
 - OFFICE EMPLOYMENT
 - NATURAL AREA
 - PARKS AND OPEN SPACE
 - UTILITY
 - FUTURE ROADS
(Refer to Schedule L3 for more detail)
 - FUTURE CUL-DE-SAC
 - RAILWAY
 - MAJOR TRANSIT STATION
- REFER TO PART E, MIDTOWN OAKVILLE, FOR GROWTH AREA POLICIES
- REFER TO PART E, MIDTOWN OAKVILLE EXCEPTIONS

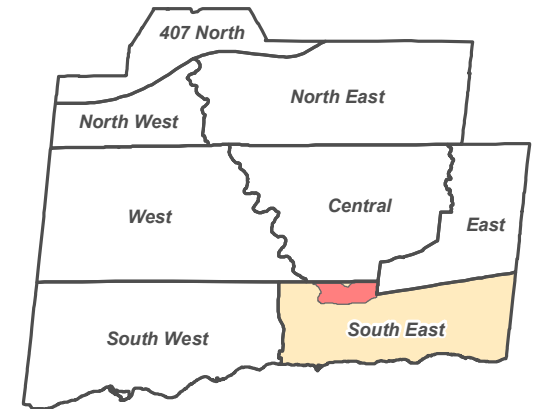
Note: Edited with comments by Stakeholder to support OPA



1:7,500
MAY 12, 2022

**OPA No. --
Proposed**

SCHEDULE L2 MIDTOWN OAKVILLE DENSITY



URBAN GROWTH CENTRE / PROTECTED MAJOR TRANSIT STATION AREA / GROWTH AREA BOUNDARY

1.5 TO 4 FSI

2.5 TO 4 FSI

2.5 TO 6 FSI

4.0 TO 10 FSI *

NATURAL AREA

PARKS AND OPEN SPACE

DENSITY COMPATIBLE WITH UTILITY CORRIDOR

FUTURE ROADS
(Refer to Schedule L3 for more detail)

FUTURE CUL-DE-SAC

RAILWAY

MAJOR TRANSIT STATION

REFER TO PART E, MIDTOWN OAKVILLE EXCEPTIONS

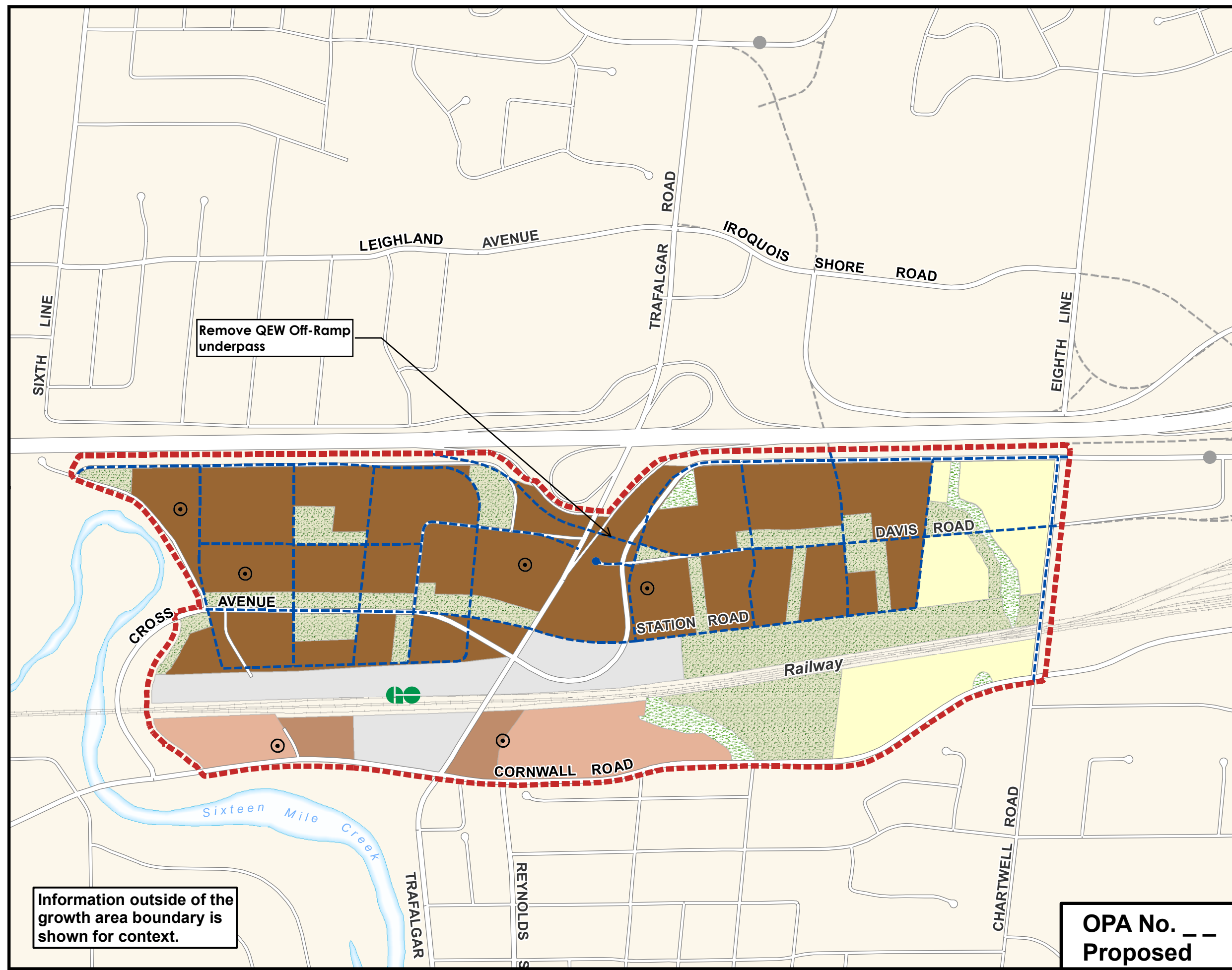
* ADDITIONAL DENSITY MAY BE PERMITTED. REFER TO PART E, MIDTOWN OAKVILLE, FOR GROWTH AREA POLICIES

Note: Edited with comments by Stakeholder to support OPA



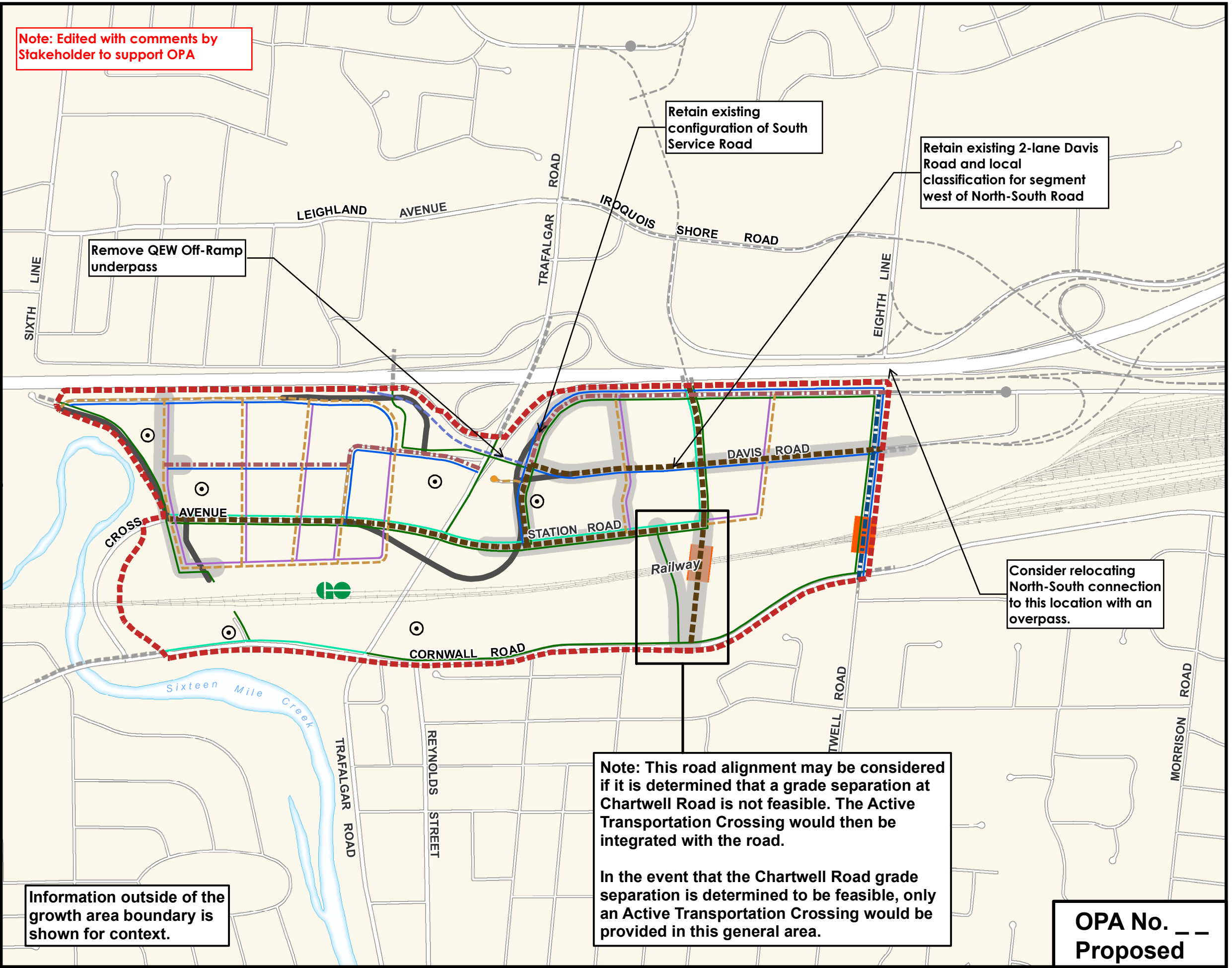
1:7,500
MAY 12, 2022

**OPA No. --
Proposed**



Information outside of the growth area boundary is shown for context.

Note: Edited with comments by Stakeholder to support OPA



SCHEDULE L3 MIDTOWN OAKVILLE TRANSPORTATION NETWORK



- URBAN GROWTH CENTRE / PROTECTED MAJOR TRANSIT STATION AREA / GROWTH AREA BOUNDARY
- EXISTING ROAD NETWORK
- FUTURE 35m ARTERIAL (4-LANE)
- FUTURE 26m MINOR ARTERIAL (CHARTWELL)
- FUTURE 26m COLLECTOR (2-LANE)
- FUTURE 22m LOCAL ROAD (2-LANE)
- FUTURE RAMP
- FUTURE BUFFERED BIKE LANE
- FUTURE MULTI-USE TRAIL
- FUTURE BIKE LANE
- FUTURE SIGNED ROUTE
- FINAL ROAD ALIGNMENT SUBJECT TO FURTHER STUDY
- ROAD PROPOSED TO BE ABANDONED
- FUTURE CUL-DE-SAC
- FUTURE RAILWAY GRADE SEPARATION
- RAILWAY
- MAJOR TRANSIT STATION
- REFER TO PART E, MIDTOWN OAKVILLE FOR GROWTH AREA POLICIES
- REFER TO PART E, MIDTOWN OAKVILLE EXCEPTIONS



1:9,000
MAY 12, 2022

**OPA No. --
Proposed**

Note: This road alignment may be considered if it is determined that a grade separation at Chartwell Road is not feasible. The Active Transportation Crossing would then be integrated with the road.

In the event that the Chartwell Road grade separation is determined to be feasible, only an Active Transportation Crossing would be provided in this general area.

Information outside of the growth area boundary is shown for context.

ATTACHMENT 2



Town of Oakville Official Plan 2009

Office Consolidation
Last Updated: August 31, 2021

20. MIDTOWN OAKVILLE

The interchange of Trafalgar Road and the QEW and the Oakville Station are major entry points to the Town and distinguish Midtown Oakville as a strategic location to accommodate both population and employment growth. The accessibility by major roads and local and inter-regional transit, combined with a large amount of vacant and underutilized land, provide the *infrastructure* and *development* opportunity to create a complete urban community comprised of a mix of high density residential and employment uses.

Midtown Oakville is one of 25 areas identified as an *urban growth centre* in the Province's *Growth Plan for the Greater Golden Horseshoe: Places to Grow, 2006* (the *Growth Plan*). *Urban growth centres* are to be *transit-supportive* regional focal areas that accommodate a significant portion of future population and employment growth in the *Greater Golden Horseshoe*.

The size and location of the Midtown Oakville *urban growth centre* was defined by the Province, in consultation with the Town. It is approximately 100 hectares in size and bounded by the QEW to the north, Chartwell Road to the east, Cornwall Road to the south and the Sixteen Mile Creek valley to the west.

The Oakville GO/VIA Station, the Town's primary hub for current and planned transit, anchors this *major transit station area*. Rail and bus connections currently service the area and major improvements to the local and inter-regional transit network are planned. In addition to improvements to the local bus network, there will be express commuter rail service and bus rapid transit corridors along Trafalgar Road and Highway 403. The bus rapid transit systems will originate in Midtown Oakville and connect with the broader Greater Toronto and Hamilton Area (GTHA) transportation network.

20.1 Goal

Midtown Oakville will be a vibrant, *transit-supportive*, mixed use urban community and *Employment Area*.

20.2 Objectives

As Midtown Oakville develops, the Town will, through public actions and in the process of reviewing planning applications, use the following objectives to guide decisions.

20.2.1 To create *transit-supportive development* by:

- a) ensuring the entire area is developed as a pedestrian-oriented environment focused on access to, and from, transit;

- b) improving internal road circulation and connections to, and through, Midtown Oakville for public transit, pedestrians, cyclists and vehicles; and,
- c) promoting a *compact urban form* with higher density and higher intensity land uses.

20.2.2 To create a vibrant and complete new community by:

- a) providing a mix of residential, commercial, employment, civic, institutional, cultural and recreational uses, complemented by public open spaces and public art, to attract different users throughout the day;
- b) directing *major office* and appropriate large scale institutional *development* to Midtown Oakville;
- c) ensuring high quality urban design that complements and contributes to the vitality of both Midtown Oakville and the Town;
- d) providing a transition between the concentration, mix and massing of uses and buildings in Midtown Oakville and neighbouring areas and properties;
- e) facilitating public investment in transit, *infrastructure* and civic facilities to support future growth; and,
- f) promoting *district energy* facilities and sustainable building practices.

20.2.3 To achieve required growth targets by:

- a) promoting and enabling the evolution of Midtown Oakville as an *urban growth centre* and the Town's primary Growth Area;
- b) ensuring a minimum gross density of 200 residents and jobs combined per hectare – a combined total of approximately 20,000 residents and jobs – by 2031 in accordance with the *Growth Plan*;
- c) providing opportunities for increased building height through bonusing; and,
- d) ensuring that *development* occurs in a comprehensive and progressive manner by monitoring key *development* indicators at regular intervals.

20.3 Development Concept

Midtown Oakville is comprised of five *development* districts. Each district shall have a distinct *character* in terms of land use and built form in accordance with Schedules L1, L2 and L3 and the following policies.

20.3.1 Station District

The Station District includes the transit-related and transit-supportive uses and facilities that define Midtown Oakville as a *major transit station area*. The station includes the train platform, station buildings, bus terminal and parking areas. The Town will work with Metrolinx to develop an eastward extension of the train platform across Trafalgar Road in order to enhance access to the station.

20.3.2 Trafalgar District

The Trafalgar District will develop as the focus of Midtown Oakville with a mix of office, civic, cultural and recreational uses and public spaces.

- a) Civic and community uses, complemented by a public plaza, are intended to become landmark features of the community and the Town.
- b) Along Cross Avenue, at-grade retail space is intended to serve the needs of residents, workers and visitors to Midtown Oakville, as well as contribute towards the creation of an active street life.
- c) Office uses shall be located close to the Oakville Station, providing easy and convenient connections for commuters.
- d) An event centre will provide recreational and leisure space.
- e) Trafalgar Road will have a distinctive identity, defined by landscaping treatments and building frontages that create an environment that supports and encourages walking within Midtown Oakville.
- f) A municipal parking garage will provide shared parking facilities for uses in the area.

20.3.3 Lyons District

The Lyons District shall evolve from its current focus on strip malls and large format retail uses into a compact mixed use neighbourhood. Cross Avenue is intended to be an attractive central spine animated by at-grade retail uses, cohesive streetscapes and open spaces that enhance the experience of the public realm. Taller residential buildings shall be located in the vicinity of Sixteen Mile Creek and the railway.

20.3.4 Chartwell District

The Chartwell District shall be a business campus providing space for employment activities that do not typically locate in high-rise office buildings. A diverse range of employment opportunities, including high-tech industries and innovative business and office uses, will be provided for. A post-secondary educational use shall also be

permitted in this area. The extension of Cross Avenue shall link this district to the rest of Midtown Oakville.

20.3.5 Cornwall District

The Cornwall District shall include a mix of uses that define the southern edge of Midtown Oakville and are *compatible* with the residential neighbourhood south of Cornwall Road. Commercial areas and active parkland will serve the needs of residents and workers in Midtown Oakville and the surrounding area. Taller residential and mixed use buildings shall be located in the vicinity of Sixteen Mile Creek and Trafalgar Road.

20.4 Functional Policies

In addition to the policies in Parts C and D of this Plan, the following functional policies apply specifically to Midtown Oakville.

20.4.1 Transportation

- a) Significant road, transit and active transportation infrastructure, to the Midtown Oakville as shown on Schedules C, D and L3, is needed to accommodate the growth the Town is required to achieve in Midtown Oakville. Many existing roads shall be realigned, widened, extended or replaced.
- b) The Town may secure rights-of-way on alignments as shown on Schedules C, D and L3 through the planning approval process. Final rights-of-way shall be consistent with the Midtown Oakville Class Environmental Assessment, 2014, and shall otherwise be determined through detailed transportation studies, environmental assessments where required, and the planning approval process.
- c) Subject to section 8.2.3, changes to the requirements, location or alignment of new transit services, roads and pedestrian and cycling facilities, as shown on Schedules C, D and L3, will not require an amendment to this Plan provided that the general intent and purpose of this Plan is maintained and *intensification* opportunities are not precluded.
- d) The rights-of-way of future roads shall be required to achieve the maximum widths identified on Schedule L3.
- e) *Development* shall not preclude the following as contemplated in this Plan:
 - i) the realignment and extension of Cross Avenue from Lyons Lane to Chartwell Road as a multi-purpose arterial road;
 - ii) a new multi-purpose arterial road – the North-South Crossing – across the QEW to link to the extension of Cross Avenue, east of Trafalgar Road, and Station Road;

- iii) the future local road network as identified on Schedule L3;
- iv) a grade separation of Chartwell Road at the railway; and,
- v) grade separated pedestrian and cycling facilities, as shown on Schedule D, to be located across:
 - the QEW, east and west of Trafalgar Road; and,
 - the railway, east of Trafalgar Road.
- f) The extension of the rail platform to the east side of Trafalgar Road shall be encouraged to improve rail passenger access to and from the Lyons and Cornwall Districts. The Town will work with the Region and Metrolinx to study the associated impacts to traffic, and local and inter-regional transit operations, including parking.
- g) The design of existing and new roads in Midtown Oakville shall promote walking, cycling and transit use.
- h) *Development* shall promote safe, convenient and attractive pedestrian access to transit stops or stations. Barriers, such as boundary fences, shall be discouraged.
- i) The need for the future local road between South Service Road and the intersection of Cross Avenue and Lyons Lane, as identified on Schedule L3, shall be determined through the planning approval process.
- j) Parking
 - i) Parking structures are preferred for the provision of required parking.
 - ii) Surface parking lots are discouraged. However, where surface parking is provided, it shall be in the side or rear yard and the visual impact shall be mitigated by a combination of setbacks and significant landscaping in accordance with the Livable by Design Manual and the Designing Midtown document.
 - iii) Reduced parking standards may be considered in the implementing zoning.
 - iv) Individual driveway access to Trafalgar Road shall not be permitted.
 - v) Shared driveways and parking facilities shall be encouraged.
 - vi) Access to parking, service and loading areas should be from local roads or service lanes, and to the side or rear of buildings.
 - vii) Implementation of the Midtown Oakville Parking Strategy shall be undertaken.

20.4.2 Urban Design

- a) In addition to the urban design policies of this Plan, *development* and the public realm shall address the urban design direction provided in the Livable by Design Manual and the Designing Midtown Oakville document.
- b) Midtown Oakville shall be designed as a regional destination and an urban centre with a focus on creating a safe and attractive public realm that encourages walking, cycling and transit use. New development shall support this objective through its form, scale and detail.
- c) A network of public spaces, or varying sizes and activity, should be planned for Midtown Oakville to support residents and employees throughout.
- d) *Development* shall promote safe, convenient and attractive pedestrian access to transit stops or stations. Barriers, such as boundary fences, shall be discouraged.
- e) It is intended that some of the Town's tallest buildings locate in Midtown Oakville. These buildings shall be designed to the highest architectural quality and detail to create landmark buildings and contribute to a distinct skyline.
- f) Building Heights
 - i) Minimum and maximum building heights shall be permitted in accordance with Schedule L2 and the policies of this Plan.
 - ii) Additional building height may be considered in accordance with the applicable bonusing policies in this Plan.
 - iii) Minor reductions to the minimum building heights required by Schedule L2 may be considered as part of comprehensive redevelopment applications to allow flexibility in building and site design. Such consideration shall only be given where it can be demonstrated that the policies of sections 20.2 and 20.3 of the Plan are met and the planned *intensification* for the site(s) can be achieved.

20.4.3 Stormwater Management

Development within Midtown Oakville shall be required to implement stormwater management techniques in accordance with the policies of this Plan and the recommendations of the Midtown Oakville Class Environmental Assessment, 2014.

20.4.4 Growth Targets

- a) Midtown Oakville shall provide for a minimum gross density of 200 residents and jobs combined per hectare by 2031 in accordance with the *Growth Plan*. This translates to approximately 20,000 residents and jobs. A mix of approximately

5,900 residential units and 186,000 – 279,000 square metres of commercial and employment space is accommodated to provide for an estimated 12,000 residents and 8,000 jobs.

- b) For the purpose of gross density calculations, the *utility* corridor, railway, QEW interchange and Sixteen Mile Creek valleylands shall be excluded from the land area calculation.

20.5 Land Use Policies

Land use designations are provided on Schedule L1. In addition to the policies in Parts C and D of this Plan, the following policies apply specifically to Midtown Oakville.

- 20.5.1 Drive-through facilities proposed within any of the land use designations within Midtown Oakville will require an amendment to the Town's Zoning By-law and be subject to the following:
 - a) demonstration that the *development* of a drive-through facility does not preclude the planned function and *intensification* for a site;
 - b) conformity with the urban design policies in section 6;
 - c) the Town's Drive-through Urban Design Guidelines; and,
 - d) demonstration that the proposed drive-through facility:
 - i) does not change the *character* of the existing and planned streetscape;
 - ii) maintains the scale of the urban environment; and,
 - iii) does not compromise the safe and efficient movement of pedestrians and cyclists.
- 20.5.2 New automobile sales and automobile related uses, including automobile service stations, shall not be permitted.
- 20.5.3 On lands designated Utility within the Station District, only transit-related and transit-supportive uses and facilities, including passenger amenity areas and surface parking, which provide for the protection of the underground *utilities* may be permitted.
- 20.5.4 On lands designated High Density Residential north of the railway, there is no maximum residential density.
- 20.5.5 On lands designated Urban Core or Urban Centre, a creative centre to provide studio, office, exhibition, performance and retail space for the cultural community may also be permitted.

- 20.5.6 On lands designated Urban Core within the Lyons District the following uses may also be permitted:
- a) single-use buildings; and,
 - b) townhouses and stacked townhouses, with a minimum height of three storeys, in combination with permitted residential or mixed use buildings.
- 20.5.7 On the lands designated Office Employment within the Trafalgar District the following uses may also be permitted:
- a) civic uses, including government offices and a court house;
 - b) a public plaza appropriate for an array of public event uses;
 - c) a large-scale recreational facility of Town-wide or regional significance; and,
 - d) municipal parking facilities.
- 20.5.8 On the lands designated Office Employment within the Chartwell District, *educational facilities* affiliated with a college or university may also be permitted.
- 20.5.9 The minimum building height requirements applying to apartment buildings may be reduced to a minimum of two storeys for the portions of the buildings that incorporate common amenity and recreational space, and similar uses, which are ancillary to the residential use.
- 20.6 Midtown Oakville Exceptions – Schedules L1, L2 and L3**
- The following additional policies apply to certain lands on Schedule L1, Midtown Oakville Land Use, Schedule L2, Midtown Oakville Building Heights, and Schedule L3, Midtown Oakville Transportation Network.
- 20.6.1 The lands designated High Density Residential at the northwest corner of Cornwall Road and Old Mill Road are subject to the following additional policies:
- a) A neighbourhood shopping centre with a maximum of 930 square metres of gross leasable area may also be permitted.
 - b) A maximum of 2,300 square metres of non-retail service commercial area, including office and private recreational uses, may also be permitted.
- 20.6.2 The lands designated High Density Residential and known as 599 Lyons Lane are subject to the following additional policies:
- a) A maximum building height of 26 storeys may be permitted subject to the owner entering into an agreement under section 37 of the *Planning Act*.

- b) Underground structures, and above-ground architectural features, *utilities* and driveways, may encroach into the 15 metre setback, up to the nearest limit of the municipal right-of-way, subject to compliance with Conservation Halton requirements and regulations.
- 20.6.3 The lands designated Urban Centre and Community Commercial at the northeast corner of Cornwall Road and Trafalgar Road are recognized as permitting the existing commercial centre and are subject to the following additional policy:
- a) Redevelopment in this location may occur gradually in a phased manner and should:
 - i) provide an attractive gateway to Midtown Oakville and a transition to the established residential neighbourhood to the south; and,
 - ii) be a collection of buildings, diverse in design and *character*, and in harmony with each other.
- 20.6.4 The lands designated Urban Centre and Urban Core at the northeast corner of Cross Avenue and Lyons Lane, and known collectively as the Trafalgar Village Mall, are subject to the following additional policies:
- a) Redevelopment will occur gradually in a phased manner.
 - b) The proposed roads, as shown on Schedule L3, shall only be required as part of a comprehensive site redevelopment.
 - c) New large format retail and retail warehouse uses may also be permitted provided that they are located within mixed use buildings developed in conformity with this Plan.
- 20.6.5 On the lands designated Office Employment, known as 354 Davis Road, access shall be provided to the existing property at the time of construction of the future Cross Avenue and future ramp as identified on Schedule L3.

20.7 Implementation Policies

In addition to the policies in Part F of this Plan, the following implementation policies apply specifically to Midtown Oakville.

20.7.1 Phasing/Transition

- a) *Development* will likely occur gradually over the long-term and be co-ordinated with the provision of *infrastructure*, including:
 - i) transit (conventional and rapid transit);

- ii) road network capacity;
 - iii) pedestrian and cycling facilities;
 - iv) water and waste water services;
 - v) stormwater management facilities;
 - vi) streetscape improvements; and,
 - vii) *utilities*.
- b) Initial phases of *development* shall not preclude the achievement of a compact, pedestrian-oriented and *transit-supportive* urban form, or the transportation network on Schedule L3.
 - c) The uses and buildings that legally existed prior to the adoption of this Plan shall be permitted to continue, however, they are ultimately intended to be redeveloped in conformity with this Plan.
 - d) The redevelopment of existing low-rise commercial centres and uses may occur gradually in a phased manner. Notwithstanding the minimum heights shown on Schedule L2, building additions, alterations and/or replacements may be permitted, where they can be demonstrated not to preclude the long-term redevelopment of the property as set out in this Plan.

20.7.2 Bonusing

- a) The Town may allow increases in building height in the areas of Midtown Oakville delineated on Schedule L2, without amendment to this Plan, in exchange for the provision of public benefits as listed in section 28.8.2, and with priority given to those public benefits in section 20.7.2 c).
- b) Bonusing shall only be permitted if:
 - i) in conformity with section 20.7.1; and,
 - ii) supported by a transportation impact analysis which confirms that the additional *development* will not adversely impact the transportation network or, where cumulative impacts are identified, such impacts are accommodated through road and transit improvements which are to be provided through agreement by the applicant.
- c) Public benefits considered appropriate for the application of increased building height in Midtown Oakville include, but are not limited to:

- i) grade separated pedestrian and cycling facilities across the QEW, railway tracks or Trafalgar Road;
 - ii) community facilities such as:
 - a creative centre, including studio, office, exhibition, performance and retail space; and,
 - a library;
 - iii) improved local transit facilities and transit user amenities;
 - iv) parkland improvements beyond the minimum standards for public squares and plazas; and,
 - v) public art.
- d) For the purposes of bonusing in Midtown Oakville, there is no prescribed building height limit and no Official Plan amendment shall be required to increase building height as a result of bonusing.

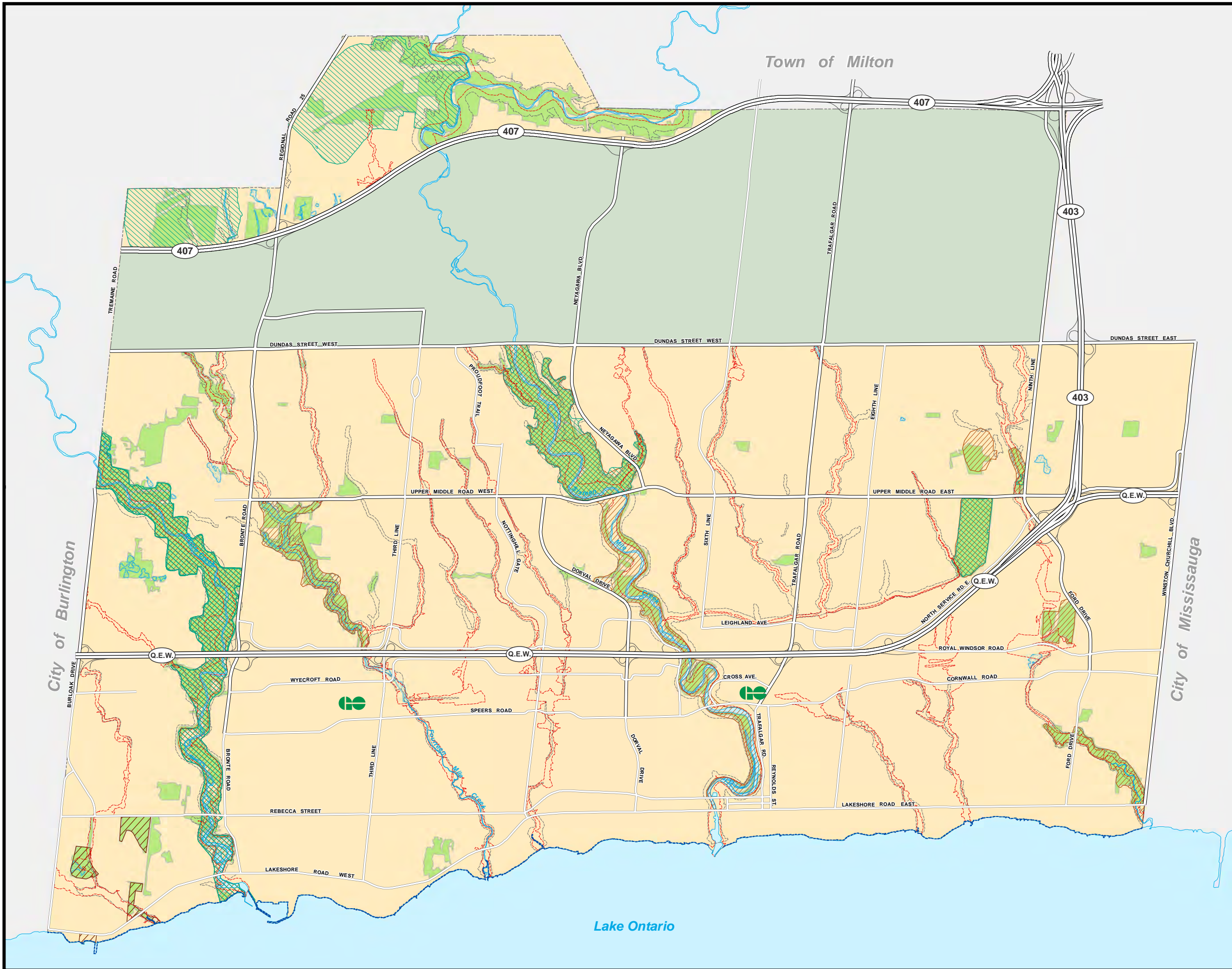
20.7.3 Programs and Initiatives

a) Implementation Strategy










The Town shall develop, in conjunction with the Region, the Province and Metrolinx, an implementation strategy for Midtown Oakville including, but not limited to:

- i) *community improvement* programs, through a *community improvement plan*, to address redevelopment incentives, which may include *brownfield site* remediation, property acquisition and rehabilitation, and streetscape improvements;
- ii) parking demand management and a municipal parking strategy to implement the Midtown Oakville Parking Strategy;
- iii) reconstruction of the rail platform in coordination with Metrolinx;
- iv) transportation and transit initiatives;
- v) sustainability initiatives and environmental standards;
- vi) the acquisition and disposition of public lands; and,
- vii) partnerships, programs and incentives.

- b) Monitoring
- i) The Town will monitor the level of *development* and associated traffic conditions within Midtown Oakville.
 - ii) In order to track the pace of *development* and identify and plan for transportation improvements, the monitoring program shall evaluate the following:
 - traffic characteristics on key routes and at key intersections, in accordance with the Town and Region’s transportation study guidelines;
 - existing, approved and proposed *development*, including the number of residential units and the amount of non-residential floor space;
 - transit usage and *modal share*;
 - population and employment generated by existing *development* and projected for approved *development* not yet occupied; and,
 - indicators of sustainability to be determined by the Town.



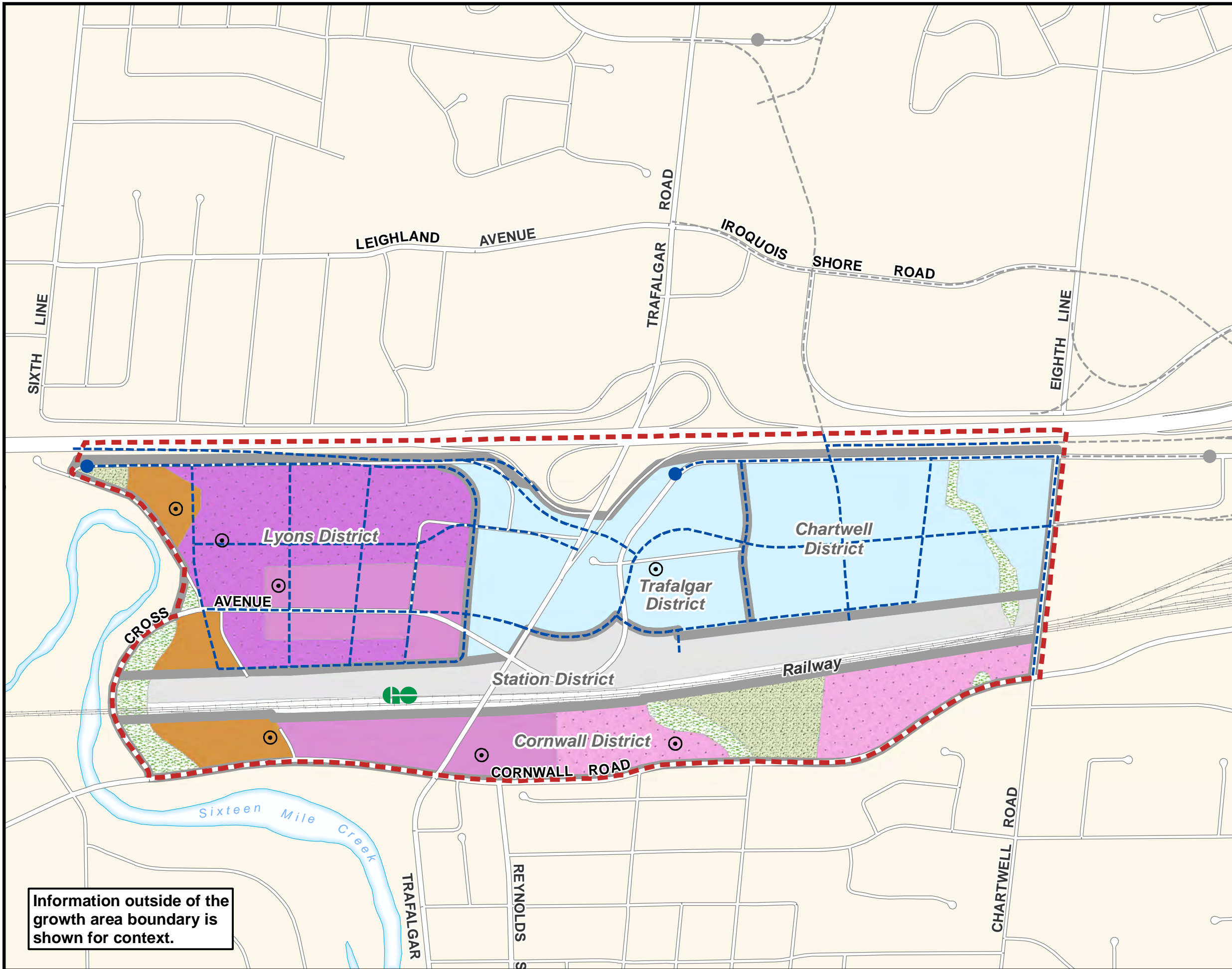
SCHEDULE B NATURAL FEATURES & HAZARD LANDS

-  FLOODPLAIN
-  SHORELINE FLOOD LIMIT
-  VALLEYLANDS
-  SIGNIFICANT WILDLIFE HABITAT
-  AREA OF NATURAL AND SCIENTIFIC INTEREST
-  ENVIRONMENTALLY SENSITIVE AREAS
-  WETLANDS
-  WOODLANDS
-  LANDS NOT SUBJECT TO THE POLICIES OF THIS PLAN

NOTE: Natural features and hazard lands are shown conceptually and for reference purposes only.



1:50,000
August 31, 2021



Information outside of the growth area boundary is shown for context.

SCHEDULE L1 MIDTOWN OAKVILLE LAND USE



- GROWTH AREA BOUNDARY
- HIGH DENSITY RESIDENTIAL
- COMMUNITY COMMERCIAL
- URBAN CENTRE
- URBAN CORE
- OFFICE EMPLOYMENT
- NATURAL AREA
- PARKS AND OPEN SPACE
- UTILITY
- DISTRICT BOUNDARIES
- FUTURE ROADS
(Refer to Schedule L3 for more detail)
- FUTURE CUL-DE-SAC
- RAILWAY
- MAJOR TRANSIT STATION

Refer to Part E, Midtown Oakville, for Growth Area Policies

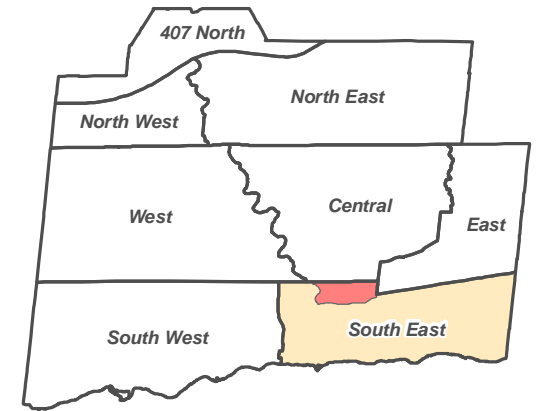
Refer to Part E, Midtown Oakville Exceptions



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SCHEDULE L2 MIDTOWN OAKVILLE BUILDING HEIGHTS

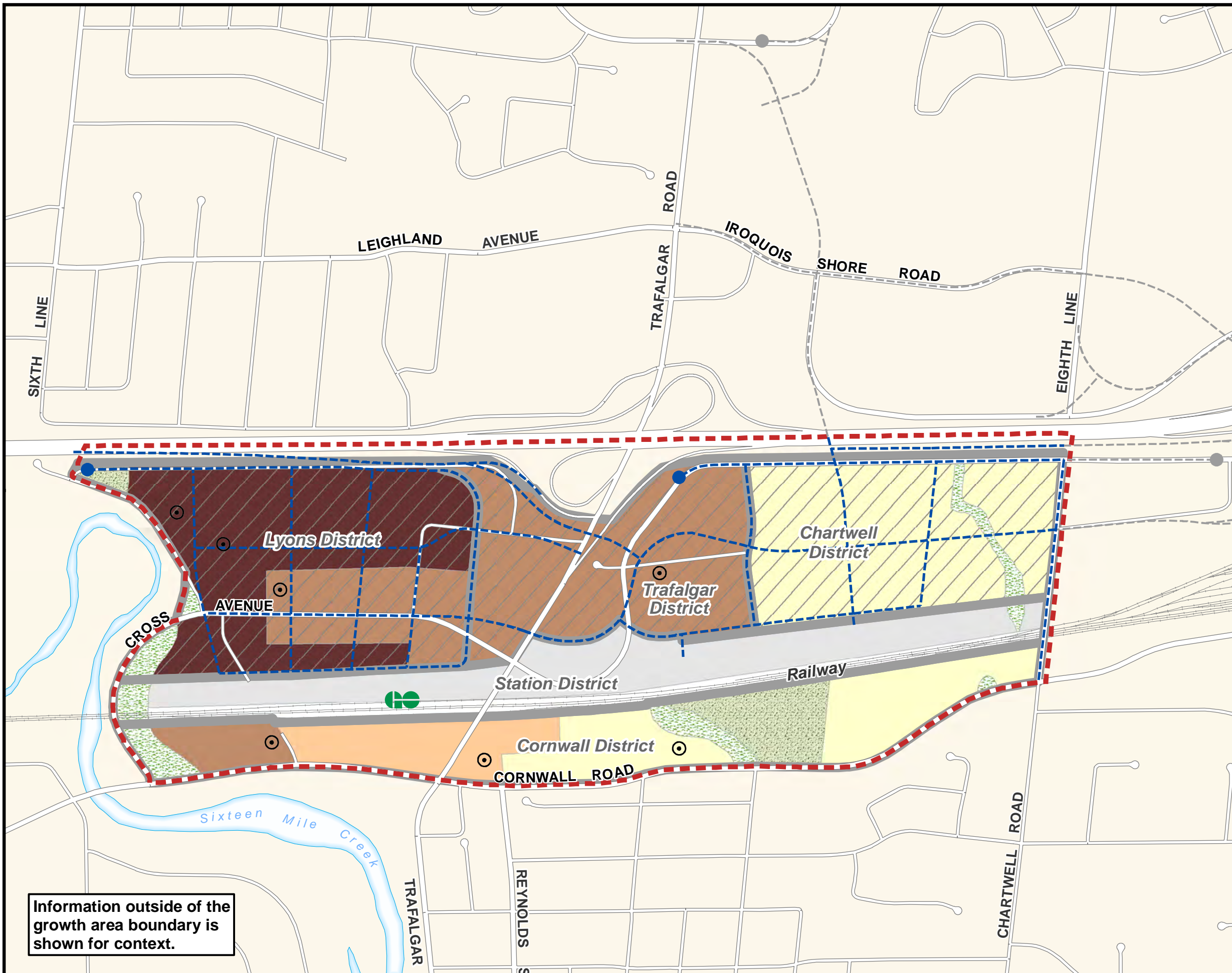


- GROWTH AREA BOUNDARY
 - 2 - 6 STOREYS
 - 4 - 10 STOREYS
 - 6 - 12 STOREYS
 - 8 - 20 STOREYS
 - NATURAL AREA
 - PARKS AND OPEN SPACE
 - HEIGHTS COMPATIBLE WITH UTILITY CORRIDOR
 - LANDS ELIGIBLE FOR BONUSING
 - DISTRICT BOUNDARIES
 - FUTURE ROADS
(Refer to Schedule L3 for more detail)
 - FUTURE CUL-DE-SAC
 - RAILWAY
 - MAJOR TRANSIT STATION
- Refer to Part E, Midtown Oakville, for Growth Area Policies
- Refer to Part E, Midtown Oakville Exceptions

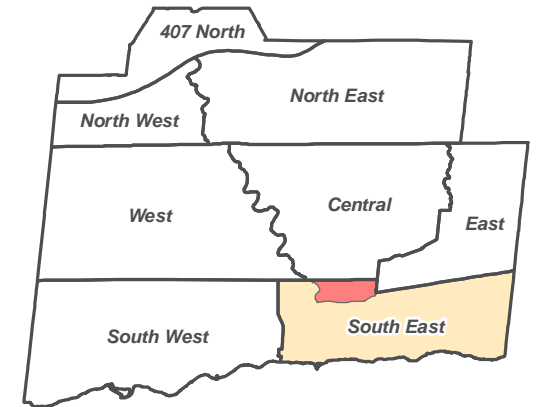















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SCHEDULE L3 MIDTOWN OAKVILLE TRANSPORTATION NETWORK

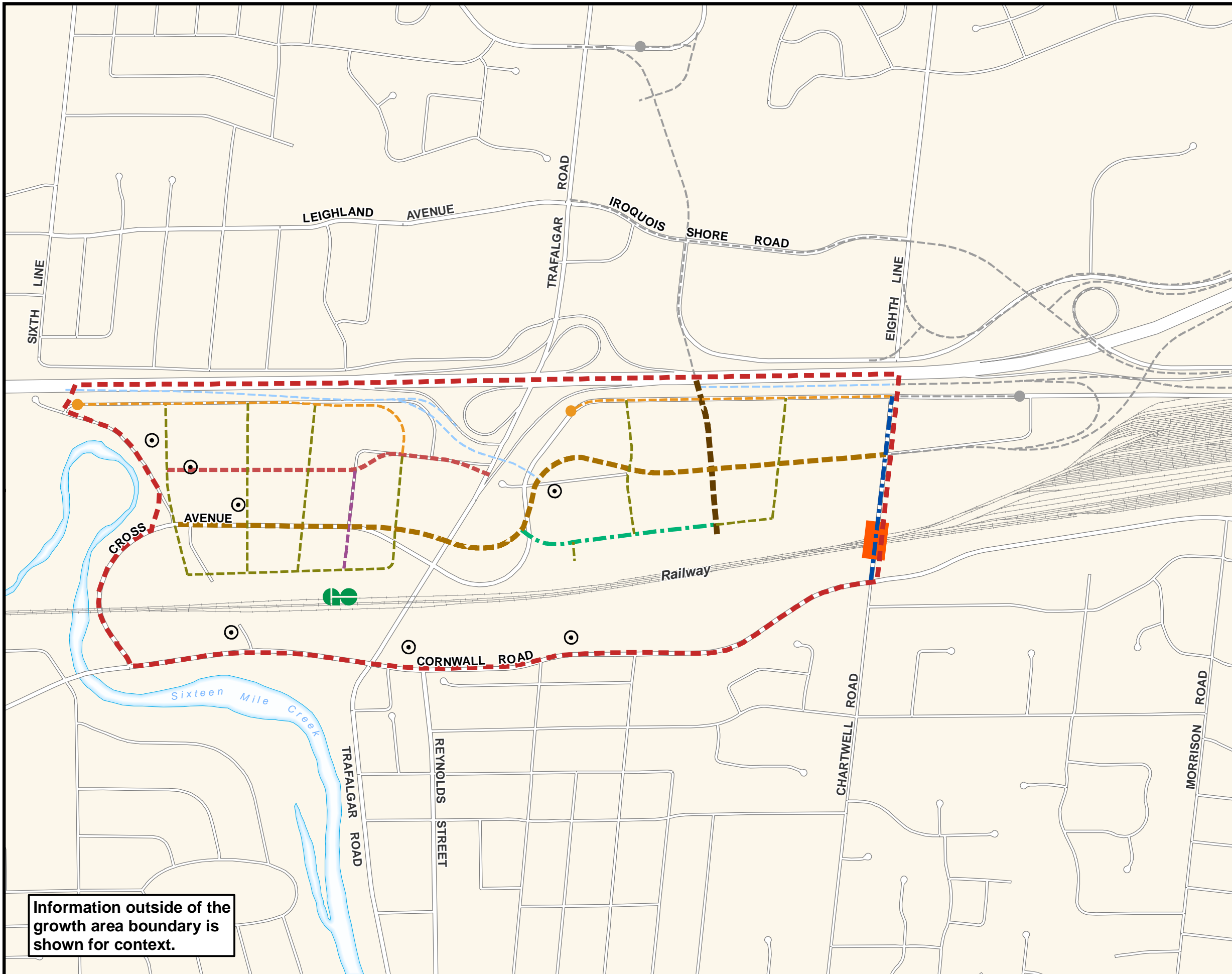


-  Growth Area Boundary
 -  Existing Road Network
 -  Future 32 m Multi-Purpose Arterial Road (North-South Crossing)
 -  Future 28 m Minor Arterial Road (Cross Avenue)
 -  Future 26 m Local Road (Station Road)
 -  Future 24 m Minor Arterial Road (Chartwell Road)
 -  Future 22 m Local Road
 -  Future 20 m Local Road
 -  Future 19 m Local Road
 -  Future 18 m Local Road
 -  Future Ramp
 -  Future Cul-de-sac
 -  Future Railway Grade Separation
 -  Railway
 -  Major Transit Station
- Refer to Part E, Midtown Oakville, for Growth Area Policies
-  Refer to Part E, Midtown Oakville Exceptions



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August 31, 2021



Information outside of the growth area boundary is shown for context.



Midtown Oakville
Transportation and Stormwater
Municipal Class
Environmental Assessment
Final Report
June 2014

Volume 1 of 3
Report and Appendices A to C

The observed traffic in the Midtown Oakville area indicates capacity constraints and congesting at peak times. Although most signalized intersections within the study area operate at acceptable levels of service, two intersections – Cross Avenue / Lyons Lane and Cross Avenue/Cornwall Road – experience more significant capacity constraints under existing conditions. These congestion issues also impact Oakville Transit service to and from GO Oakville station.

On the QEW, operational constraints were identified in AM peak for eastbound traffic around the Dorval Drive interchange and westbound at the Royal Windsor Drive interchange. In the PM peak a westbound constraint occurs between Ford Drive and Trafalgar Road interchanges due to high volumes and weaving manoeuvres.

Future “Do Nothing” Transportation Conditions

An assessment of the transportation network within the study area without any new Midtown-related transportation infrastructure improvements was undertaken to identify the operational performance of the “Do Nothing” network in accommodating Midtown Oakville growth.

Although the “Do Nothing” scenario assumes no improvements to the transportation infrastructure within Midtown Oakville, it does include a number of planned and committed transportation improvements by region and town as per the 2031 Base Case in the town’s TMP. Additionally, through consultation with MTO, planned provincial improvements documented in MTO’s *Transportation Environmental Study Report for Highway 403 and Queen Elizabeth Way from Trafalgar Road to Winston Churchill Boulevard* (TESR) are explicitly modelled in the “Do Nothing” scenario. These include:

- Extension of the existing HOV lanes on QEW from Trafalgar Road to Winston Churchill Boulevard
- North to East (Highway 403 SB to QEW EB) and East to North (QEW WB to Highway 403 NB) ramps at the Highway 403 / Ford Drive interchange
- Core-collector system along QEW to facilitate movements between Ford Drive and Winston Churchill Boulevard and to accommodate the new North to East / East to North ramps

Overall, during the AM and PM peak hour, most signalized intersections within the study area will operate with significant capacity constraints. The existing municipal road network does not have enough reserve capacity to accommodate full build-out of Midtown Oakville. Transit service on Trafalgar Road and Cross Avenue will be significantly impacted by traffic delays on the road network.

Using the microsimulation model, the QEW was found to have significant operational constraints at the Trafalgar Road interchange in both the AM and PM peaks, with the interchange ramp terminals being unable to serve the demand placed and queues spilling back onto the QEW mainline. The operational constraint eastbound at Dorval Drive interchange on the QEW is exacerbated by future traffic growth.

Figure ES-3: Preliminary Design of Preferred Concept



3.2. Traffic Conditions

Intersection capacity analysis was undertaken for the existing traffic conditions. The capacity analysis of an intersection indicates how well the intersection operates, based on calculations of volume-to-capacity (v/c) ratios and delays experienced by individual movements at the intersection.

Through discussions with the MTO, a VISSIM microsimulation model was developed to assess the operations of the QEW mainline and ramp terminals at the interchanges that provide access to Midtown Oakville – Trafalgar Road and Royal Windsor Drive. The existing conditions were simulated to calibrate the model to observed conditions in the weekday AM and PM peak periods. Documentation of the calibration and validation of the microsimulation model is included in **Appendix C2**.

3.2.1. Existing Traffic Conditions

Existing traffic counts were provided by the MTO, Halton Region and Town of Oakville for the freeway, arterial and local roads within the study area.

In the AM peak hour, the QEW serves about 7,600 vehicles in the eastbound direction and 7,100 vehicles in the westbound direction. In the PM peak hour, the magnitude of volumes on the QEW are similar with 7,500 vehicles in the eastbound direction and 7,500 vehicles in the westbound direction.

AM peak hour volumes on Trafalgar Road crossing the QEW reach 2,300 northbound vehicles and 1,900 southbound vehicles. In the PM peak hour, volumes reach 2,100 northbound vehicles and 2,700 southbound vehicles.

Intersection Operations

The observed traffic in the Midtown Oakville area indicates capacity constraints and congestion at peak times. **Figure 3-5** and **Figure 3-6** show that most signalized intersections within the study area operate at acceptable levels of service. However two intersections on the western boundary of the study area experience capacity constraints during the peak hours under existing conditions. This may be attributable to the high demand at the Oakville GO station, including the new GO parking garage, in Midtown Oakville.

The study area intersections were analyzed using Synchro 7.0 software, which utilizes the Highway Capacity Manual 2000 methodology, and following the Halton Region's Guidelines for the Preparation of Traffic Impact Studies, dated August 2001. The intersection capacity analysis details are provided in **Appendix C1**.

Figure 3-5: Existing AM Intersection Operations

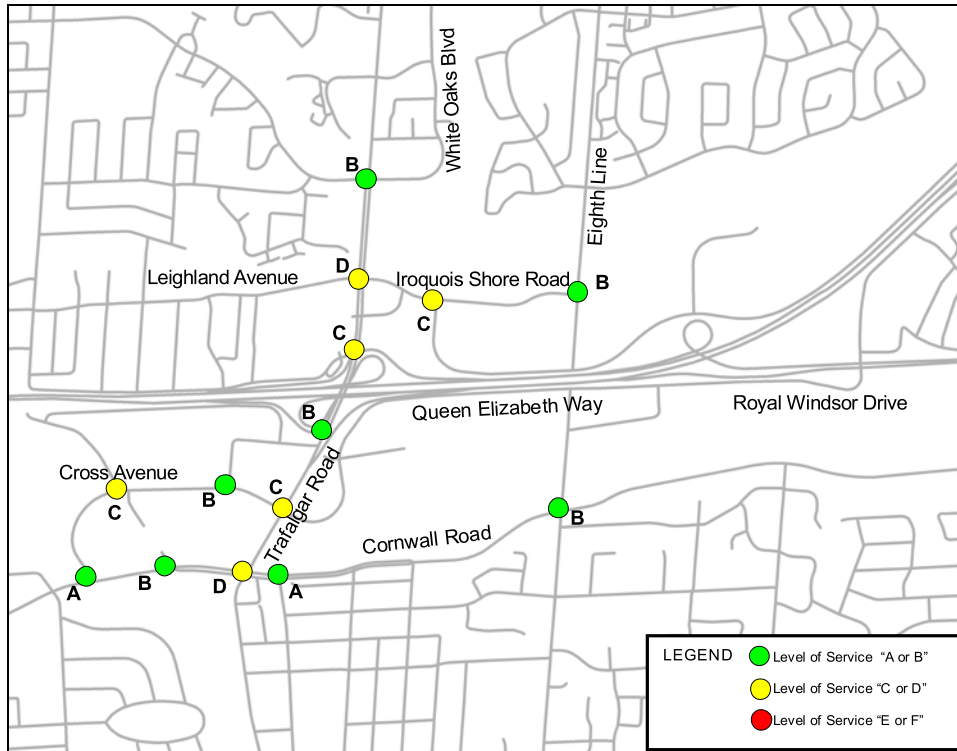
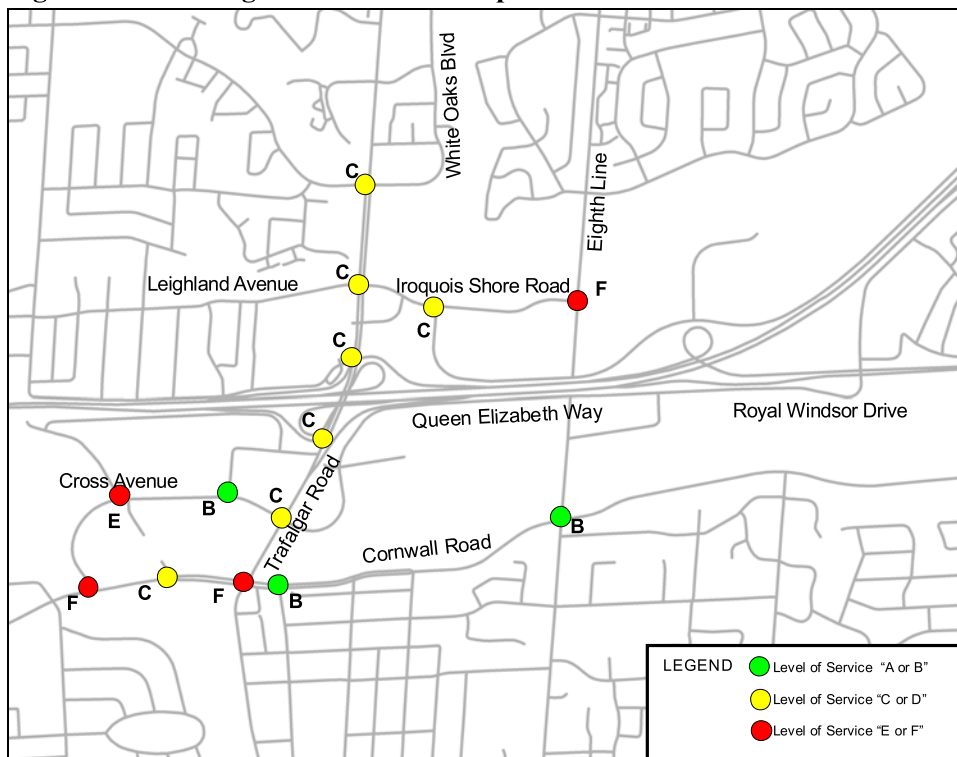


Figure 3-6: Existing PM Intersection Operations



Freeway Operations

Operational constraints were identified in AM peak for eastbound traffic around the Dorval Drive interchange and westbound at the Royal Windsor Drive interchange. In the PM peak a westbound constraint occurs between Ford Drive and Trafalgar Road interchanges due to high volumes and weaving manoeuvres. Further details on the analysis undertaken on Provincial highway network can be found in **Appendix C2**.

3.2.2. Future “Do Nothing” Conditions

As discussed in earlier sections of the report, the planned future growth of Midtown Oakville will consist of approximately 12,000 residents and 8,000 jobs. The mix of this planned growth is 5,900 residential units, up to 279,000 m² of commercial and employment space. Traffic volumes for the future redevelopment within Midtown Oakville were calculated using trip generation rates based on the Institute of Transportation Engineers, Trip Generation Manual 8th Edition. The distribution of future site traffic in Midtown Oakville is based on the *Oakville GO Station Parking Expansion Feasibility and Transportation Impact Study* (IBI Group, July 2009). Full details of Midtown Oakville traffic generation and traffic distribution can be found in **Appendix C1**.

An assessment of the transportation network within the study area without any new Midtown Oakville transportation infrastructure improvements was undertaken to identify the operational performance of the “Do Nothing” network in accommodating Midtown Oakville growth.

Although the “Do Nothing” scenario assumes no improvements to the transportation infrastructure within Midtown Oakville, it does include a number of planned and committed transportation improvements by region and town as per the 2031 Base Case in the town’s TMP. Additionally, through consultation with MTO, planned provincial improvements documented in MTO’s *Transportation Environmental Study Report for Highway 403 and Queen Elizabeth Way from Trafalgar Road to Winston Churchill Boulevard* (TESR) are explicitly modelled in the Do Nothing scenario. These include:

- Extension of the existing HOV lanes on QEW from Trafalgar Road to Winston Churchill Boulevard.
- North to East (Highway 403 SB to QEW EB) and East to North (QEW WB to Highway 403 NB) ramps at the Highway 403 / Ford Drive interchange.
- Core-collector system along QEW to facilitate movements between Ford Drive and Winston Churchill Boulevard and to accommodate the new North to East / East to North ramps.

Intersection Operations

Overall, during the AM and PM peak hour, most signalized intersections within the study area will operate with significant capacity constraints and intersection operations will fail as shown in **Figure 3-7** and **Figure 3-8**. The “Do Nothing” road network will not have enough reserve capacity to accommodate full build-out of Midtown Oakville.

Figure 3-7: AM “Do Nothing” Intersection Operations

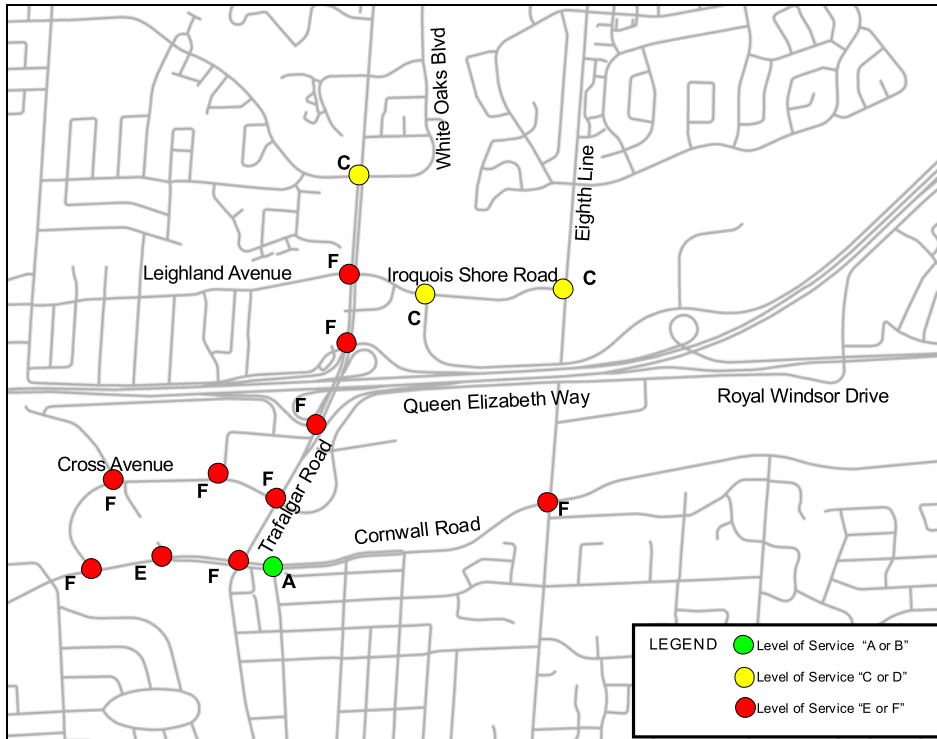
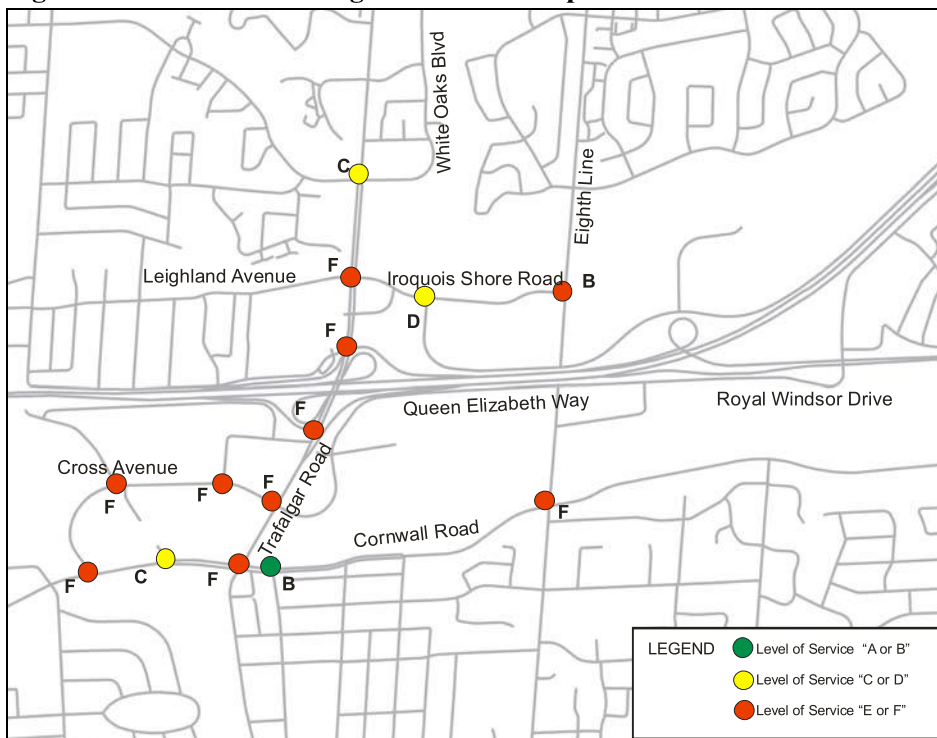


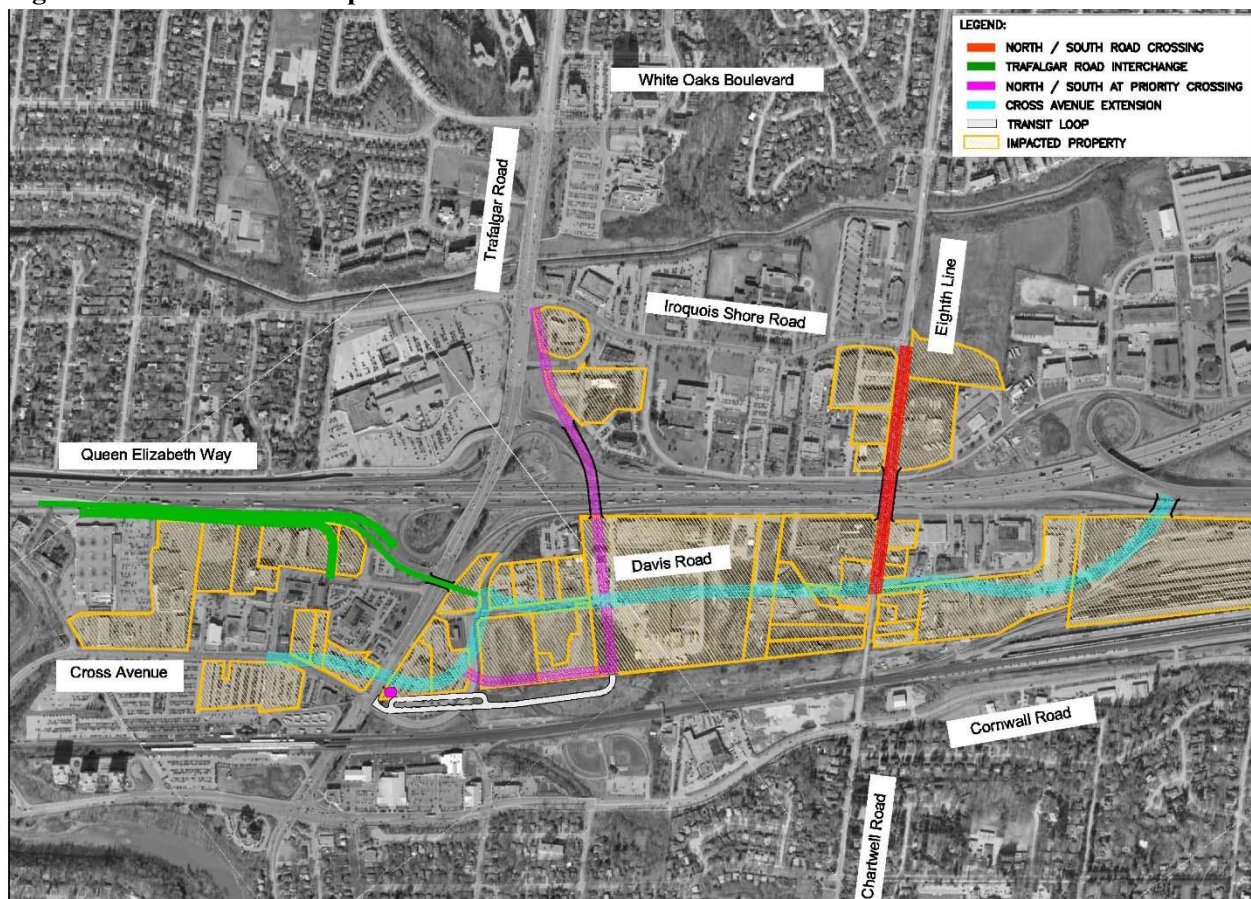
Figure 3-8: PM “Do Nothing” Intersection Operations



Option #2, shown in **Figure 4-2**, features two new crossings of the QEW (one crossing for transit and active transportation only, and one crossing for general purpose traffic). The active transportation / priority crossing intersects Trafalgar Road at Iroquois Shore Road and creates a five-legged intersection at this location. At the south end, the active transportation / priority crossing intersects the Cross Avenue extension. The second QEW crossing connects Iroquois Shore Road to Cross Avenue extension along the Eighth Line-Chartwell Road alignment.

The eastbound QEW off-ramp to Trafalgar Road is realigned to accommodate an additional direct underpass of Trafalgar Road into Midtown Oakville which meets the Cross Avenue extension at existing South Service Road / Davis Road intersection. The existing signalized intersection of the eastbound QEW off-ramp at Trafalgar Road is maintained for vehicles destined northbound or southbound on Trafalgar Road. The Cross Avenue extension provides opportunities to accommodate development on both sides of the road.

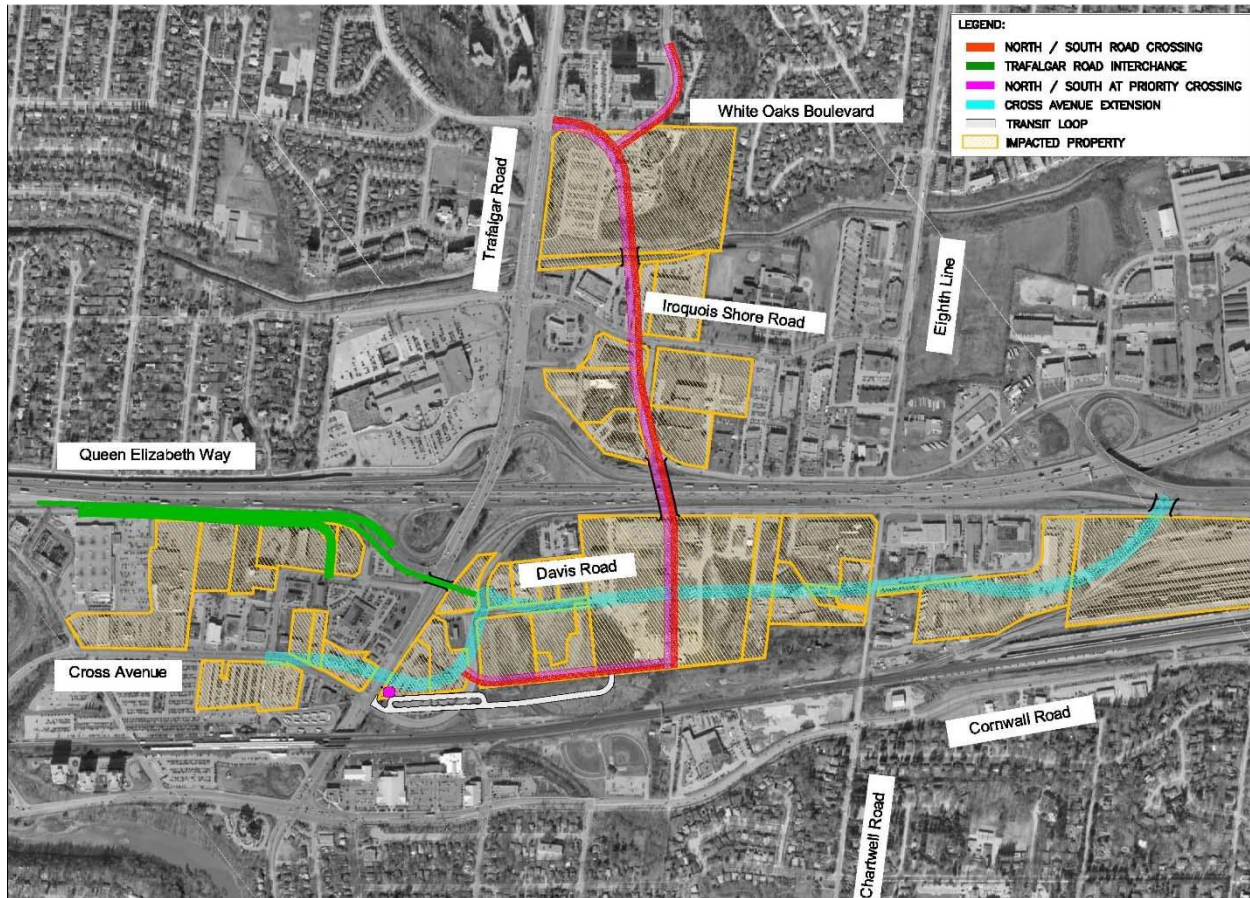
Figure 4-2: Combination Option #2



Option #3, shown in **Figure 4-3**, features one new crossing of the QEW, which accommodates all modes (transit, active transportation, and other vehicles). At the north end, the crossing intersects Trafalgar Road at White Oaks Boulevard. At the south end, the crossing intersects the Cross Avenue extension. This crossing provides additional opportunities to accommodate development between Iroquois Shore Road and White Oaks Boulevard.

The eastbound QEW off-ramp to Trafalgar Road is realigned to accommodate an additional direct underpass of Trafalgar Road into Midtown Oakville which meets the Cross Avenue extension at the existing South Service Road / Davis Road intersection. The existing signalized intersection of the eastbound QEW off-ramp at Trafalgar Road is maintained for vehicles destined northbound or southbound on Trafalgar Road. The Cross Avenue extension provides opportunities to accommodate development on both sides of the road.

Figure 4-3: Combination Option #3



Improved capacity is provided on Iroquois Shore Road by widening of the road to a 4-lane cross-section plus a centre-turning lane, with on-street bike lanes and sidewalks on both sides. Iroquois Shore Road connects with the extension of Royal Windsor Drive providing one continuous corridor.

Additional connections to the proposed new transit station are provided in the form of designated transit lanes that connect the proposed Trafalgar BRT via the North-South Crossing and continuing on to the transit station. Additionally, transit-only access from Cross Avenue extension to the proposed transit station will be provided.

Additional links for pedestrians and cyclists are provided by two grade-separated, active transportation crossings of the QEW – one west of Trafalgar Road and one east of Trafalgar Road. These crossings will meet required accessibility design standards and enhance the safety of those wishing to cross the QEW on foot or by bicycle. These active transportation crossings provide pedestrians and cyclists with alternatives for crossing the QEW and improved access to transit.

5.4. Future Traffic Operations of Preferred Concept

Traffic analysis of the preferred concept was undertaken to refine the design and configuration of the preferred concept. Intersection analysis was undertaken to assess operations and queue storage needs. A microsimulation model was undertaken to assess the impacts of new interchange ramps on the QEW and at the ramp intersections.

Intersection Operations

The preferred concept will operate with improved levels of service compared to the “Do Nothing” scenario (see Section 3.2.2), however, some capacity constraints will persist. The intersections of Trafalgar Road / Cross Avenue and Trafalgar Road / Cornwall Road will both operate at capacity (LOS E) even with the proposed network improvements. It is noted that these intersections all failed (LOS F) in the “Do Nothing” scenario. On the whole, the preferred concept for Midtown Oakville provides much needed capacity to the transportation network.

Freeway Operations

The proposed improvements are not expected to significantly impact the QEW mainline operations with the refinements to the design to better accommodate weaving and merging. The new ramps at Royal Windsor Drive and Trafalgar Road will accommodate the additional travel demand from Midtown Oakville’s planned intensification thereby providing relief to the existing Trafalgar Road interchange.

Figure 5-2: AM Preferred Concept Intersection Operations

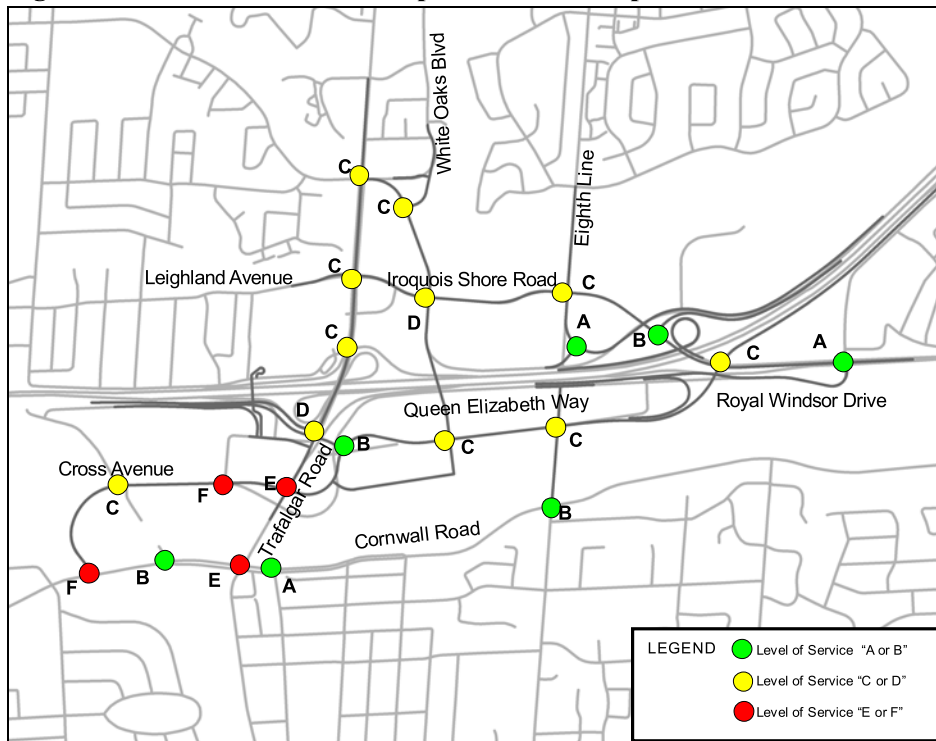
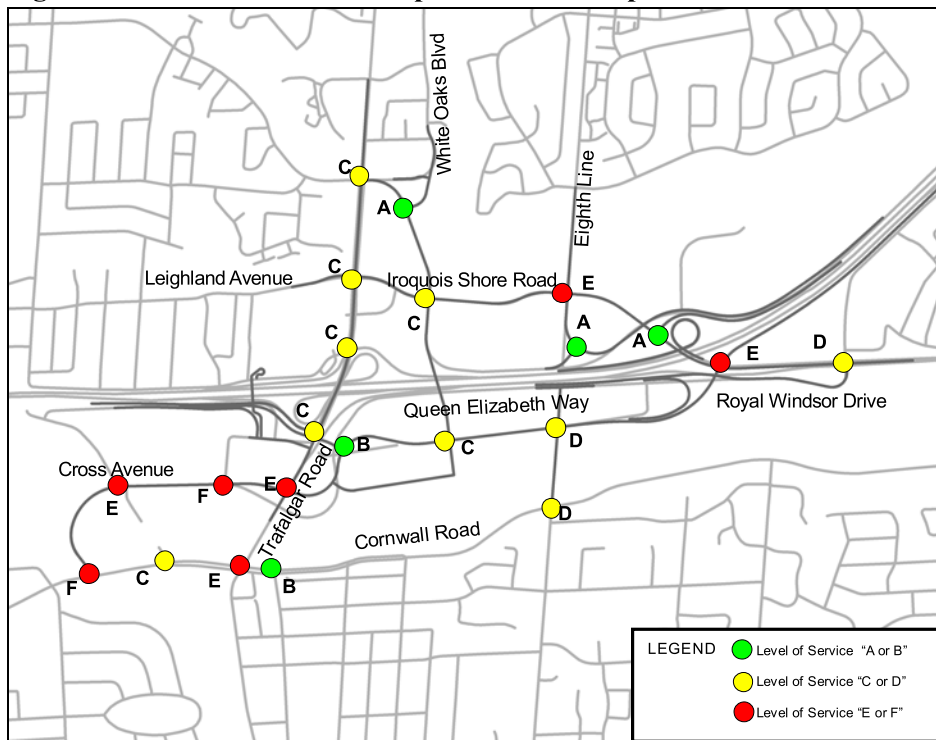


Figure 5-3: PM Preferred Concept Intersection Operations



**Midtown Oakville Transportation and Stormwater
Municipal Class EA Final Report June 2014**

**APPENDIX E
PRELIMINARY IMPROVEMENTS A TO D**

Improvement D: Cross Avenue Extension

Improvement D1 – Through centre of Midtown from existing South Service Road / Davis Road intersection to Royal Windsor Drive



Carried forward for further evaluation.

Improvement D2 – Along Hydro Corridor (south of Midtown) for approximately 500m; north 200m; then east through centre of Midtown to Royal Windsor Drive



Carried forward for further evaluation.

Improvement D3 – Along Hydro Corridor (south of Midtown)



Not carried forward for further evaluation.

Justification:

- Does not provide balanced development opportunities though the Midtown Core, since it is located just north of the Hydro Corridor.

**Midtown Oakville Transportation and Stormwater
Municipal Class EA Final Report June 2014**

**APPENDIX C
TRAFFIC ANALYSIS**

HCM Signalized Intersection Capacity Analysis

9: Davis Rd &

6/3/2014



Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	288	223	0	1227	1001	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			6.0	6.0	
Lane Util. Factor	1.00			0.95	0.95	
Flt	0.94			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1724			3579	3579	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1724			3579	3579	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	288	223	0	1227	1001	0
RTOR Reduction (vph)	39	0	0	0	0	0
Lane Group Flow (vph)	472	0	0	1227	1001	0

Turn Type

Protected Phases	4					
Permitted Phases				2	6	
Actuated Green, G (s)	17.4			23.6	23.6	
Effective Green, g (s)	19.4			23.6	23.6	
Actuated g/C Ratio	0.37			0.45	0.45	
Clearance Time (s)	6.0			6.0	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	631			1594	1594	
v/s Ratio Prot	c0.27					
v/s Ratio Perm				c0.34	0.28	
v/c Ratio	0.75			0.77	0.63	
Uniform Delay, d1	14.7			12.4	11.3	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	5.0			2.3	0.8	
Delay (s)	19.6			14.7	12.1	
Level of Service	B			B	B	
Approach Delay (s)	19.6			14.7	12.1	
Approach LOS	B			B	B	

Intersection Summary

HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	53.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	60		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 16: Davis Rd & QEW EB Button Hook

6/3/2014



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↗
Volume (veh/h)	0	1423	394	0	0	348
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	1423	394	0	0	348
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)			115			
pX, platoon unblocked						
vC, conflicting volume	394				1106	197
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	394				1106	197
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	57
cM capacity (veh/h)	1161				205	811
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	712	712	197	197	348	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	348	
cSH	1700	1700	1700	1700	811	
Volume to Capacity	0.42	0.42	0.12	0.12	0.43	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	17.0	
Control Delay (s)	0.0	0.0	0.0	0.0	12.8	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		12.8	
Approach LOS					B	
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			42.7%		ICU Level of Service	A
Analysis Period (min)			60			

HCM Signalized Intersection Capacity Analysis
 25: Iroquois Shore Rd & Canadian Rd

6/3/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↑↑	↗	↘	↑	↗	↘		↗
Volume (vph)	13	1476	0	0	1298	10	88	173	704	6	0	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	0.2	4.0		4.0
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)	1789	3579			3579	1601	1789	1883	1601	1789		1601
Flt Permitted	0.11	1.00			1.00	1.00	0.95	1.00	1.00	0.59		1.00
Satd. Flow (perm)	205	3579			3579	1601	1789	1883	1601	1109		1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	13	1476	0	0	1298	10	88	173	704	6	0	24
RTOR Reduction (vph)	0	0	0	0	0	2	0	0	0	0	0	18
Lane Group Flow (vph)	13	1476	0	0	1298	8	88	173	704	6	0	6
Turn Type	pm+pt					Perm	Perm		Free	custom		custom
Protected Phases	5	2			6			4				
Permitted Phases	2					6	4		Free	7		7
Actuated Green, G (s)	39.8	39.8			34.3	34.3	13.2	13.2	69.2	13.2		13.2
Effective Green, g (s)	39.8	44.2			38.7	38.7	17.0	17.0	69.2	17.0		17.0
Actuated g/C Ratio	0.58	0.64			0.56	0.56	0.25	0.25	1.00	0.25		0.25
Clearance Time (s)	4.0	8.4			8.4	8.4	7.8	7.8		7.8		7.8
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	152	2286			2002	895	439	463	1601	272		393
v/s Ratio Prot	0.00	c0.41			0.36			0.09				
v/s Ratio Perm	0.05					0.00	0.05		c0.44	0.01		0.00
v/c Ratio	0.09	0.65			0.65	0.01	0.20	0.37	0.44	0.02		0.02
Uniform Delay, d1	8.9	7.7			10.5	6.8	20.7	21.7	0.0	19.8		19.8
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	0.2	0.6			0.7	0.0	0.2	0.5	0.9	0.0		0.0
Delay (s)	9.1	8.3			11.3	6.8	20.9	22.2	0.9	19.8		19.8
Level of Service	A	A			B	A	C	C	A	B		B
Approach Delay (s)		8.3			11.2			6.5			19.8	
Approach LOS		A			B			A			B	

Intersection Summary		
HCM Average Control Delay	9.0	HCM Level of Service
HCM Volume to Capacity ratio	0.55	A
Actuated Cycle Length (s)	69.2	Sum of lost time (s)
Intersection Capacity Utilization	62.5%	ICU Level of Service
Analysis Period (min)	60	B
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis

9: Davis Rd. & Davis Rd

6/3/2014



Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	56	28	0	1293	1105	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.0	
Lane Util. Factor	1.00			0.95	0.95	
Fr _t	0.95			1.00	1.00	
Fl _t Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1741			3579	3579	
Fl _t Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1741			3579	3579	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	56	28	0	1293	1105	0
RTOR Reduction (vph)	21	0	0	0	0	0
Lane Group Flow (vph)	63	0	0	1293	1105	0
Turn Type						
Protected Phases	4					
Permitted Phases			2		6	
Actuated Green, G (s)	16.0		32.0		32.0	
Effective Green, g (s)	16.0		32.0		32.0	
Actuated g/C Ratio	0.27		0.53		0.53	
Clearance Time (s)	6.0		6.0		6.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	464		1909		1909	
v/s Ratio Prot	c0.04					
v/s Ratio Perm			c0.36		0.31	
v/c Ratio	0.14		0.68		0.58	
Uniform Delay, d ₁	16.7		10.2		9.5	
Progression Factor	1.00		1.00		1.00	
Incremental Delay, d ₂	0.6		2.0		1.3	
Delay (s)	17.4		12.2		10.7	
Level of Service	B		B		B	
Approach Delay (s)	17.4		12.2		10.7	
Approach LOS	B		B		B	

Intersection Summary

HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	60		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

16: Davis Rd & QEW EB Button Hook

6/3/2014



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↗
Volume (veh/h)	0	1423	394	0	0	348
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	1423	394	0	0	348
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)			115			
pX, platoon unblocked						
vC, conflicting volume	394				1106	197
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	394				1106	197
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	57
cM capacity (veh/h)	1161				205	811
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	712	712	197	197	348	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	348	
cSH	1700	1700	1700	1700	811	
Volume to Capacity	0.42	0.42	0.12	0.12	0.43	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	17.0	
Control Delay (s)	0.0	0.0	0.0	0.0	12.8	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		12.8	
Approach LOS					B	
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			42.7%		ICU Level of Service	A
Analysis Period (min)			60			

HCM Signalized Intersection Capacity Analysis

25: Iroquois Shore Rd & Canadian Rd

6/3/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↑↑	↗	↘	↑	↗	↘		↗
Volume (vph)	48	1089	0	0	1607	28	7	321	392	12	0	478
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	0.2	4.0		4.0
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)	1789	3579			3579	1601	1789	1883	1601	1789		1601
Flt Permitted	0.06	1.00			1.00	1.00	0.95	1.00	1.00	0.34		1.00
Satd. Flow (perm)	118	3579			3579	1601	1789	1883	1601	642		1601
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	48	1089	0	0	1607	28	7	321	392	12	0	478
RTOR Reduction (vph)	0	0	0	0	0	6	0	0	0	0	0	107
Lane Group Flow (vph)	48	1089	0	0	1607	22	7	321	392	12	0	371
Turn Type	pm+pt					Perm	Perm		Free	custom		custom
Protected Phases	5	2			6			4				
Permitted Phases	2					6	4		Free	7		7
Actuated Green, G (s)	70.9	70.9			59.6	59.6	31.6	31.6	118.7	31.6		31.6
Effective Green, g (s)	70.9	75.3			64.0	64.0	35.4	35.4	118.7	35.4		35.4
Actuated g/C Ratio	0.60	0.63			0.54	0.54	0.30	0.30	1.00	0.30		0.30
Clearance Time (s)	4.0	8.4			8.4	8.4	7.8	7.8		7.8		7.8
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	173	2270			1930	863	534	562	1601	191		477
v/s Ratio Prot	0.02	c0.30			c0.45			0.17				
v/s Ratio Perm	0.15					0.01	0.00		0.24	0.02		c0.23
v/c Ratio	0.28	0.48			0.83	0.02	0.01	0.57	0.24	0.06		0.78
Uniform Delay, d1	20.8	11.4			22.9	12.8	29.3	35.2	0.0	29.8		38.1
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	0.9	0.2			3.3	0.0	0.0	1.4	0.4	0.1		8.3
Delay (s)	21.7	11.6			26.2	12.8	29.4	36.6	0.4	29.9		46.4
Level of Service	C	B			C	B	C	D	A	C		D
Approach Delay (s)		12.0			26.0			16.8			46.0	
Approach LOS		B			C			B			D	

Intersection Summary

HCM Average Control Delay	22.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	118.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	60		
c Critical Lane Group			

Memorandum

DATE: June 2, 2014
TO: Lin Rogers – Town of Oakville
Chris Pascos – MTO
FROM: Matt Clark – Cole Engineering
CC: Suzette Shiu – Cole Engineering
OUR REF.#: T11-767
SUBJECT: Oakville Midtown EA Study
Microsimulation Do Nothing Scenario – Revised

1. Introduction

1.1. Background

Cole Engineering Group Ltd was retained by the Town of Oakville to develop a Vissim microsimulation model to assess impacts to traffic operations on the QEW mainline and ramp terminals for Midtown Oakville.

This memorandum summarizes anticipated traffic operations on the QEW mainline and at the Trafalgar Road and Royal Windsor Drive interchanges in the “Do Nothing” microsimulation scenario for the 2031 AM and PM weekday peak periods.

1.2. Study Area

The study network for the microsimulation model was previously approved by the MTO and includes the QEW mainline from west of Dorval Drive interchange to east of Winston Churchill Boulevard interchange including the QEW / Highway 403 interchange. The Trafalgar Road segment from Leighland Avenue to Cross Avenue is also included in the study area. **Figure 1** shows the network extents for the Vissim model.

2.2. 2031 Do Nothing Travel Demand

The 2031 Do Nothing travel demand for the study area was generated using the Halton Region Emme weekday 2031 PM peak model. The MTO Systems Analysis and Forecasting Office (SAFO) approved the use of the Region’s Emme model for this study.

The Do Nothing study area comprises of 31 traffic zones (26 input gates) and the trend transit split was used for a conservative analysis (higher auto demand). A traversal OD matrix was extracted from the Emme model for 2031 Do Nothing weekday PM conditions.

The OD matrix was further refined by increasing the demand along the QEW to match the volumes modelled in MTO’s GGH model. The screenline demand along the QEW from the GGH model is generally higher compared to the Halton Region Emme model; therefore, the 2031 demand used in the microsimulation analysis is similar to the demand from the GGH model.

A proposed GTA HOV network is also modelled in the Halton Region Emme 2031 weekday PM peak model and a 2031 traversal OD matrix was obtained for HOV trips through the microsimulation study area. The HOV matrix was expanded and adjusted similar to the general purpose matrix.

The 2031 PM peak hour travel demand was inverted to provide the travel demand patterns for the 2031 AM peak hour. An HOV 2031 weekday AM peak hour matrix was also developed.

Based on discussions with MTO staff, it was agreed that mainline volumes on the QEW and Highway 403 mainline be increased by 10 to 15% to replicate the forecasted mainline volumes in MTO’s TESR for Highway 403. The updated volumes also include adjustments to the ramp volumes at the Dorval Drive interchange.

Similar to the calibrated and validated existing weekday AM and PM models, route choices within the 2031 Do Nothing network is limited and the travel demand was assigned to the network using the static routing function within Vissim. A comparison of the existing and 2031 Do Nothing travel demand for the microsimulation study area is provided in **Table 1**.

It is noted that the adjustments to replicate the mainline volumes from the TESR resulted in a Do Nothing AM peak hour travel demand which is similar to the Do Nothing PM peak hour demand as shown in **Table 1**. This is a significant change since the existing AM peak hour demand is lower compared to the existing PM peak hour.

Table 1: Comparison of Existing and 2031 Do Nothing Travel Demand

Weekday Peak Hour	Existing Demand (vehicle trips)	2031 Trend Transit Demand (vehicle trips)
AM Peak	21,970	37,918
PM Peak	25,715	38,640

2.3.4. Ramp Terminal Queuing Analysis

A queuing analysis was conducted using data from the microsimulation model to assess the impact of queues at the ramp terminals on mainline operations. From the speed contour plot results it can be seen that queuing from the ramp terminal operations will impact QEW mainline operations and this is confirmed in **Table 2** where the maximum anticipated queues exceed available storage.

Table 2: 2031 Do Nothing Ramp Terminal Queuing Analysis

Ramp	Available Storage (m)	AM Peak Hour		PM Peak Hour	
		Average Queue (m)	Maximum Queue (m)	Average Queue (m)	Maximum Queue (m)
Trafalgar EB Off Ramp	325	446	>500	448	>500
Trafalgar WB Off Ramp	300	498	>500	495	>500

3. Intersection Operational Analysis

Intersection operations under 2031 Do Nothing conditions were not analyzed. The significant congestion observed from the Vissim model indicates that the intersection operations would fail. The volumes being served at the intersections are low and any resulting Synchro analysis using those volumes would not represent anticipated conditions.

4. Summary of 2031 Traffic Operations

The microsimulation modelling results confirm that the Midtown Oakville 2031 Do Nothing network cannot accommodate the demand placed upon it during the weekday AM and PM peak hours. The Midtown demand for the Trafalgar Road interchange causes it to fail and severely impact QEW mainline operations, affecting throughput and journey times.

The results from the 2031 Do Nothing analysis confirms that additional transportation network infrastructure is required to accommodate Midtown Oakville, including alternative routes to/from Midtown and additional access to/from the QEW.



TOWN OF OAKVILLE TRANSPORTATION MASTER PLAN REVIEW

FINAL

MARCH 2018

PREPARED FOR THE TOWN OF:



OAKVILLE

WSP+GLP



4.4 Recommended Road Network Improvements

The Town of Oakville applies a level-of-service threshold for road network planning studies in order to determine candidate roads for improvements. Currently, the road infrastructure needs are assessed based on a screenline and link volume to capacity (v/c) ratio of 0.90 and a level-of-service of D or better. A corridor link or screenline that is forecast to have a higher v/c ratio or lower level-of-service is seen to be ‘congested’ and a potential candidate for infrastructure improvement.

Considering the above thresholds together with the town’s policy framework (*Livable Oakville*, Urban Structure, etc.); community impacts (available property, tree canopy, connectivity) and cost for improvements (capital, operating, land, congestion cost, etc.), it was recognized that additional widening is not feasible to address screenline deficiencies (as identified above in Section 4.3). Based on the review of link level volume to capacity ratio for individual corridor, two road segments are being considered for additional network improvements over the improvements already identified in the *Switching Gears 2013*:

The evaluation of road infrastructure improvements seeks to identify a suitable balance to meet transportation capacity needs and achieve environmental, community/cultural, and financial/economic sustainability.

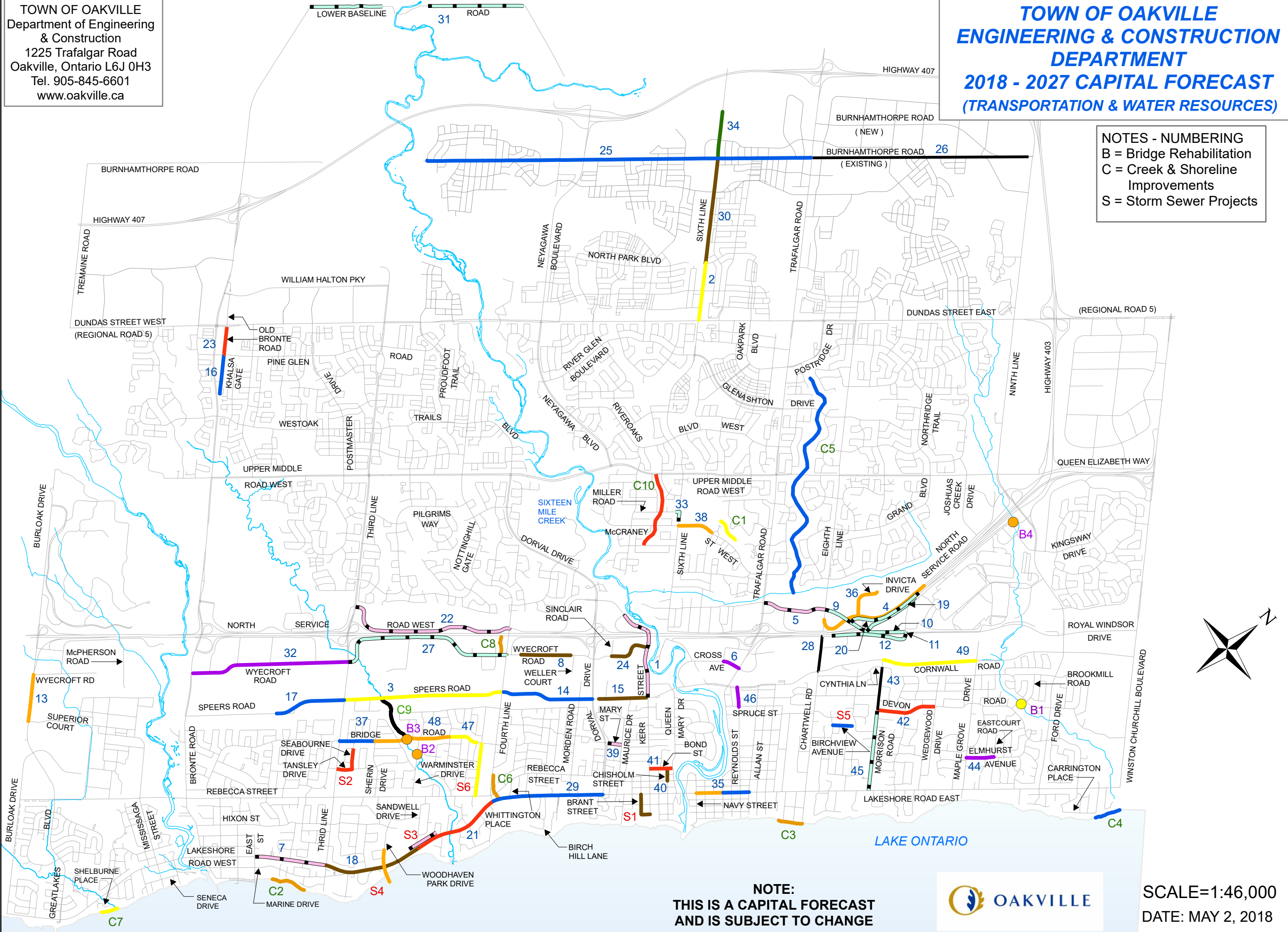
- **Eighth Line between Iroquois Shore Road and Falgarwood Drive:** The northbound direction is expected to operate at v/c of 1.01. The Midtown EA Study identified Eighth Line to be widened to four-lane between Iroquois Shore Road and North Service Road. It is recommended to extend the four-lane widening up to Falgarwood Drive to provide smooth traffic operations.
- **Third Line between North Service Road and Wycroft Road:** The northbound lanes are expected to operate at v/c of 0.90-0.99 and is recommended for widening from four to six lanes. Given the proximity to Bronte GO station, queue jump lanes and dedicated transit lanes for Oakville Transit services should be considered to provide additional capacity to and from the station.



TOWN OF OAKVILLE
 Department of Engineering
 & Construction
 1225 Trafalgar Road
 Oakville, Ontario L6J 0H3
 Tel. 905-845-6601
 www.oakville.ca

**TOWN OF OAKVILLE
 ENGINEERING & CONSTRUCTION
 DEPARTMENT
 2018 - 2027 CAPITAL FORECAST
 (TRANSPORTATION & WATER RESOURCES)**

NOTES - NUMBERING
 B = Bridge Rehabilitation
 C = Creek & Shoreline
 Improvements
 S = Storm Sewer Projects



- Bridge Projects Constr'n Year**
- 2018
 - 2019
 - 2020
 - 2021
 - 2022
 - 2023
 - 2024
 - 2025
 - 2026
 - 2027

- Storm Sewer, Road and Shoreline Improvement Projects Constr'n Year**
- (Includes Previously Funded projects)
- 2018
 - 2019
 - 2020
 - 2021
 - 2022
 - 2023
 - 2024
 - 2025
 - 2026
 - 2027

NOTE:
 THIS IS A CAPITAL FORECAST
 AND IS SUBJECT TO CHANGE



SCALE=1:46,000
 DATE: MAY 2, 2018



TOWN OF OAKVILLE - DEPARTMENT OF ENGINEERING & CONSTRUCTION 2018 - 2027 CAPITAL FORECAST

Project Number	Street	From Street	To Street	Constr'n Year	Improvement Type	
ROAD PROJECTS						
1	53310703	Kerr Street	Speers Road	North of QEW	2023 / 2024	Reconstruction to 4 lanes with grade separation at CN Rail line
2	53311006	Sixth Line	E-W Connector 1		2018	Reconstruction to a 4 lane urban roadway
3	53311410	Speers Road	GO Station (west of Third Line)	Fourth Line	2018	Widening and resurfacing of a 5 lane urban roadway
4	53311502	North Service Road East	1 km East of Invicta Drive	Eighth Line	2019	Reconstruction to a 3 lane urban roadway
5	53311508	Iroquois Shore Road	Eighth Line	Trafalgar Road	2023	Widening and resurfacing to a 5 lane urban roadway
6	53311603	Cross Avenue	Argus Road	South Service Road East	2026	Widening and re-alignment of Cross Ave. to a 5 lane urban roadway
7	53311604	Lakeshore Road West	East Street	Third Line	2023	Reconstruction to a 3 lane urban arterial road standard
8	53311606	Wycroft Road	East of Fourth Line	Weller Court	2021	Widening and resurfacing to a 5 lane urban roadway
9	53311607	Royal Windsor Drive Extension	Future WB Off-Ramp	Eighth Line	2025 / 2026	New 4 lane urban roadway and Interchange development for Midtown transportation network
10	53311609	Royal Windsor Drive Widening	Future WB Off-Ramp	Ford Plant (incl. QEW structure)	2025 / 2026	Widening of QEW crossing structure and Interchange development for Midtown transportation network
11	53311610	Royal Windor Drive	at South Service Road East		2025	Intersection Improvements
12	53311611	Royal Windor Drive/QEW Off-Ramp	QEW to South Service Road connection at Ford Plant		2025 / 2026	Widening of RWD and Interchange development for Midtown transportation network
13	53311705	Burloak Drive	Wycroft Road	Superior Court	2019 / 2020	Grade Separation at CNR tracks
14	53311713	Speers Road	Dorval Drive	Fourth Line	2020	Widening and resurfacing of a 5 lane urban roadway
15	53311805	Speers Road	East of Dorval Drive	Kerr Street	2021	Widening and resurfacing of a 5 lane urban roadway
16	53311806	Khalsa Gate	Pine Glen Road	Cul-de-Sac	2020	Streetscape
17	53311902	Speers Road	Procor	Third Line	2020	Widening and resurfacing to a 5 lane urban roadway
18	53311903	Lakeshore Road West	Third Line	Sandwell Drive	2021	Reconstruction and widening to a 3 lane urban roadway
19	53311907	QEW Eastbound On-Ramp	at Royal Windsor Drive Interchange		2025 / 2026	New on-ramp to QEW and Interchange development for Midtown transportation network
20	53311908	QEW Eastbound Off-Ramp	at Royal Windsor Drive Interchange		2025 / 2026	New off-ramp to QEW and Interchange development for Midtown transportation network
21	53312002	Lakeshore Road West	Sandwell Drive	Fourth Line	2022	Reconstruction and widening to a 3 lane urban roadway
22	53312004	North Service Road West	Third Line	Fourth Line	2023	Reconstruction and widening to a 3 lane urban roadway
23	53312005	Old Bronte Road	Pine Glen Road	Dundast Street West	2022	Streetscape
24	53312006	Wycroft Road	Sinclair Road	Kerr Street	2021	Reconstruction of a 2 lane rural o 4 lane urban roadway & center turn lane
25		Burnhamthorpe Road	West section		2020	Reconstruction
26		Burnhamthorpe Road	East section		2024	Reconstruction
27	53312104	South Service Road West	Third Line	Fourth Line	2025	Reconstruction and widening to a 3 lane urban roadway
28	53312107	Chartwell Road	South Service Road East	Cornwall Road	2024	Reconstruction and widening to a 4 lane urban roadway (level crossing)
29	53312108	Lakeshore Road West	Fourth Line	Dorval Drive	2020	Reconstruction and widening to a 3 lane urban roadway
30	53312110	Sixth Line - Phase 2	Threshing Mill Blvd	Burnhamthorpe Road	2021	Reconstruction to a 4 lane urban roadway
31	53312303	Lower Base Line	Excluding Valley Section		2025	Reconstruction of a 2 lane rural roadway
32	53312401	Wycroft Road	Bronte Road	Third Line	2026	Reconstruction and widening to a 5 lane urban roadway
33	53312402	Sixth Line	Miller Road		2025	Northbound turn lane at Miller Road
34	53312701	Sixth Line - Phase 3	Burnhamthorpe Road	William Halton Parkway	2027	Reconstruction to a 4 lane urban roadway
35	53321504	Lakeshore Road East	Navy Street	Allan Street	2019 / 2020	Reconstruction & Streetscape
36	53321607	Invicta Drive	North Service Road East	North Limit	2019	Reconstruction to a urban standard roadway
37	53321701	Bridge Road	Third Line	Sherin Drive	2020	Reconstruction to a urban standard roadway
38	53321801	McCraney Street	East of Sixth line	West of Montclair Drive	2019	Construction of a transit layby lane
39	53322001	Mary Street	Margaret Drive	Maurice Drive	2023	Reconstruction to a urban standard roadway
40	53322003	Chisholm Street	Rebecca Street	Bond Street	2021	Reconstruction to a urban standard roadway
41	53322004	Bond Street	Kerr Street	Queen Mary Drive	2022	Reconstruction to a urban standard roadway
42	53322102	Devon Road	Morrison Road	Wedgewood Drive	2022	Reconstruction to a urban standard roadway
43	53322301	Morrison Road	Cynthia Lane	Devon Road	2024	Reconstruction to a urban standard roadway
44	53322401	Elmhurst Avenue	Maple Grove Drive	Eastcourt Road	2026	Reconstruction to a urban standard roadway
45	53322402	Morrison Road	Devon Road	Lakeshore Road East	2025	Reconstruction to a urban standard roadway
46	53322501	Reynolds Street	Cornwall Road	Spruce Street	2026	Reconstruction to a urban standard roadway
47		Bridge Road	Smith Lane	Lees Lane	2018	Reconstruction to a urban standard roadway
48		Bridge Road	Lees Lane	Sherin Drive	2019	Reconstruction to a urban standard roadway
49		Cornwall Road	Morrison Road	Maple Grove Drive	2018	Reconstruction to a urban standard roadway
BRIDGE PROJECTS						
B1	53360805	Brookmill Road	at Joshua's Creek		2018	Bridge Rehabilitation
B2	53361103	Warminster Drive	at Fourteen Mile Creek		2019	Bridge Rehabilitation
B3	53361301	Bridge Road	at Fourteen Mile Creek		2019	Bridge Rehabilitation
B4	53361801	South Service Road	at Joshua Creek		2019	Bridge Rehabilitation
CREEK & SHORELINE IMPROVEMENT PROJECTS						
C1	53371102	North of McCraney Street West			2018	Morrison Creek West Reach 37
C2	53371505	West of Third Line			2019	Water's Edge Park - Vista Promenade-Shoreline Protection
C3	53371601	South of Holyrood Avenue			2019	Holyrood Promenade
C4	53371603	Arkendo Park			2020	Arkendo Park - Shoreline Protection
C5	53371606	West of Eighth Line			2020 / 2021	Morrison Creek East-Reaches 39 to 45
C6	53371705	Fourth Line / Rebecca Street Area			2019	McCraney Creek, Reach 21 - Creek Erosion
C7	5331709	Shelburne Place area			2018	Shelburne Promenade at Sheldon Creek
C8	53371801	Fourth Line / Wycroft Road Area			2019	Glen Oak Creek, Reach 32a - Creek Erosion
C9	53372001	East of Third Line (Speers Rd to Bridge Rd Area)			2024	Fourteen Mile Creek, Reach 5 - Creek Erosion
C10	53372101	West of Sixth Line (Culham St to Upper Middle Rd Area)			2022 / 2023	Munn's Creek, Reaches 33 to 35 - Creek Erosion
STORM SEWER PROJECTS						
S1	53381801	Brant Street			2021	Brant Street / Kerr Street Sewer
S2	53381802	Tansley Drive / Seabourne Drive			2022	Tansley Drive / Seabourne Drive Sewer
S3	53381803	Tweeddale Crescent / Lakeshore Road			2023	Tweeddale / Lakeshore Sewer
S4	53381805	Woodhaven Park Drive			2019	Woodhaven Park Drive Sewer
S5	53381806	Coral Terrace / Birchview Avenue			2020	Coral Terrace / Birchview Avenue Sewer
S6	53381703	Maplehurst Avenue	Rebecca Street to Bridge Road		2018	Maplehurst Storm Sewer - CWWF Funding

**TOWN OF OAKVILLE
CAPITAL PROJECT DETAIL SHEET
2021 - 2030 CAPITAL FORECAST**

Project ID	53312107	Growth Related	Yes
Project Name	Chartwell Road EA Study - South Service Road to Cornwall Road	Growth %	80
Department	Infrastructure Planning & Improvements	Construction Start Date	
Service / Program	5331 - Major Roads	Year of Initiation	2021
Asset Category	Road Network	Year of Completion	2022

PROJECT DETAILS

Project Description and Rationale

Preparation of a Class Environmental Assessment to determine transportation network improvements for all modes that are required on Chartwell Road between the South Service Road and Cornwall Road. Improvement options including urbanization, increasing the number of travel lanes, active transportation facilities and the treatment of the Metrolinx rail crossing, including consideration of an underpass option, will be considered. This is proposed to be a joint project with Metrolinx cost-sharing 50% of the EA study costs.

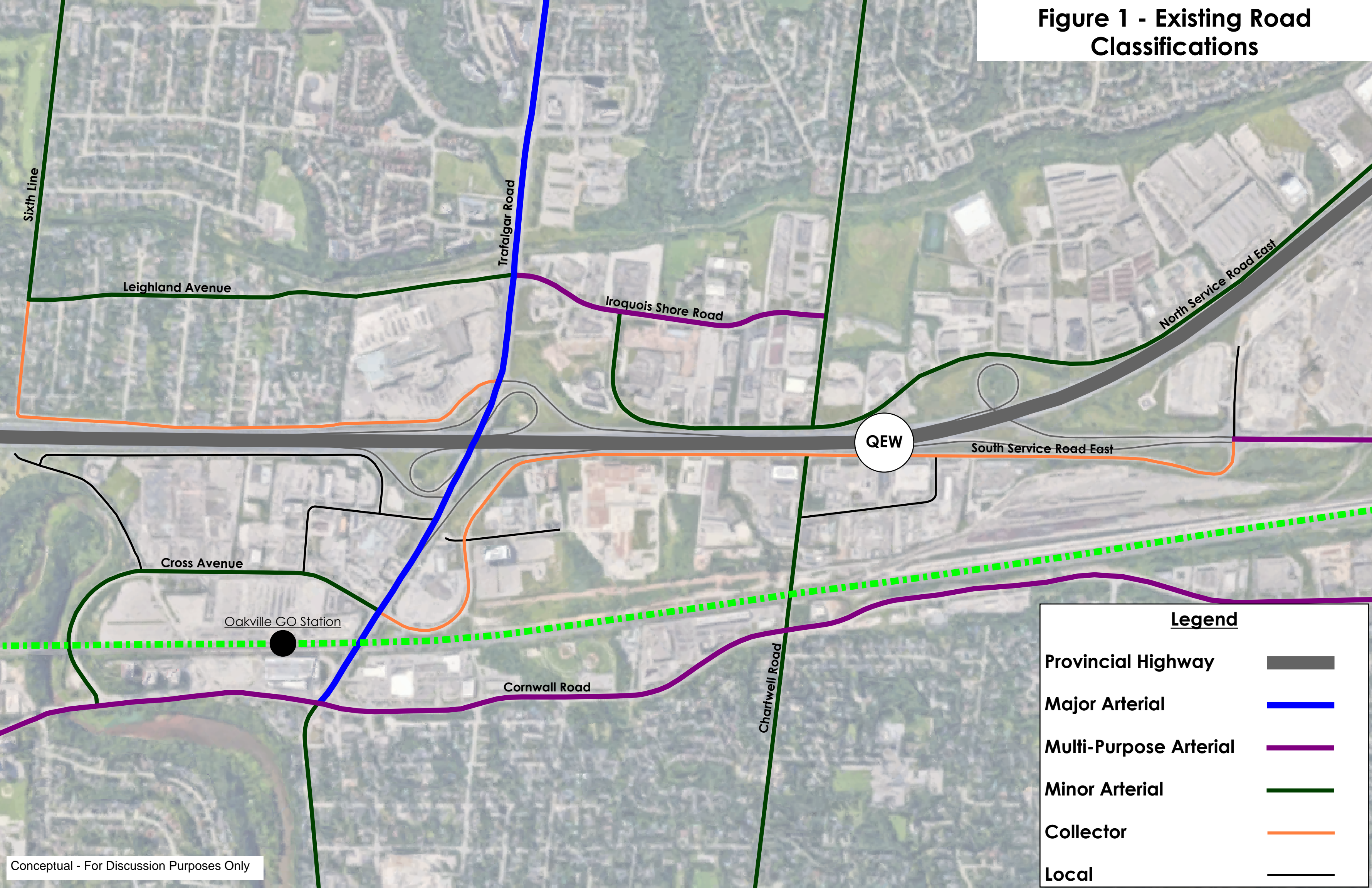
DESCRIPTION	LTD Budget	PROJECT BUDGET									TOTAL
		2021	2022	2023	2024	2025	2026	2027	2028	2029+	
CAPITAL COST											
Personnel Services & Benefits		8,000	4,000	3,000	9,000	47,000					71,000
Materials, Supplies & Utilities											
Capital out of Operations											
Purchased Services		750,000	350,000	275,000	850,000	4,449,000					6,674,000
Payments & Grants											
Internal Expenses & Transfers to Own Funds											
TOTAL CAPITAL COST		758,000	354,000	278,000	859,000	4,496,000					6,745,000
FINANCING											
PROGRAM SPECIFIC REVENUE											
Development Charges		306,400	283,200	222,400	687,200	3,596,800					5,096,000
Donations											
Grants & Subsidies											
Corporate Reserves											
Equipment Reserves											
Reserve Funds											
Operating Reserves											
Other Revenue		375,000									375,000
TOTAL PROGRAM SPECIFIC REVENUE		681,400	283,200	222,400	687,200	3,596,800					5,471,000
CORPORATE FINANCING											
Capital Reserve											
Capital Levy		76,600	70,800	55,600	171,800	899,200					1,274,000
Long Term Financing											
TOTAL CORPORATE FINANCING		76,600	70,800	55,600	171,800	899,200					1,274,000
TOTAL FINANCING		758,000	354,000	278,000	859,000	4,496,000					6,745,000
PORTION OF PROJECT UNFUNDED(+)											

DESCRIPTION	LTD Budget	OPERATING IMPACT									TOTAL
		2021	2022	2023	2024	2025	2026	2027	2028	2029+	
EXPECTED OPERATING COST											
Personnel Services & Benefits											
Materials, Supplies & Utilities						6,200					6,200
Capital Out of Operations											
Purchased Services						21,400					21,400
Payments & Grants											
Internal Expenses & Trfers to Own Funds											
TOTAL EXPECTED OPERATING COST						27,600					27,600
EXPECTED REVENUE											
External Revenue											
Internal Revenue & Own Fund Transfers											
TOTAL EXPECTED REVENUE											
NET OPERATING IMPACT						27,600					27,600

Note: The 2022-2030 Capital Forecast has not been updated, therefore the figures shown above are subject to change.

FIGURES

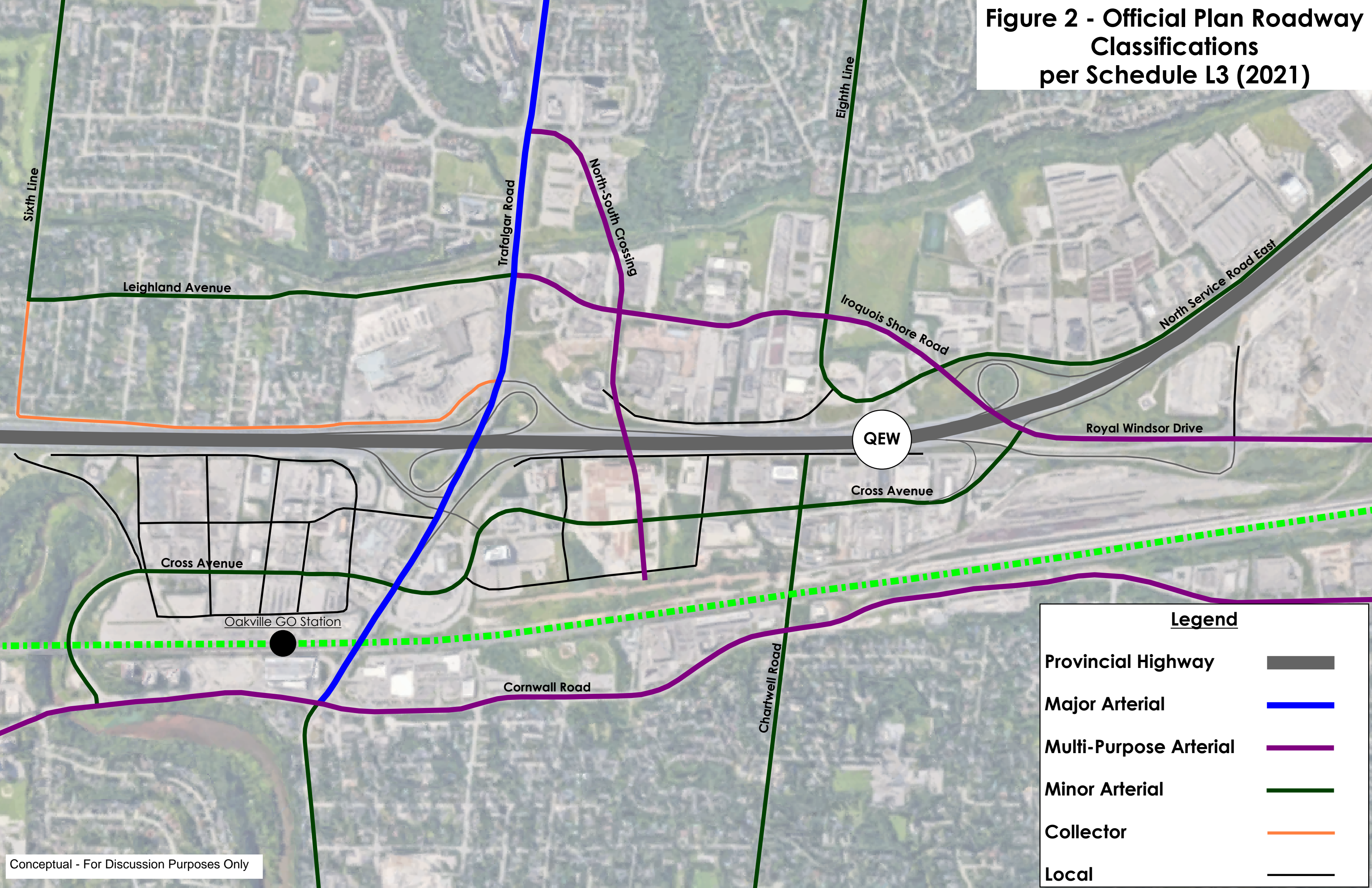
Figure 1 - Existing Road Classifications



Legend	
Provincial Highway	
Major Arterial	
Multi-Purpose Arterial	
Minor Arterial	
Collector	
Local	

Conceptual - For Discussion Purposes Only

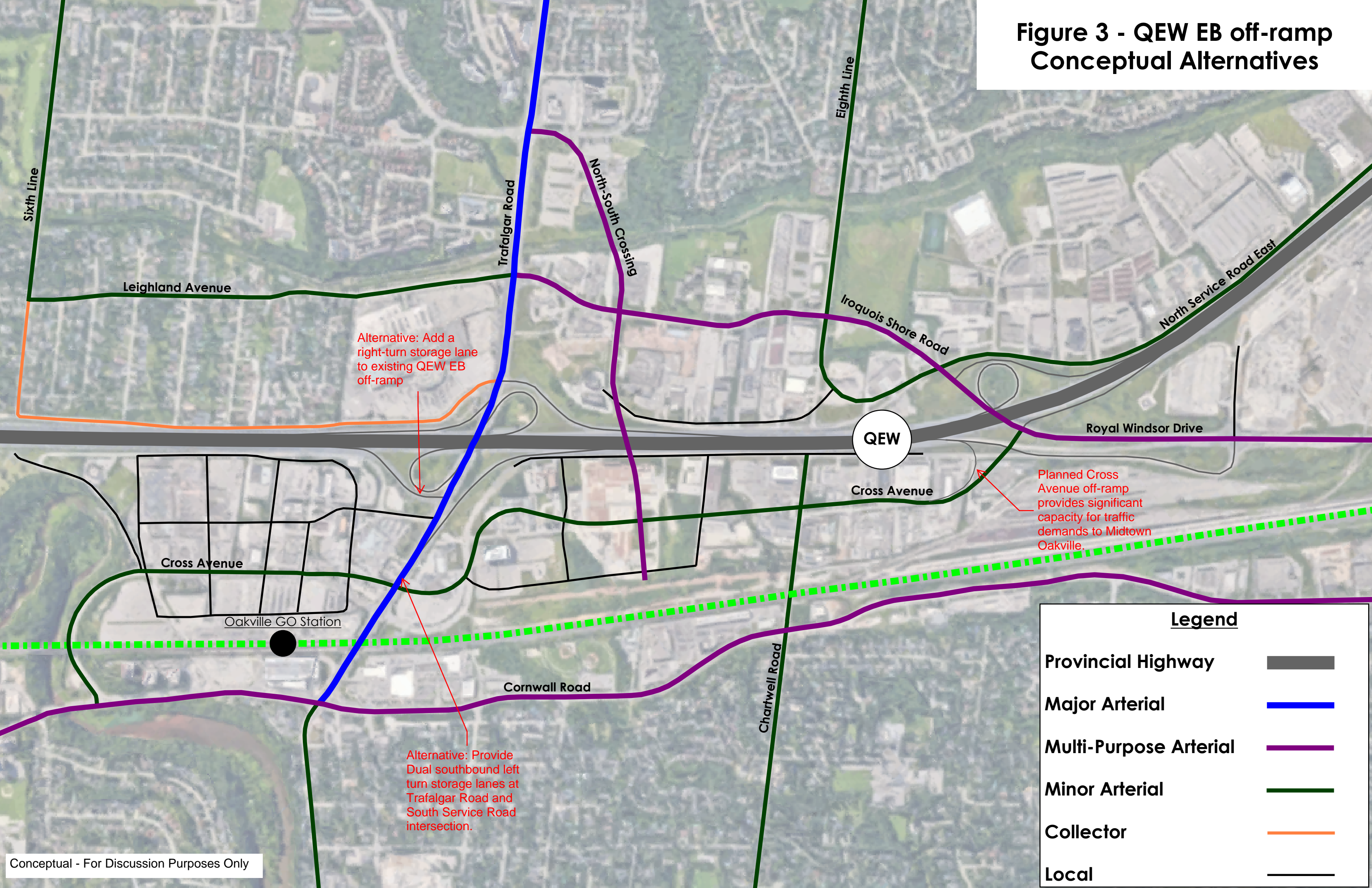
Figure 2 - Official Plan Roadway Classifications per Schedule L3 (2021)



Legend	
Provincial Highway	
Major Arterial	
Multi-Purpose Arterial	
Minor Arterial	
Collector	
Local	

Conceptual - For Discussion Purposes Only

Figure 3 - QEW EB off-ramp Conceptual Alternatives



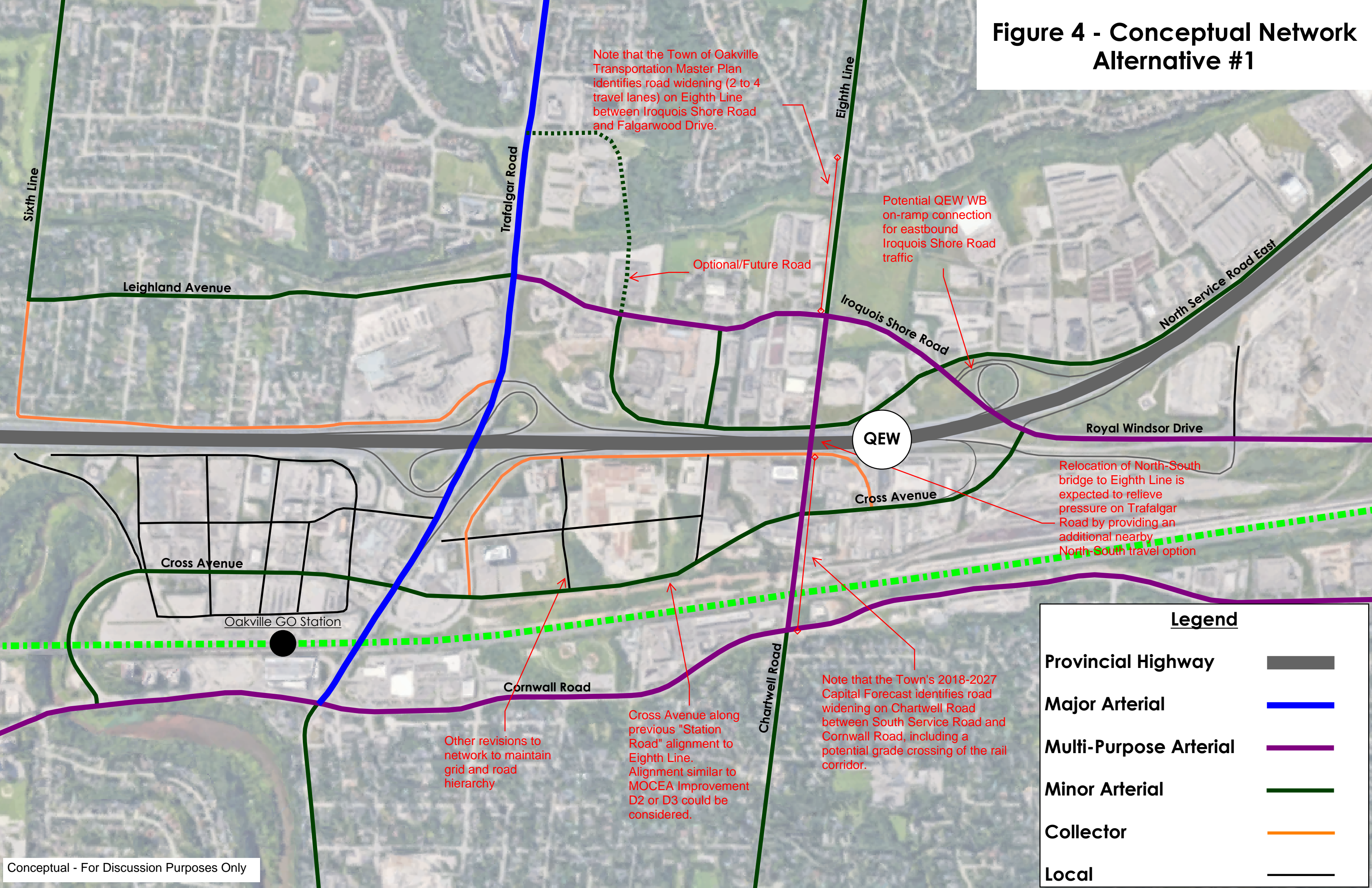
Alternative: Add a right-turn storage lane to existing QEW EB off-ramp

Planned Cross Avenue off-ramp provides significant capacity for traffic demands to Midtown Oakville.

Alternative: Provide Dual southbound left turn storage lanes at Trafalgar Road and South Service Road intersection.

Legend	
Provincial Highway	
Major Arterial	
Multi-Purpose Arterial	
Minor Arterial	
Collector	
Local	

Figure 4 - Conceptual Network Alternative #1



Note that the Town of Oakville Transportation Master Plan identifies road widening (2 to 4 travel lanes) on Eighth Line between Iroquois Shore Road and Falgarwood Drive.

Potential QEW WB on-ramp connection for eastbound Iroquois Shore Road traffic

Optional/Future Road

Relocation of North-South bridge to Eighth Line is expected to relieve pressure on Trafalgar Road by providing an additional nearby North-South travel option

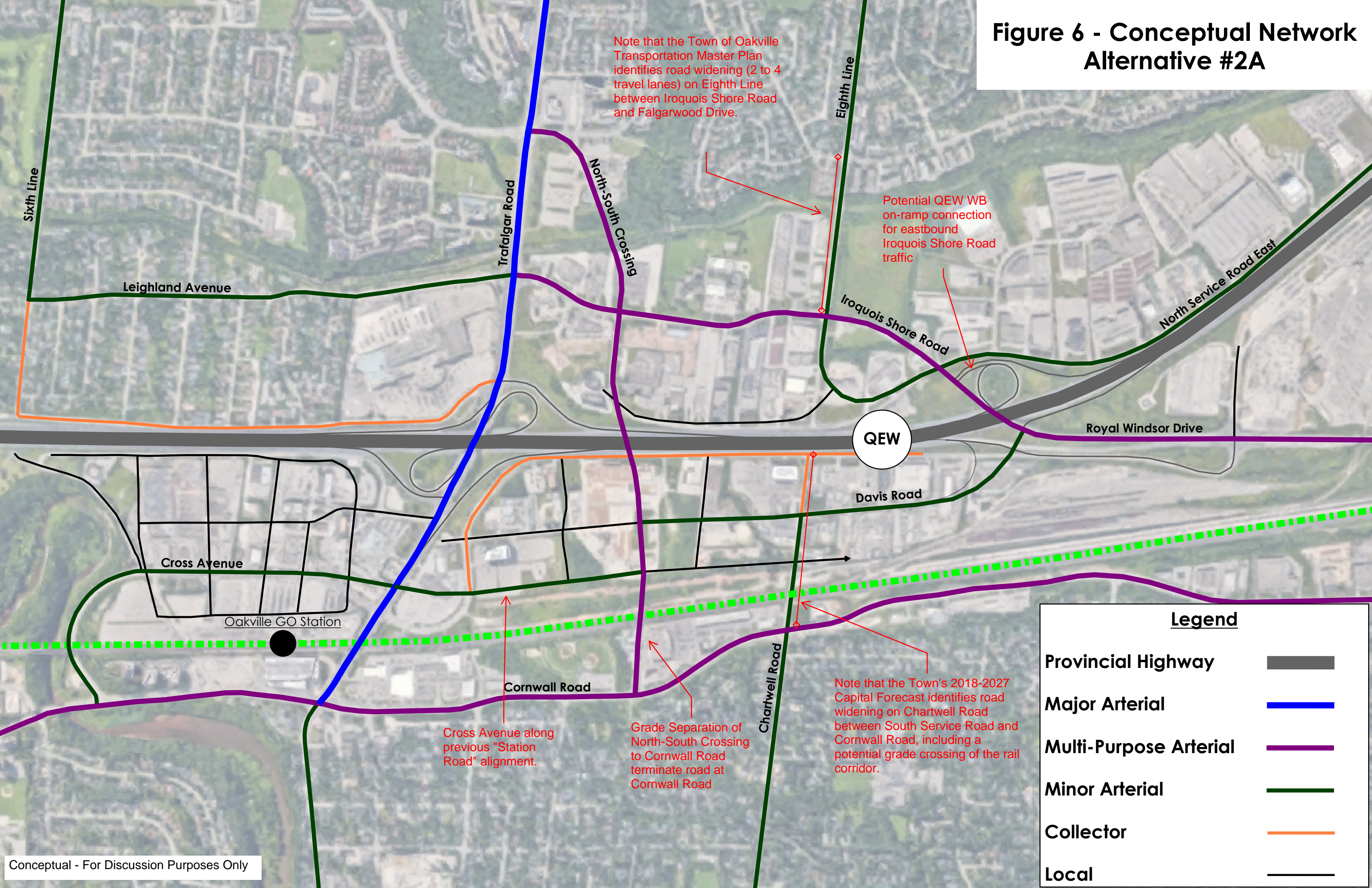
Note that the Town's 2018-2027 Capital Forecast identifies road widening on Chartwell Road between South Service Road and Cornwall Road, including a potential grade crossing of the rail corridor.

Cross Avenue along previous "Station Road" alignment to Eighth Line. Alignment similar to MOCEA Improvement D2 or D3 could be considered.

Other revisions to network to maintain grid and road hierarchy

Legend	
Provincial Highway	
Major Arterial	
Multi-Purpose Arterial	
Minor Arterial	
Collector	
Local	

Figure 6 - Conceptual Network Alternative #2A



Note that the Town of Oakville Transportation Master Plan identifies road widening (2 to 4 travel lanes) on Eighth Line between Iroquois Shore Road and Falgarwood Drive.

Potential QEW WB on-ramp connection for eastbound Iroquois Shore Road traffic

QEW

Oakville GO Station

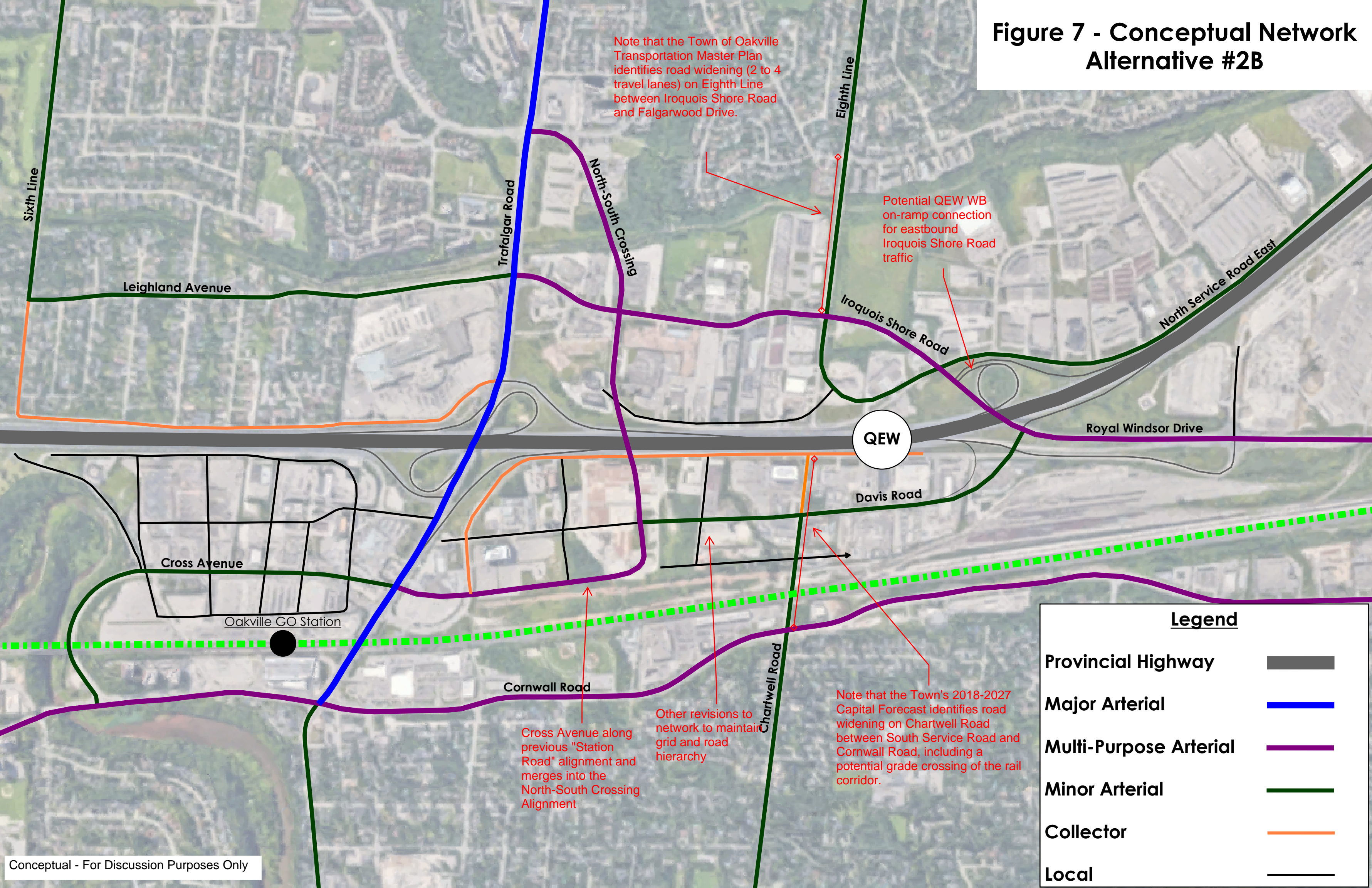
Cross Avenue along previous "Station Road" alignment.

Grade Separation of North-South Crossing to Cornwall Road terminate road at Cornwall Road

Note that the Town's 2018-2027 Capital Forecast identifies road widening on Chartwell Road between South Service Road and Cornwall Road, including a potential grade crossing of the rail corridor.

Legend	
Provincial Highway	
Major Arterial	
Multi-Purpose Arterial	
Minor Arterial	
Collector	
Local	

Figure 7 - Conceptual Network Alternative #2B



Note that the Town of Oakville Transportation Master Plan identifies road widening (2 to 4 travel lanes) on Eighth Line between Iroquois Shore Road and Falgarwood Drive.

Potential QEW WB on-ramp connection for eastbound Iroquois Shore Road traffic

QEW

Sixth Line

Leighland Avenue

Trafalgar Road

North-South Crossing

Eighth Line

Iroquois Shore Road

North Service Road East

Royal Windsor Drive

Davis Road

Cross Avenue

Oakville GO Station

Cornwall Road

Chartwell Road

Cross Avenue along previous "Station Road" alignment and merges into the North-South Crossing Alignment

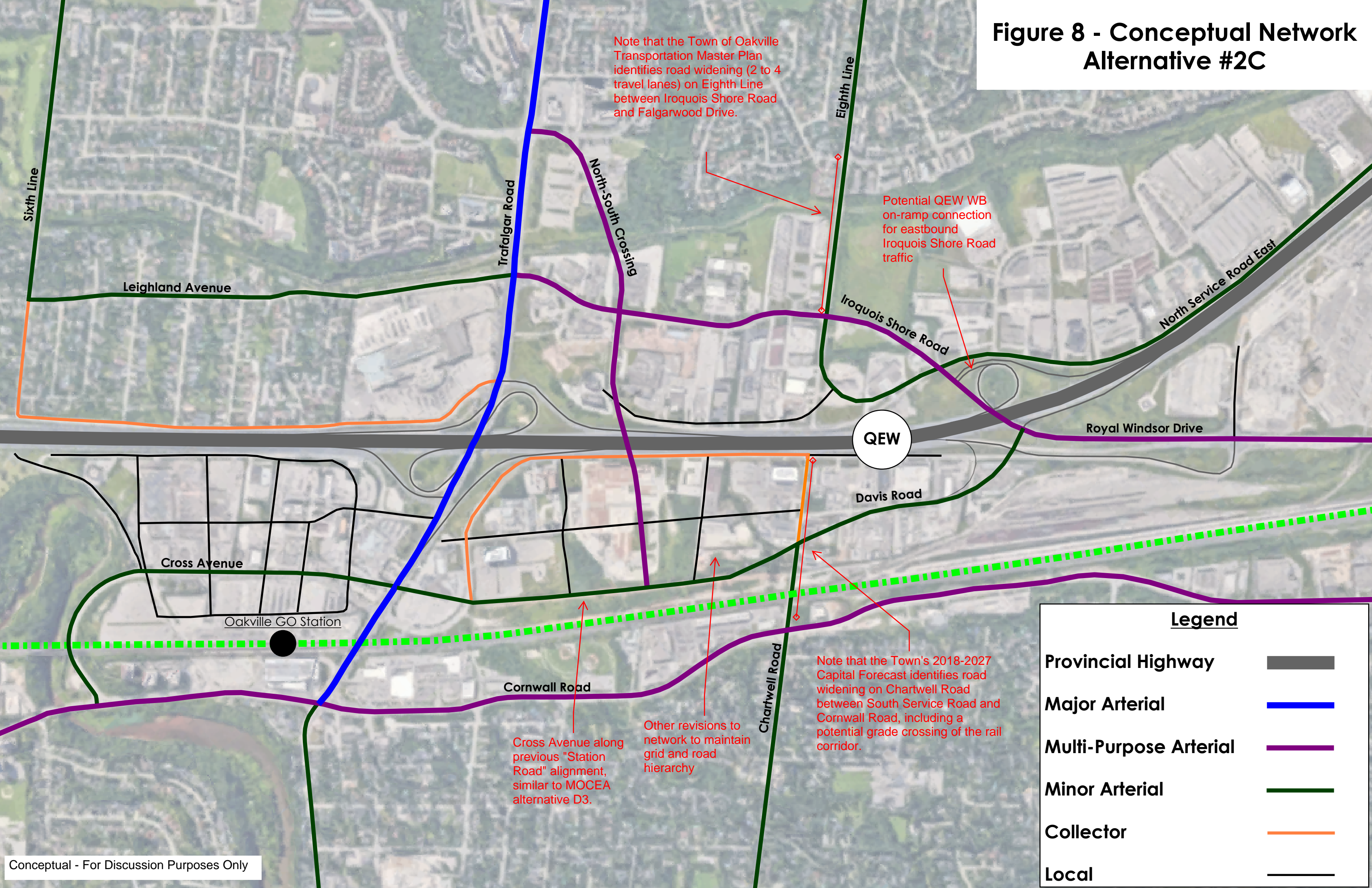
Other revisions to network to maintain grid and road hierarchy

Note that the Town's 2018-2027 Capital Forecast identifies road widening on Chartwell Road between South Service Road and Cornwall Road, including a potential grade crossing of the rail corridor.

Legend

Provincial Highway	
Major Arterial	
Multi-Purpose Arterial	
Minor Arterial	
Collector	
Local	

Figure 8 - Conceptual Network Alternative #2C



Note that the Town of Oakville Transportation Master Plan identifies road widening (2 to 4 travel lanes) on Eighth Line between Iroquois Shore Road and Falgarwood Drive.

Potential QEW WB on-ramp connection for eastbound Iroquois Shore Road traffic

Note that the Town's 2018-2027 Capital Forecast identifies road widening on Chartwell Road between South Service Road and Cornwall Road, including a potential grade crossing of the rail corridor.

Cross Avenue along previous "Station Road" alignment, similar to MOCEA alternative D3.

Other revisions to network to maintain grid and road hierarchy

Legend	
Provincial Highway	
Major Arterial	
Multi-Purpose Arterial	
Minor Arterial	
Collector	
Local	

Schedule C
Traffic Impact Study (Draft)

DRAFT

TRAFFIC IMPACT STUDY

**349 DAVIS ROAD
TOWN OF OAKVILLE,
REGIONAL MUNICIPALITY OF HALTON**

**PREPARED FOR:
1539059 ONTARIO INC.**

**PREPARED BY:
C.F. CROZIER & ASSOCIATES INC.
211 YONGE STREET, SUITE 600
TORONTO, ON
M5B 1M4**

MAY 2022

CFCA FILE NO. 2259-6324

The material in this report reflects best judgment in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. C.F. Crozier & Associates Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.



Revision Number	Date	Comments
Rev. 0	May 2022	Draft Circulation

DRAFT

1.0 Executive Summary

Background

C.F. Crozier & Associates Inc. (Crozier) was retained by 1539059 Ontario Inc. to prepare a Transportation Impact Study in support of Official Plan Amendment and Zoning By-law Amendment for a proposed mixed-use development located at 349 Davis Road in the Town of Oakville, Regional Municipality of Halton. The purpose of the study is to evaluate the transportation related impacts of the proposed development on the boundary road network and to recommend any required mitigation measures, if warranted.

Per the Site Plan prepared by Studio Veronica Madonna Architect (dated April 2022), the development proposes a 20-storey mixed-use building which includes residential, commercial, and office uses. A total of 246 vehicle and 99 bicycle parking spaces are proposed. The site is proposed to be serviced by a full moves access connection to Davis Road.

A Parking Justification Study has been prepared and submitted separately to support the development application. The Parking Justification Study determines future parking demands at the site, compares with the proposed supply, and provides recommendations on parking at the site, as required.

The Transportation Impact Study was completed in accordance with the Region of Halton Transportation Impact Study Guidelines (January 2015) and the General Guidelines for the Preparation of Traffic Impact Studies (MTO, February 2021). As confirmed with the MTO, Region, and Town, the study assessed the following study intersections:

- Trafalgar Road and QEW westbound ramps / North Service Road East
- Trafalgar Road and QEW eastbound ramps
- Trafalgar Road and South Service Road East / Cross Avenue
- Trafalgar Road and Cornwall Road
- South Service Road East and Davis Road

The development proposal does not conform to the plans identified in the Midtown Oakville Class Environmental Assessment (MOCEA). Therefore, most improvements outlined in the MOCEA were not considered in the analysis herein. However, in the 2035 horizon analysis, the QEW eastbound off-ramp identified in the MOCEA was added to the South Service Road East and Davis Road intersection, as requested by Town staff.

Existing Conditions

A turning movement count (TMC) survey was conducted for the existing 2022 year and compared to TMC's obtained from prior pre-pandemic years at the study intersections. As confirmed through the Terms of Reference correspondence, traffic volumes for the existing conditions scenario were established by retaining the higher volumes between the two data sets for every turning movement at the study intersections.

The study intersections are operating at acceptable levels of service (i.e., LOS "D" or better) during the weekday a.m. and p.m. peak hours. A few movements are operating near capacity at the intersection of Trafalgar Road and QEW ramps. Similarly, the 95th percentile queuing results indicate a couple auxiliary turn storage lanes may be exceeded during the peak hours at the Trafalgar Road intersections with Cornwall Road and South Service Road East / Cross Avenue. Overall, the boundary road network currently operating adequately.

Future Background Conditions

As confirmed through the Study Terms of Reference, a horizon year of the expected full development buildout (2025), along with the five year (2030) and ten year (2035) horizons were used for the purposes of analysis. Similarly, growth rates were established through the Terms of Reference correspondence and applied to the existing traffic volumes to forecast future background traffic growth.

The following background developments in the study area were identified and accounted for under future background conditions.

- 157 Cross Avenue
- 271 Cornwall Road and 485 Trafalgar Road
- 320 Davis Road
- 166 South Service Road East (2030 and 2035 horizons only)

A QEW eastbound off-ramp connection to South Service Road East, similar to what was identified in the Midtown Oakville Class Environmental Assessment (MOCEA) was added in the ultimate 2035 horizon analysis per the request of the Town. The traffic volumes at the existing QEW eastbound off-ramp to Trafalgar Road and the planned QEW eastbound off-ramp to South Service Road East were forecast based on the methodology of the MOCEA.

Analysis of future background traffic operations indicates that the study intersections along Trafalgar Road are expected to operate near capacity in the ultimate 2035 horizon with a few movements at the QEW ramp intersections operating above capacity. However, under all future background analysis scenarios, the boundary road network is forecast to operate at a LOS "D" or better during the peak hours, except at the Trafalgar Road and South Service Road East intersection, where operations are project to be a LOS "E" during the critical p.m. peak hour. Several opportunities for operational improvements were identified in the future background and are included as part of the Study recommendations.

Site Generated Traffic

In the 2025 horizon year, the proposed development is forecast to generate 65 and 89 vehicle trips in the a.m. and p.m. peak hours, respectively. In the 2030 and 2035 horizon years, the proposed development is forecast to generate 58 and 83 vehicle trips in the a.m. and p.m. peak hours, respectively – consistent with the modal split projections provided by the Regional staff. In addition, the ultimate horizon 2035 trip generation forecast projects 23 and 32 non-vehicular trips generated by the proposed development in the a.m. and p.m. peak hours, respectively.

For the purposes of traffic analysis, vehicle trips were assigned to the boundary road network using a combination of 2016 Transportation Tomorrow Survey (TTS) data, expected destinations, and existing travel patterns.

Future Total Traffic Operations

At the study intersections, traffic operations are forecast to remain similar to their respective future background horizons. Under the ultimate 2035 horizon year analysis, at all study intersections except the Trafalgar Road and QEW eastbound ramps intersection, the study intersections are forecast to operate similar to future background conditions at a LOS "D" or better during the peak hours. At the intersection of Trafalgar Road and QEW eastbound ramps, operations are projected to be LOS "E" during the critical p.m. peak hour, the same as 2035 future background conditions. The maximum control delay increment and volume-to-capacity ratio increase compared to future background

conditions at any of the study intersections is forecast to be minimal, at 0.9s and 0.01, respectively. This indicates that site traffic does not materially impact traffic operations at the study intersections. Therefore, no external road improvements attributable to the proposed development are required.

Site Access Safety Review

The available sight distance at the proposed site connection to Davis Road exceeds the minimum sight distance requirements set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR), June 2017. Further, the site satisfies the minimum corner clearance and access spacing requirements per the TAC-GDGCR. No maneuverability constraints within the site for waste collection or fire trucks is identified.

Transportation Demand Management

There are existing and planned Transportation Demand Management (TDM) opportunities in the Town of Oakville and near the site to encourage the use of non-auto transportation options.

In addition to the background active transportation and transit improvements expected in the vicinity of the subject site, the development proposal includes several site specific transportation demand management measures that are expected to reduce dependence on vehicle transportation. The development proposal includes a sidewalk connection along the north side of Davis Road to South Service Road East. This direct connection to the existing pedestrian network improves safety and convenience of pedestrian movement and access to the boundary roadway, transit and nearby land uses. The site additionally proposes a bicycle parking supply of 99 spaces, which is in excess of both the Town of Oakville Zoning By-Law requirements and the Midtown Oakville Parking Strategy.

Recommendations

Based on the Study findings, it is recommended that:

- The MTO and Region explore opportunities including timing plan setup adjustments and or turning movement prohibitions (as applicable) in future to increase capacity for southbound right-turn traffic on Trafalgar Road entering the QEW WB on-ramp and north Service Road.
- At the intersection of Trafalgar Road and Cornwall Road, the Region and Town explore mitigation measures such as timing plan coordination along Cornwall Road (if not already), timing plan adjustments and additional regulatory signage (e.g., do not block intersection) to limit operational and potential safety issues at the adjacent upstream intersections on Cornwall Road.
- The MTO explore adding a right-turn storage lane to the QEW eastbound off-ramp connection to Trafalgar Road in future (i.e., beyond 2030) if traffic volumes follow the pattern forecasted by the MOCEA.
- The remaining study intersections aside the proposed site access should be monitored by the Region and Town with timing plans adjusted in future for optimal operations as needed.

Conclusion

In conclusion, the traffic generated from the proposed residential development will not materially impact operations of the boundary road network. The Official Plan Amendment and Zoning By-Law Amendment (ZBA) applications for the 349 Davis Road residential development can be supported from a traffic operations perspective as the boundary road system can accommodate the increase in traffic volumes attributable to the proposed development.

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2.0 Introduction

2.1 Background

C.F. Crozier & Associates Inc. (Crozier) was retained by 1539059 Ontario Inc. to prepare a Transportation Impact Study in support of Official Plan Amendment and Zoning By-law Amendment for a proposed mixed-use development located at 349 Davis Road in the Town of Oakville, Regional Municipality of Halton.

A Parking Justification Study has been prepared and submitted separately to support the development application. The Parking Justification Study determines future parking demands at the site, compares with the proposed supply, and provides recommendations on parking at the site, as required.

2.2 Development Proposal

Per the Site Plan prepared by Studio Veronica Madonna Architect (dated April 2022), the development proposes a 20-storey mixed-use building which includes residential, commercial, and office uses. **Appendix A** contains the Site Plan. The site statistics of the proposed development are summarized in **Table 1**.

Table 1: Proposed Development Summary

Land Use	Number of Storeys	Gross Floor Area (GFA)	Number of Units/Spaces
Site Total	20	17,599.61 m ²	N/A
Residential	14	N/A	98 dwelling units
Commercial	1	926.2 m ²	7 units
Office	2	2652 m ²	6 units
Parking	3+P1+P2	N/A	246 vehicle spaces 99 bicycle parking spaces

2.3 Purpose and Scope

The purpose of the study is to evaluate the transportation related impacts of the proposed development on the boundary road network and to recommend any required mitigation measures, if warranted.

The study reviews the following main aspects of the proposed development from a transportation engineering perspective:

- Existing, future background, and future total traffic operations on the boundary road network during the weekday a.m. and p.m. peak hours.
- Forecasted trip generation and distribution of the proposed development.
- Mitigation measures to support the proposed development, if required.
- Transportation safety components, including: sight distance requirements at the site access, access spacing and restrictions, and general safety issues.

The study has been completed in accordance with the Terms of Reference established through email correspondence with Town of Oakville, Halton Region and the Ministry of Transportation of Ontario (MTO) staff. **Appendix B** contains relevant excerpts of the terms of reference correspondence.

The study has also been completed in accordance with the following guidelines:

- Transportation Impact Study Guidelines (Halton Region, January 2015)
- General Guidelines for the Preparation of Traffic Impact Studies (MTO, February 2021)

The Midtown Oakville Class Environmental Assessment (MOCEA, 2014) outlines a new road network for the Midtown Oakville Growth Area to serve future development. The new road network is also reflected within the Town's latest Official Plan (Liveable Oakville Plan, August 31, 2021). As shown on the EA preliminary design plates (**Appendix C**), Cross Avenue (currently South Service Road) is planned to be realigned through the 349 Davis Road site. In addition, a new QEW eastbound off-ramp is planned to connect to the realigned Cross Avenue at a location approximately within the 349 Davis Road property.

Considering the MOCEA makes the subject land virtually undevelopable, the proposed development does not align with the MOCEA future roadway improvements. Therefore, this study assesses the existing road network and identifies road improvements as required to support the development proposal.

However, Town staff requested that the analysis include the planned QEW eastbound off-ramp and the Station Road and North South Crossing intersections with the future realigned South Service Road. As confirmed through email correspondence and discussions with the Town, the following resolution for the purpose of conducting this Traffic Study was reached.

- No realignment of South Service Road will be considered as it cuts through the site.
- The existing east approach (cul-de-sac) connection to the South Service Road East and Davis Road intersection is assumed to be the connecting point of the MOCEA QEW eastbound off-ramp. This is only considered in the ultimate 2035 horizon, given MOCEA considered these improvements only in a 2031 horizon. Further, none of the subject MOCEA improvements are part of the current capital works improvements (2018-2027).
- Given the above configuration, the 320 Davis Road site access, very low traffic generator is assumed to connect to South Service Road at a point 20m south of the existing intersection.
- The North South Crossing and South Service Road is not considered as no realignment of South Service Road is considered herein.
- The Station Road and connection to South Service Road could be considered if the future volumes on Station Road are available. However, volumes could not be obtained or established from the MOCEA. Further, Station Road is exclusively a bus route and no impact from the development herein outside the findings of the MOCEA is expected. Therefore, this intersection was not assessed.

Additional analysis on a potential reconfiguration of the MOCEA road network that accommodates the current development proposal is not part of the study scope herein.

3.0 Existing Conditions

3.1 Development Lands

The subject property is located in an employment area and is bound by an existing commercial property to the east, South Service Road to the west and north, and Davis Road to the south. The site currently consists of a single-storey brick office building occupied by Powell Insurance Brokers. The subject property is zoned as "Midtown Transitional Employment Zone" per the Town of Oakville's Zoning By-Law.

Refer to **Figure 1** for the Site Location.

3.2 Study Intersections

The Traffic Impact Study analyzes the following intersections:

- Trafalgar Road and Queen Elizabeth Way (QEW) westbound ramps / North Service Road E.
- Trafalgar Road and QEW eastbound ramps
- Trafalgar Road and South Service Road East / Cross Avenue
- South Service Road East and Davis Road
- Davis Road and site access

3.3 Boundary Road Network

The boundary road network includes the study intersections and corresponding roadways. The boundary roadways included within the study scope are described in **Table 2**.

Table 2: Boundary Road Network

Feature	Roadway					
	Queen Elizabeth Way / Highway 403	Trafalgar Road	Cornwall Road	South Service Road East	Cross Avenue	Davis Road
Direction	Two-way (East-West)	Two-way (North-South)	Two-way (East-West)	Two-way (East-West ¹)	Two-way (North-South)	Two-way (East-West)
Classification ²	Provincial Freeway	Major Arterial ³	Multi-Purpose Arterial	Minor Arterial ³⁴	Minor Arterial	Local
Jurisdiction	MTO	Halton Region ³	Town of Oakville			
Speed Limit	100 km/h <i>Off-Ramp advisory speed is 40 km/h</i>	60 km/h (at MTO ramp terminals) 50 km/h (south of Argus Road)	60 km/h	Unposted (assumed 50 km/h)	Unposted (assumed 50 km/h)	Unposted (assumed 50 km/h)
Number of travel lanes	Six + Two HOV ⁵	Six ³	Four	Four	Four	Two
Median type	Jersey Barrier (typical freeway separation)	Raised concrete median / paved level median (varies)	Raised concrete median	None	None	None

Note 1: While South Service Road East is primarily an east-west roadway, including at the intersection with Trafalgar Road, a north-south orientation is present at the intersection with Davis Road.

Note 2: Classifications per the Town of Oakville Official Plan

Note 3: South of Cornwall Road, Trafalgar Road experiences a change in classification to a Minor Arterial Road, changes jurisdiction to the Town of Oakville, and possesses two total travel lanes instead of six north of Cornwall Road.

Note 4: Designation not shown due to future roads planned part of Midtown Oakville redevelopment. Assumed Minor Arterial given Cross Avenue designation. The Halton Official Plan indicates both roads as "Major Roads".

Note 5: HOV – High Occupancy Vehicle. HOV lanes present on QEW.

Table 3 outlines the existing traffic control, configurations, and pedestrian crossing provisions at the study intersections on the boundary road network.

Table 3: Study Intersections

Intersection	Control	Approaches	Major Street	Lane Configurations	Pedestrian Crossing
Trafalgar Road and QEW WB ramps / North Service Road	Signal Actuated Coordinated	4	Trafalgar Road	EBL; EBR WBL; WBLT; WBR NBT(x3) SBT(x3); SBTR	West, North, and East approaches
Trafalgar Road and QEW EB ramps	Signal Actuated Coordinated	3	Trafalgar Road	EBL(x2); EBR NBT(x3) SBT(x3)	West and South approaches
Trafalgar Road and South Service Road East / Cross Avenue	Signal Actuated Coordinated	4	Trafalgar Road	EBL(x2); EBTR WBL; WBT; WBR NBL; NBT(x2); NBTR SBL; SBT(x2); SBTR	West, South and East approaches
Trafalgar Road and Cornwall Road	Signal Actuated Coordinated	4	Trafalgar Road	EBL(x2); EBT; EBTR WBL; WBT(x2); WBR NBL; NBT; NBTR SBL(x2); SBT; SBR	All approaches
South Service Road East and Davis Road	Stop (Minor Street Only)	4	South Service Road	EBLTR WBLTR NBLT; NBTR SBLT; SBTR	None
Davis Road and Site Access	Stop (Minor Street Only)	3	Davis Road	EBLTR WBLTR SBLR	None

Figure 2 illustrates the existing boundary road network, including lane configurations, storage lengths, and intersection control.

3.4 Transit Operations

There are several Oakville Transit and GO Transit bus routes that operate in the surrounding area of the subject property. The closest transit bus stop to the site is an approximately 450 meter walk away, located on Trafalgar Road, north of South Service Road East. At approximately 800 meters away, the Oakville GO Station serves as a central transit hub for the Town of Oakville and receives both local transit service, along with regional transit through GO Transit. These transit routes and stations allows for further connection to other routs and consequently mobility to most of the Greater Toronto & Hamilton Area (GTHA) by transit.

Table 4 outlines the GO Transit existing transit routes, direction, days of operations, peak hour headways for routes, and bus stops in the study area as of April 2, 2022.

Table 4: Existing GO Transit Services

Route	Start and End Points	Days of Operation	Peak Hour Headways (min)	Bus Stop(s) near study area
1 / 18 Lakeshore West	Union Station to Various	Monday - Sunday	15 min	Oakville GO Station
52-54-56 Oshawa / Oakville	Oakville GO Station to Oshawa GO Station	Monday - Sunday	60 min	Oakville GO Station

Table 5 outlines the Oakville Transit existing transit routes, direction, days of operation, peak hour headways for routes, and bus stops in the study area as of March 20, 2022.

Table 5: Existing Oakville Transit Services

Route	Start and End Points	Days and Hours of Operations ¹	Peak Hour Headways	Bus Stop(s) near study area
1 Trafalgar	Oakville GO Station to Trafalgar / 407 GO Carpool	Monday – Friday 6am – 12am	60 min	Trafalgar Road + north of South Service Road East Oakville GO Station
4 Speers – Cornwall	Bronte GO Station to Clarkson GO Station	Monday – Sunday 6am – 12am	30 min	Oakville GO Station
5 / 5A Dundas	Oakville GO Station to Dundas / 407 GO Carpool	Monday – Sunday 6am – 12am	15 min	Trafalgar Road + north of South Service Road East Oakville GO Station
10 West Industrial	Oakville GO Station to Bronte GO Station	Monday – Friday 7am – 11am 2pm – 6pm	30 min	Oakville GO Station
11 Linbrook	Oakville GO Station to Clarkson GO Station	Monday – Friday 6am – 10pm	60 min	Oakville GO Station
13 Westoak Trails	Oakville GO Station to Bronte GO Station	Monday – Sunday 6am – 11pm	30 min	Trafalgar Road + north of South Service Road East Oakville GO Station
14 / 14A Lakeshore West	Oakville GO Station to Appleby GO Station	Monday – Sunday 6am – 12am	15 min	Oakville GO Station
18 Glen Abbey South	Oakville GO Station to Bronte GO Station	Monday – Sunday 6am – 9pm	30 min	Oakville GO Station
15 Bridge	Oakville GO Station to South Oakville Centre	Monday – Sunday 6am – 9pm	30 min	Oakville GO Station
19 River Oaks	Oakville GO Station to Uptown Core	Monday – Sunday 6am – 9pm	30 min	Trafalgar Road + north of South Service Road East Oakville GO Station
20 Northridge	Oakville GO Station to Uptown Core	Monday – Sunday 6am – 9pm	30 min	Trafalgar Road + north of South Service Road East Oakville GO Station
24 South Common	Oakville GO Station to South Common	Monday to Friday 6am – 12am	15 min	Trafalgar Road + north of South Service Road East Oakville GO Station
26 Falgarwood	Oakville GO Station to Lancaster & Grosvenor	Monday – Friday 6am – 9am 3pm – 7pm	30 min	Trafalgar Road + north of South Service Road East Oakville GO Station
28 Glen Abbey North	Oakville GO Station to Bronte GO Station	Monday – Sunday 6am – 9pm	30 min	Oakville GO Station
83 Blakelock	T.A Blakelock Special to Oakville GO Station	Monday – Friday 3pm	N/A	Oakville GO Station
120 East Industrial	Oakville GO Station to Laird & Ridgeway	Monday – Friday 7am – 10am 3pm – 7pm	30 min	Trafalgar Road + north of South Service Road East Oakville GO Station

Note 1: Hours of operation are approximated to the nearest hourly interval on a weekday.

Appendix D contains relevant transit information.

3.5 Active Transportation Network

The existing pedestrian facilities on the boundary road network are described in **Table 6**. Pedestrian facilities at intersections are identified in **Table 3** within **Section 3.3**.

Table 6: Pedestrian Transportation Network

Roadway	Pedestrian Facilities	Separation from Roadway
Trafalgar Road	~1.5 metre concrete sidewalk (both sides)	~0.5m asphalt separator (both sides)
Cornwall Road	~1.5 metre concrete sidewalk (both sides)	1–6m grass strip / brickwork separators
South Service Road East	~1.3 metre concrete sidewalk (north side) raised asphalt shoulder (south side), (both btwn. Trafalgar Road to Davis Road)	~0.5m asphalt separator (north side only)
Cross Avenue	~1.5 metre concrete sidewalk (both sides)	~0.5m asphalt separator (both sides)
Davis Road	~1.5 metre concrete sidewalk (south side)	~3m grass strip (south side)

There are no current designated cycling facilities within the study area. The nearest cycling trail access to the subject site is located at Trafalgar Road just north of Iroquois Shore Road, approximately 1.3km away. In addition, Trafalgar Road is a designated on-street bike route south of the intersection with Cornwall Road.

3.6 Traffic Data

Pre-pandemic Turning Movement Counts (TMC's) from recent adjacent background studies and Halton Region was available for all intersections except for the Davis Road and South Service Road intersection. As confirmed through the terms of reference with municipal staff, new TMC's were conducted in the existing year at all study intersections and compared to the pre-pandemic volumes.

Table 7 provides a summary of the Turning Movement Count (TMC) surveys, including surveyor, count date and period, along with the identified peak hours. Detailed TMC and signal timing plans used for the analysis herein is provided in **Appendix E**.

Table 7: Traffic Data

Intersection	Surveyor	Count Date	Count Hours	Identified Peak Hours	Peak Hour Factor
Trafalgar Road and QEW WB ramps / North Service Road E.	Spectrum Traffic Data Inc.	April 13, 2022	6:00 – 10:00 A.M.	8:00 – 9:00 A.M.	0.95
			3:00 – 7:00 P.M.	4:30 – 5:30 P.M.	0.97
	Accu-Traffic Inc.	March 7, 2019	7:00 – 9:00 A.M.	7:45 – 8:45 A.M.	N/A
			4:00 – 6:00 P.M.	5:00 – 6:00 P.M.	N/A
Trafalgar Road and QEW EB ramps	Spectrum Traffic Data Inc.	April 13, 2022	6:00 – 10:00 A.M.	8:00 – 9:00 A.M.	0.95
			3:00 – 7:00 P.M.	5:00 – 6:00 P.M.	0.96
	Accu-Traffic Inc.	March 7, 2019	7:00 – 9:00 A.M.	7:45 – 8:45 A.M.	N/A
			4:00 – 6:00 P.M.	5:00 – 6:00 P.M.	N/A
Trafalgar Road and South Service Road East / Cross Avenue	Spectrum Traffic Data Inc.	April 13, 2022	6:00 – 10:00 A.M.	8:15 – 9:15 A.M.	0.95
			3:00 – 7:00 P.M.	5:00 – 6:00 P.M.	0.94
	Accu-Traffic Inc.	November 6, 2019	7:00 – 9:00 A.M.	8:00 – 9:00 A.M.	N/A
			3:00 – 6:00 P.M.	4:30 – 5:30 P.M.	N/A
Trafalgar Road and Cornwall Road	Accu-Traffic Inc.	March 7, 2019	7:00 – 9:00 A.M.	8:00 – 9:00 A.M.	N/A
			4:00 – 6:00 P.M.	4:30 – 5:30 P.M.	N/A
		November 6, 2019	7:00 – 9:00 A.M.	8:00 – 9:00 A.M.	N/A
			11:00 A.M. – 2:00 P.M.	N/A ¹	N/A
	Spectrum Traffic Data Inc.	April 13, 2022	6:00 – 10:00 A.M.	8:00 – 9:00 A.M.	0.92
			3:00 – 7:00 P.M.	3:00 – 4:00 P.M.	0.97
		April 13, 2022	6:00 – 10:00 A.M.	9:00 – 10:00 A.M.	0.87
			3:00 – 7:00 P.M.	3:00 – 4:00 P.M.	0.87

Note 1: While counts were undertaken during the midday peak hour, a review of the survey results reveals that midday peak hour traffic volumes are lower than both the a.m. and p.m. peak hour volumes. Thus, evaluation of the a.m. and p.m. Peak hours captures worst case conditions at the Trafalgar Road and Cornwall Road study intersection. N/A: Not available due to TMC's showing only peak hour volumes.

For the purpose of a conservative analysis, the highest traffic volume between the existing counts and the pre-pandemic counts for every turning movement at all study intersections were retained as the existing 2022 volume. Further, traffic volumes were balanced between the QEW ramp intersections along Trafalgar Road. This data refinement process resulted in the 2022 existing conditions traffic volumes outlined in **Figure 3**, which serve as a baseline for all subsequent future analysis.

No traffic counts were undertaken at the site access connection to Davis Road. To model the traffic volumes at this intersection, traffic data from the South Service Road East and Davis Road intersection (outlined in **Table 7**) was relied upon to estimate through movements. Further, the subject site currently contains a single-storey brick office building that is expected to generate some vehicle trips. These existing vehicle trips were estimated using the Institute of Transportation Engineers Trip Generation Manual, 11th Editions, and were applied at the Davis Road and site access study intersection. It is noted that these vehicle trips are included in the existing conditions and future background scenarios, and are replaced under the future total scenarios given the proposed development replaces the exiting office building. Vehicle trips attributable to the existing site use was not added to the other study intersections given the traffic surveys already capture these trips.

3.7 Traffic Modelling

3.7.1. Modelling Approach

The boundary road network was modelled in Synchro 11 using existing roadway geometrics and the identified traffic data in **Section 3.6**. The methodology of modelling the intersection signal timing plans consisted of applying the available timing plans for the existing conditions scenario, maintaining the cycle lengths and phasing of the obtained timing plans, but optimizing the phasing splits for the projected traffic volumes in the future horizon scenarios. Signal timing plans are included in **Appendix E**.

The results for signalized intersection operations were derived from Synchro. The results for unsignalized intersection operations were derived using HCM2000 methodology. The 95th percentile queue lengths were derived from SimTraffic. The Level of Service (LOS) definitions for signalized and unsignalized intersections are included in **Appendix F**.

3.7.2. Critical Volume-to-Capacity Ratios

The MTO considers a movement to be critical when the volume-to-capacity ratio exceeds 0.75 for an off-ramp approach at a ramp terminal or exceeds 0.85 for all other movements at intersections under MTO jurisdiction. As such, the ramp terminal intersections along Trafalgar Road were evaluated using these thresholds.

The Region of Halton considers a movement to be critical when the volume-to-capacity exceeds 0.85 for through or shared movements, or 0.95 for exclusive turning movements. The remaining study intersections aside from the MTO ramp intersections were evaluated using these thresholds.

3.8 Intersection Operations

The existing intersection operations at the study intersections were analyzed using the existing traffic volumes illustrated in **Figure 3**. Detailed capacity analysis worksheets are included in **Appendix G**.

Table 8 outlines the 2022 existing traffic operations.

Table 8: 2022 Existing Traffic Operations

Intersection	Control	Peak Hour	Level of Service ¹	Control Delay	Critical v/c ratio ²	95 th Percentile Queue Length > Storage Length ³
Trafalgar Road and QEW WB ramps / North Service Road E.	Signal	A.M.	C	21.5s	0.96 (SBR⁴)	None
		P.M.	C	20.4s	0.94 (SBR⁴)	None
Trafalgar Road and QEW EB ramps	Signal	A.M.	C	25.2s	0.88 (EBR)	None
		P.M.	C	25.2s	0.79 (EBL)	None
Trafalgar Road and South Service Road East / Cross Avenue	Signal	A.M.	D	37.4s	0.73 (SBT)	88.8m > 55.0m (SBL)
		P.M.	D	35.6s	0.87 (EBL)	166.4m > 130.0m (EBL1) 56.5m > 55.0m (SBL)
Trafalgar Road and Cornwall Road	Signal	A.M.	D	35.3s	0.82 (EBL)	109.6m > 85.0m (EBL1) 118.8m > 105.0m (EBL2)
		P.M.	D	39.3s	0.83 (EBL)	103.8m > 85.0m (EBL1) 113.6m > 105.0m (EBL2)
South Service Road East and Davis Road	Stop (Minor)	A.M.	B	10.6s	0.06 (NB)	None
		P.M.	B	11.4s	0.08 (SB)	None
Davis Road and Site Access	Stop (Minor)	A.M.	A	8.4s	0.01 (EB)	None
		P.M.	A	8.4s	0.01 (SB)	None

- Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro/ICU). The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM2000).
- Note 2: The critical v/c ratio is considered to be the maximum v/c ratio for movements at the intersection where the maximum v/c ratio does not exceed the critical thresholds identified in **Section 3.7.2**. All v/c ratios that exceed the critical thresholds outlined in are bolded.
- Note 3: The 95th percentile queue lengths were derived from SimTraffic reports using 15-minute seeding, 60-minute simulation and an average of 5 runs. Queues which exceed the designated storage length of the turn lane but can be accommodated by a centre turn lane were not documented in this table.
- Note 4: SBR – Refers to southbound movement to QEW WB on-ramp and North Service Road.

The study intersections are operating adequately under 2022 existing conditions, at a LOS “D” or better during the weekday peak hours.,

The southbound right-turn movement at the intersection of Trafalgar Road and QEW WB off/on ramps / North Service Road exceeds the critical volume-to-capacity thresholds outlined in **Section 3.7.2** in both peak hours, and is nearing capacity. Therefore, it is recommended that the intersection be monitored in future and apply timing plan adjustments and or turning movement prohibitions (as applicable) to accommodate traffic demand and maintain optimal intersection operations. For future scenarios herein, the signal timing plan splits were optimized to provide additional capacity for southbound traffic entering the QEW WB on-ramp.

The operations at the intersection of Trafalgar Road and QEW EB on/off-ramps are at a LOS “C” or better during the peak hours. The volume-to-capacity ratios show operations for a few through movements are near capacity though below 1.00. Given the level of densification around the roadway and considering Trafalgar Road is a major arterial, with South Service Road being a minor

arterial, such operational issues are expected during the peak hours. However, the intersection should be monitored and timing plans adjusted in future for optimal operations as needed.

The signalized intersection of Trafalgar Road and South Service Road East / Cross Avenue is operating at a LOS "D" or better during the peak hours. Based on the 95th percentile queuing results, a couple of auxiliary turning movement storage lanes may be occasionally exceeded onto the taper and or adjacent through lane during the peak hours.

The signalized intersection of Trafalgar Road and Cornwall Road currently operates at a LOS "D" during the peak hours. No volume-to-capacity ratios for movements exceed the critical thresholds. The eastbound left-turn 95th percentile queuing results suggest that vehicles may occasionally queue beyond the storage lanes into the adjacent through lanes and potentially block the Oakville GO Station parkade access connection to the Cornwall Road west approach during the peak hours. It is therefore recommended that the Region monitor this intersection and consider timing plan coordination along Cornwall Road (if not already so), timing plan adjustments and additional regulatory signage (e.g., do not block intersection) to limit operational and potential safety issues at the adjacent upstream intersections on Cornwall Road.

The stop controlled intersection of South Service Road East and Davis Road currently operates below capacity at a LOS "B" during the peak hours. Similarly, the existing site access connection to Davis Road serving the existing single-storey office building operates below capacity at a LOS "A" or better during the peak hours.

4.0 Future Background Conditions

4.1 Horizon Years

The proposed development is anticipated to be built-out by 2025. The MTO's TIS guidelines require analysis of the buildout year, along with five and ten years beyond the estimated year of full build-out. The Region of Halton typically requires a five year horizon. Given the MTO approach results in a more comprehensive approach than the latter, the MTO required horizon years were used in the analysis herein. Therefore, the following horizon years were analyzed: 2025 (buildout), 2030 (five-year horizon) and 2035 (ten-year horizon). This study horizons were confirmed through the Terms of Reference correspondence with municipal staff (excerpts in **Appendix B**).

4.2 Growth Rates

As confirmed with the Region and MTO, an industry standard 2% per annum growth rate, compounded annually, was assumed and applied for the MTO ramps and the arterial roadways. The growth rate assumptions combined with the conservative methodology of taking the highest of two TMC surveys for establishing existing traffic volumes (per **Section 3.6**) may result in an overestimate of future volumes; therefore, long-term operational issues identified herein maybe overstated.

4.3 Background Developments

Background developments were confirmed through Terms of Reference correspondence, and thus were accounted for under future background conditions. The developments are outlined in **Table 9**.

Table 9: Background Developments

Development	Location	Development Proposal
157 Cross Avenue	North of Cross Avenue, between the 165 and 117 Cross Avenue properties, and across from the Oakville GO Station north parking lot.	A 26-storey mixed-use tower with 252 dwelling units, 579 m ² GFA of commercial/office uses, and 289 m ² of ground floor retail.
Olde Oakville Market Place (271 Cornwall Road and 485 Trafalgar Road)	East of and adjacent to Trafalgar Road, north of Cornwall Road, and south of the CN Oakville subdivision.	Two towers at 19 and 14 storeys. A total of 292 dwelling units, 1,321 m ² GFA of office space, 1,013 m ² GFA of retail and a 1,732 m ² Gym.
320 Davis Road	Bounded by Davis Road to the north, South Service Road East to the east, and a parking lot / commercial plaza to the west and south.	Pumping Station Building Expansion of approximately 360 m ² GFA. ¹
166 South Service Road East	South of South Service Road East and west of the Value Village store and parking lot. Surrounding commercial uses.	A three tower residential development with approximately 1,720 residential dwelling units.

Note 1: Existing Building approximately 235 m² GFA. The existing and future GFAs of each building component was measured using the landscape drawing.

As the 166 South Service Road East background development does not have an associated Transportation Impact Study, vehicle trips were estimated herein. The 166 South Service Road East background development trips were forecast using the Institute of Transportation Engineers' Trip Generation Manual, 11th Edition. The land use category 222 "Multifamily Housing (High-Rise)" was applied to the 1,720 residential dwelling units. It is assumed that the background development will be built out after the 2025 horizon year, therefore, the background development was incorporated into the 2030 and 2035 analysis scenarios.

To remain consistent with the methodology applied for the proposed development, the ITE vehicle trip generation forecast was reduced to the anticipated modal split as outlined in the Region of Halton Transportation Master Plan to result in the vehicle trip generation forecast for the background development; consistent with Regional staff request. **Table 10** summarizes the 166 South Service Road East background development trip generation forecast.

Table 10: 166 South Service Road East Background Trip Generation

Methodology	Peak Hour	Trip Generated		
		Total	Inbound	Outbound
ITE Vehicle Trip Generation Forecast ¹ (LUC 222, Dense Multi-Use Urban)	A.M.	378	42	336
	P.M.	327	226	101
Adjusted ITE Vehicle Trip Generation (assumed 72% vehicle modal split)	A.M.	336	37	299
	P.M.	291	201	90

Note 1: Vehicle Modal Share is assumed to be 81% in existing conditions. Refer to **Section 5.2.3** for more details.

Therefore, in both the 2030 and 2035 horizon years, the 166 South Service Road East background development is forecast to generate 336 and 291 vehicle trips in the a.m. and p.m. peak hours, respectively.

The 166 South Service Road East background development trips were assigned to the road network based on Transportation Tomorrow Survey data (refer to **Section 5.3**) and ease of access. The trip distribution used for the 166 South Service Road East background development is outlined in **Figure 4**. The corresponding background trips are outlined in **Figure 5**.

Transportation Impact studies were available for the 157 Cross Avenue and Olde Oakville Market Place background developments. Site traffic volumes from these transportation studies were applied directly to the future background scenario under all study horizons. Given study intersections are inconsistent between the background transportation studies and this study, movements at several study intersections were estimated based on anticipated routings and the trip distribution used for site traffic in **Section 5.3**. **Figures 6 and 7** outline the future background traffic volumes for the Olde Oakville Market Place and 157 Cross Avenue background developments, respectively. Study excerpts are included in **Appendix H**.

The 320 Davis Road background trips were implied based on the traffic counts taken at the South Service Road East and Davis Road intersection (**Section 3.6** includes details on traffic data). Movements entering and exiting the west approach of the intersection were assumed to be entirely attributable to the 320 Davis Road site. Though a future building expansion is planned for the site, as confirmed by Town staff, it is expected that trip generation will remain similar in the future compared to the current condition. Given the west leg of the intersection is assumed in this study to be replaced by a QEW eastbound off-ramp in the 2035 horizon year, the traffic from this background development was assumed to be serviced in the 2035 scenarios by an access located approximately 20m south of the current location. Appropriately, the background development traffic was assigned accordingly to accommodate the new road network configuration in the 2035 horizon year.

4.4 Planned Transportation Improvements

Several relevant planning documents were reviewed to understand the anticipated future transportation network improvements in the vicinity of the subject site.

Figure 7.2 of the Halton Region Transportation Master Plan (2031), "The Road to Change", identifies a conversion of the existing six vehicle travel lane configuration of Trafalgar Road to a four travel lanes plus two high-occupancy vehicle (HOV) lanes configuration to accommodate a future bus rapid transit (BRT) line along Trafalgar Road. However, as confirmed with the Region, given the timing of this

improvement is currently unknown, the existing lane configurations were retained for all future scenarios analyzed herein.

Significant reconfiguring of the transportation network is planned in Midtown Oakville as part of the future planned intensification of the area. Such improvements are described in the Midtown Oakville EA (2014) and are further reflected in Schedule L.3 of "Liveable Oakville", the Town's Official Plan (excerpts included in **Appendix H**). As previously discussed in **Section 2.3**, given the realignment of Cross Avenue and QEW EB off-ramp connection to Cross Avenue as defined in the MOCEA would render the site undevelopable, an alternative analysis approach was pursued. The existing lane configurations at the intersections along Trafalgar Road are preserved for the future horizons. As established in the terms of reference correspondence, a QEW eastbound off-ramp is included in the 2035 horizon year analysis in place of the existing Davis Road west approach. Traffic volumes for the off-ramp were projected using the methodology in the MOCEA Traffic Analysis by comparing the do nothing scenario volumes to the scenario with the new QEW eastbound off-ramp connection to South Service Road. Based on the results of the signal warrants analysis in **Section 6.2** and the MOCEA findings, the intersection was evaluated under both stop control and traffic signals. Refer to Midtown Oakville EA Traffic Analysis excerpts in **Appendix C**.

Further, neither the future HOV lanes on Trafalgar Road nor the subject MOCEA improvements noted above are included in the current capital works improvements (2018-2027).

As part of the GO Expansion program being undertaken by Metrolinx, the Lakeshore West GO Transit line is planned to receive more frequent and faster transit service. Based on the GO Expansion Full Business Case (November 2018), the Oakville GO Station is expected to receive transit frequencies of approximately eight (8) trains per hour per direction during both the peak and off-peak periods. These improvements are expected to significantly increase the attractiveness of the transit transportation mode near the subject site. Refer to **Appendix H** for excerpts.

Finally, there are numerous active transportation improvements reflected in Maps 6 and 7 of the Town's Active Transportation Plan update (2017). The active transportation improvements listed in the plan in the vicinity of the subject site include active transportation crossings across the QEW adjacent and near to Trafalgar Road, a new in-boulevard trail / buffered bike lane along Cornwall Road and a new sidewalk along the North Service Road west of Trafalgar Road. These new active transportation routes are expected to increase the attractiveness of the active transportation modes to and from the subject site.

4.5 Intersection Operations

The future background intersection operations at the study intersections were analyzed using the 2025, 2030, and 2035 future background traffic volumes illustrated in **Figures 8, 9, and 10** respectively. Level of Service definitions are provided in **Appendix F**. Detailed capacity analysis worksheets are included in **Appendix G**.

Tables 11, 12 and 13 outline the 2025, 2030, and 2035 future background traffic operations.

Table 11: 2025 Future Background Traffic Operations

Intersection	Control	Peak Hour	Level of Service ¹	Control Delay	Critical v/c ratio ²	95 th Percentile Queue Length > Storage Length ³
Trafalgar Road and QEW WB ramps / North Service Road E.	Signal	A.M.	C	21.2s	0.93 (SBR⁴)	None
		P.M.	C	23.2s	0.95 (SBR⁴)	None
Trafalgar Road and QEW EB ramps	Signal	A.M.	C	23.5s	0.89 (EBR) 0.86 (SBT)	None
		P.M.	C	26.2s	0.81 (EBL)	None
Trafalgar Road and South Service Road East / Cross Avenue	Signal	A.M.	D	39.0s	0.75 (EBL)	88.5m > 55.0m (SBL)
		P.M.	D	35.1s	0.85 (EBL)	166.1m > 130.0m (EBL) 78.9m > 55.0m (SBL)
Trafalgar Road and Cornwall Road	Signal	A.M.	C	34.2s	0.82 (SBL)	103.6m > 85.0m (EBL1) 112.2m > 105.0m (EBL2)
		P.M.	D	39.1s	0.81 (SBL)	108.7m > 85.0m (EBL1) 115.4m > 105.0m (EBL2)
South Service Road East and Davis Road	Stop (Minor)	A.M.	B	10.7s	0.06 (NB)	None
		P.M.	B	11.5s	0.08 (SB)	None
Davis Road and Site Access	Stop (Minor)	A.M.	A	8.4s	0.01 (EB)	None
		P.M.	A	8.4s	0.01 (SB)	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro/ICU). The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM2000).

Note 2: The critical v/c ratio is considered to be the maximum v/c ratio for movements at the intersection where the maximum v/c ratio does not exceed the critical thresholds identified in **Section 3.7.2**. All v/c ratios that exceed the critical thresholds outlined in are bolded.

Note 3: The 95th percentile queue lengths were derived from SimTraffic reports using 15-minute seeding, 60-minute simulation and an average of 5 runs. Queues which exceed the designated storage length of the turn lane but can be accommodated by a centre turn lane were not documented in this table.

Note 4: SBR – Refers to southbound movement to QEW WB on-ramp.

Table 12: 2030 Future Background Traffic Operations

Intersection	Control	Peak Hour	Level of Service ¹	Control Delay	Critical v/c ratio ²	95 th Percentile Queue Length > Storage Length ³
Trafalgar Road and GEW WB ramps / North Service Road E.	Signal	A.M.	C	24.9s	1.03 (SBR⁴)	None
		P.M.	C	31.4s	1.07 (SBR⁴) 0.89 (NBT) 0.78 (WBT) 0.78 (WBL)	None
Trafalgar Road and GEW EB ramps	Signal	A.M.	C	28.6s	0.98 (EBR) 0.96 (SBT)	196.6m > 175.0m (EBL)
		P.M.	C	29.9s	0.86 (NBT) 0.85 (EBL) 0.80 (EBR)	205.3m > 175.0m (EBL)
Trafalgar Road and South Service Road East / Cross Avenue	Signal	A.M.	D	44.3s	0.85 (SBT)	163.8m > 130.0m (EBL) 89.3m > 55.0m (SBL)
		P.M.	D	37.5s	0.89 (EBL)	167.7m > 130.0m (EBL) 73.4m > 55.0m (SBL)
Trafalgar Road and Cornwall Road	Signal	A.M.	C	34.1s	0.85 (EBL)	109.2m > 85.0m (EBL1) 119.8m > 105.0m (EBL2)
		P.M.	D	39.9s	0.87 (EBL)	105.3m > 85.0m (EBL1) 114.0m > 105.0m (EBL2) 95.8m > 90.0m (SBL1)
South Service Road East and Davis Road	Stop (Minor)	A.M.	B	10.9s	0.07 (NB)	None
		P.M.	B	11.6s	0.09 (SB)	None
Davis Road and Site Access	Stop (Minor)	A.M.	A	8.4s	0.01 (EB)	None
		P.M.	A	8.4s	0.01 (SB)	None

Ditto Notes Table 11.

Table 13: 2035 Future Background Traffic Operations

Intersection	Control	Peak Hour	Level of Service ¹	Control Delay	Critical v/c ratio ²	95 th Percentile Queue Length > Storage Length ³
Trafalgar Road and QEW WB ramps / North Service Road E.	Signal	A.M.	C	32.3s	1.14 (SBR⁴)	None
		P.M.	D	46.7s	1.20 (SBR⁴) 1.00 (NBT) 0.82 (WBT) 0.81 (WBL)	75.6m > 60.0m (WBR)
Trafalgar Road and QEW EB ramps	Signal	A.M.	C	21.2s	0.90 (SBT) 0.88 (EBL) 0.81 (EBR)	206.2m > 175.0m (EBL)
		P.M.	E	58.7s	1.10 (EBR) 1.06 (NBT)	216.8m > 175.0m (EBL)
Trafalgar Road and South Service Road East / Cross Avenue	Signal	A.M.	D	45.8s	0.90 (SBT)	166.2m > 130.0m (EBL) 86.9m > 55.0m (SBL)
		P.M.	D	38.1s	0.91 (EBL) 0.85 (NBT)	161.3m > 130.0m (EBL) 80.1m > 55.0m (SBL)
Trafalgar Road and Cornwall Road	Signal	A.M.	D	35.5s	0.89 (SBL)	105.5m > 85.0m (EBL1) 108.4m > 105.0m (EBL2) 117.6m > 85.0m (WBR)
		P.M.	D	42.5s	0.95 (EBL)	99.4m > 85.0m (EBL1) 106.0m > 105.0m (EBL2) 85.2m > 85.0m (WBL) 98.2m > 85.0m (WBR) 92.7m > 90.0m (SBL1)
South Service Road East and Davis Road / QEW EB off-ramp	Signal	A.M.	B	16.2s	0.78 (EB)	None
		P.M.	A	5.1s	0.36 (EB)	None
	Stop (Minor)	A.M.	C	23.0s	0.76 (EB)	None
		P.M.	B	11.8s	0.15 (EB)	None
South Service Road East and 320 Davis Road Access	Stop (Minor)	A.M.	B	10.6s	0.16 (SB)	None
		P.M.	A	10.0s	0.12 (SB)	None
Davis Road and Site Access	Stop (Minor)	A.M.	A	8.4s	0.01 (EB)	None
		P.M.	A	8.4s	0.01 (SB)	None

Ditto Notes Table 11.

Of the scenarios analyzed, the 2035 horizon year generally represents the most constrained operational scenario for both the a.m. and p.m. peak hours. Unless otherwise noted, operations during 2025 and 2030 future background conditions are projected to be similar or better compared to 2035 future background conditions.

Except for the Trafalgar Road and QEW EB ramp which operates at a LOS "E" in the p.m. peak hour, all the study intersections operates at a LOS "D" or better during the peak hours.

As presented in Table 13, the following study intersections are forecast to have some movements operate near or at capacity under 2035 future background conditions:

- Trafalgar Road and QEW WB on/off-ramps / North Service Road
- Trafalgar Road and QEW EB on/off-ramps
- Trafalgar Road and South Service Road East / Cross Avenue
- Trafalgar Road and Cornwall Road

The noted study intersections are forecast to have some movements exceeding critical volume-to-capacity thresholds identified in **Section 3.7.2**, and a couple turn queues occasionally exceed the turn storage lanes into the taper and adjacent travel lane during the peak hours. These findings are consistent with previous traffic studies such as the MOCEA and the Olde Oakville Transportation Study. It is noted that forecasted issues can partly be attributed to the exponential background traffic volume growth projection applied along Trafalgar Road, Cornwall Road, and the MTO ramps over a thirteen year period to the ultimate 2035 horizon. Therefore, though it is expected that intersection operations will be constrained during the peak hours in the future horizons, forecasted operational issues may be overstated herein. Nevertheless, it is recommended that these study intersections be monitored for operational issues and the signal timing plans be revised as required to accommodate future traffic growth.

Under the 2030 future background scenario, the study intersection of Trafalgar Road and QEW EB on/off-ramps is projected to operate at a LOS "D" during the peak hours, with volume-to-capacity ratios above one for a few movements in the a.m. peak hour. Consideration should be given to optimizing the timing plans at the intersection in the 2030 horizon. The planned QEW EB-off ramp to South Service Road East was implemented for the 2035 horizon scenario. Intersection operations in the a.m. peak hour are expected to improve slightly under this scenario when compared to the corresponding 2030 scenario due to this planned improvement. The p.m. peak hour operations are expected to deteriorate between 2030 and 2035 even with the implementation of the planned QEW EB South Service Road East off-ramp. Even if the QEW EB off-ramp to South Service Road East is implemented, it is recommended the MTO explore adding a right-turn storage lane to the QEW eastbound off-ramp connection to Trafalgar Road in future if traffic volumes follow the pattern forecasted by the MOCEA for this scenario.

Under the 2035 future background scenario, the eastbound left-turn movement at the Cornwall Road and Trafalgar Road intersection is projected to be constrained. Similar to existing conditions, the 95th percentile eastbound left-turn queueing results suggests that vehicles may queue beyond the storage lanes into the adjacent through lanes and potentially block the Oakville GO Station parkade access connection to the Cornwall Road west approach during the peak hours. As recommend under existing conditions, the Region should monitor this intersection and consider timing plan coordination along Cornwall Road (if not already so), timing plan adjustments and additional regulatory signage (e.g., do not block intersection) to limit operational and potential safety issues at the adjacent upstream intersections on Cornwall Road.

The South Service Road East and Davis Road unsignalized study intersection is projected to operate at a LOS "B" or better during the peak hours under the 2025 and 2030 horizon years.

Under the 2035 horizon year, the west approach of the South Service Road East and Davis Road intersection was replaced by the planned QEW EB off-ramp. Traffic operations are expected to be adequate under both stop control and traffic signal control. A LOS "C" or better and a LOS "B" or better is forecast for the intersection under stop control and traffic signal control, respectively, during the peak hours. Given the existing Davis Road west approach services the 320 Davis Road background development, a new access connection was assumed for this site approximately 20m south of the South Service Road East and Davis Road / QEW EB off-ramp intersection. The 320 Davis Road access connection to South Service Road East is projected to operate efficiently in the 2035

horizon, at a LOS “B” or better during the a.m. and p.m. peak hours.

Overall, the boundary road network is expected to operate satisfactorily under all future background scenarios analyzed, however, several improvement opportunities have been identified that would lead to safer and more acceptable traffic operations to accommodate future traffic growth.

5.0 Site Generated Traffic

The proposed development will result in additional vehicles on the boundary road network that would otherwise not exist. The proposed development will also result in additional turning movements at the study intersections. This section outlines the methodology and results of forecasting future inbound and outbound trips attributable to the proposed development under the various analysis scenarios, including existing conditions, future background and future total, along with under the various study horizon years.

5.1 Existing Site Trip Generation and Assignment

As discussed in **Section 3.6**, vehicle trip generation was conducted for the existing site for the purposes of conducting traffic analysis at the site access connection to Davis Road. The trip generation for the existing site is summarized in **Table 14** below.

Table 14: Existing Site Trip Generation

Existing Site Trip Generation						
ITE Land Use Category	GFA (ft ²)	Setting	Peak Hour	Trips Generated		
				Inbound	Outbound	Total
LUC 712 “Small Office Building”	7,900 ft ²	General Urban / Suburban	A.M.	11	2	13
			P.M.	6	11	17

The existing site is expected to generate approximately 13 and 17 two-way vehicle trips in the a.m. and p.m. peak hours, respectively. These trips were included within the existing condition and future background analysis scenario, and were replaced the future total scenario by the proposed development trips.

Given that Davis Road is a dead-end street, all inbound vehicle trips at the intersection of Davis Road and site access were assigned to the eastbound left-turn movement, while all outbound vehicle trips were assigned to the southbound right-turn movement. The turning movement counts at the remaining study intersections are expected to fully capture existing vehicle trips from the site. As such, no other vehicle additions attributable to the existing land use were made at the study intersections during the existing condition and future background scenarios.

5.2 Future Site Trip Generation

Future site trip generation forecasts for the proposed development were performed per the site statistics noted on the latest site plan (dated April 2022, included in **Appendix A**). Trip generation was projected by transportation mode and for each of the horizon years analyzed herein.

5.2.1. ITE Trip Generation Rates

The ITE Trip Generation Manual, 11th Edition, was used to derive trip estimates for the proposed development. The ITE Trip Generation Manual is a compendium of industry collected trip generation data across North America for a variety of land uses and is used industry-wide as a source for trip generation forecasts.

The subject site is located within the Midtown Oakville Secondary Plan Area, which is a designated Urban Growth Centre per the Growth Plan for the Greater Golden Horseshoe (2020). Significant urbanization as a result of development is expected in the coming years. Therefore, while a setting of “General Urban/Suburban” would likely be most appropriate given the current nature of the area surrounding the site, the “Dense Multi-Use Urban” setting is likely more reflective of the future conditions. Therefore, a setting of “Dense Multi-Use Urban” was applied for the proposed development trip generation forecast. For land-use codes without sufficient data in the “Dense Multi-Use Urban” setting option, the “General Urban/Suburban” setting was applied instead.

The following Land Use Categories (LUC) were applied to the proposed mixed-use development:

- LUC 222 “Multifamily Housing (High Rise)” was applied to the 98 apartment dwelling units.
- LUC 710 “General Office Building” was applied to the six (6) office units.
- LUC 822 “Strip Retail Plaza (<40k)” was applied to the three (3) ground floor retail units.

Land Use Subcategories depending on proximity (within half a mile) to a Rail Transit Station were available for Land Use Codes 222 and 710. Given the site is located less than half a mile away from Oakville GO Station, the “Close to Rail Transit” land use subcategory was used herein for the applicable land use categories.

Given the lack of person trip generation rates available for several land use categories, ITE vehicle trip generation was recorded as the first step of the trip generation process. The ITE trip generation forecasts for the proposed development are outlined in **Table 15** below.

Table 15: ITE Vehicle Trip Generation

ITE Land Use Category	Independent Variable	Setting	Peak Hour	Trips Generated		
				Total	Inbound	Outbound
LUC 222 “Multifamily Housing (High Rise)”	98 Dwelling Units	Dense Multi-Use Urban	A.M.	22	2	20
			P.M.	19	13	6
LUC 710 “General Office Building”	38,122 ft ² GFA	Dense Multi-Use Urban	A.M.	24	21	3
			P.M.	25	4	21
LUC 822 “Strip Retail Plaza (<40k)”	5,703 ft ² GFA	General Urban / Suburban	A.M.	24	14	10
			P.M.	66	33	33
Total Development Vehicle Trips			A.M.	70	37	33
			P.M.	110	50	60

Therefore, the ITE Trip Generation rates forecast 70 and 110 vehicle trips attributable to the proposed development in the a.m. and p.m. peak hours.

5.2.2. Internal Trip Capture

Given the proposed development is mixed-use in nature, internal trip capture between the proposed retail, office, and residential land uses is expected.

Therefore, the internal trip capture of the proposed development was forecasted. The forecast was conducted in accordance with Section 6.5 of the ITE Trip Generation Handbook, 3rd Edition, "Process for Estimating Mixed-Use Trip Generation". The vehicle trips in **Section 5.2.1** for each land use were used along with the unconstrained internal person trip capture rates listed in Tables 6.1 and 6.2 of the ITE Trip Generation Handbook as inputs for the internal trip capture projection. Given the land uses are all located within the same building, no proximity adjustment factors were applied.

Table 16 summarizes the internal trip capture projections, along with the net external person trips from the proposed development.

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Table 16: Internal Trip Capture Projection

Land Use	Peak Hour	External Vehicle Trips			Internal Trip Capture	
		Total	Inbound	Outbound	Total	Capture Rate
Residential	A.M.	22	2	20	0	0%
	P.M.	14	11	3	5	26%
Office	A.M.	22	13	9	2	8%
	P.M.	57	27	30	9	14%
Retail	A.M.	22	20	2	2	8%
	P.M.	21	3	18	4	16%
Combined Development	A.M.	66	35	31	4	6%
	P.M.	92	41	51	18	16%

It is expected based on the results of the internal trip projections that 6% and 16% of the original vehicle trips forecasted by the ITE Trip Generation Manual will be captured by the internal land uses of the site during the a.m. and p.m. peak hours, respectively.

Appendix I includes the detailed internal trip capture analysis.

5.2.3. Mode Split

As advised through the Terms of Reference correspondence, the Region of Halton requires a development forecast of the number of person trips generated by the proposed development, and a breakdown of trips generated by travel mode. Several sources of information were reviewed to determine suitable mode splits to apply for trip generation purposes for the proposed development.

The Halton Region Transportation Master Plan (TMP) identifies a travel demand mode split forecast of 72% for vehicle transportation, 20% for transit, 5% for active transportation, and 3% for travel demand management under a 2031 horizon year. Furthermore, the plan projects increases in transit mode share from the current situation, with a forecast of 10%, 15%, and 20% in transit mode split in 2021, 2026, and 2031, respectively.

The Town of Oakville's "Switching Gears" Transportation Master Plan evaluated various transportation mode splits to inform road network improvements for the 2031 horizon. Scenario D was recommended as the preferred interim solution to accommodate transportation demands. The Town preferred Scenario D mode split forecast identifies a 2031 mode share of 76% for vehicle transportation, 12% for transit, 6% for active transportation, and 6% for travel demand management.

Mode split of the current situation was additionally reviewed using Transportation Tomorrow Survey (TTS) data. TTS is a comprehensive survey of transportation characteristics of households in the Greater Toronto Area (GTA) and surrounding areas.

Mode split was calculated using 2016 survey data for all trips attributable to the Region of Halton, the Town of Oakville, and the 2006 GTA Zone 4014. The subject site is located within 2006 GTA Zone 4014, which approximately covers the entirety of the Midtown Oakville Growth Area. **Table 17** outlines the current mode splits in the Region of Halton, the Town of Oakville, and the Midtown Oakville Growth Area. Refer to **Appendix J** for TTS query data.

Table 17: Existing Modal Split (Transportation Tomorrow Survey)

	Region of Halton	Town of Oakville	Midtown Oakville
Vehicle Transportation	74%	72%	83%
Transit	9%	11%	6%
Active Transportation	6%	6%	2%
TDM (Carpooling Trips)	11%	11%	9%
Total	100%	100%	100%

As discussed in **Section 4.4**, there are significant transit improvements planned for future implementation in the vicinity of the subject site. These improvements include decreased headways and travel times on the Lakeshore West GO Rail Line as part of GO Expansion, along with enhanced transit within the Town of Oakville proper, including a new bus rapid transit service along Trafalgar Road. These improvements are expected to further promote and increase transit use the in the area and at the proposed development.

Based on the transit mode split investigative review and recommendations of the Region via the terms of reference correspondence, the transit mode split shown below in **Table 18** was used in the study herein for the purposes of trip generation forecasts by travel mode and person trip generation.

Table 18: Analysis Mode Split

	2022 (Existing Year)	2025 (Buildout Year)	2030 (5-Year Horizon)	2035 (10-Year Horizon)
Vehicle Transportation	81%	78%	72%	72%
Transit	11%	14%	20%	20%
Active Transportation	5%	5%	5%	5%
TDM (Carpooling Trips)	3%	3%	3%	3%
Total	100%	100%	100%	100%

It is noted that the TDM mode split of 3% was assigned to the TDM transportation mode as this is the highest rate permissible from Halton Region. Based on data from the Transportation Tomorrow Survey outlined in **Table 17**, carpooling rates are currently much higher, with a mode split at approximately 10%. It is expected the TDM mode split will remain similar in the future horizons. Therefore, the expectation is for the vehicle transportation mode split to be approximately 73%, 65% and 65% for the 2025, 2030 and 2035 horizon years, respectively. The expected vehicle mode split of 65% was used for the purpose of projecting total person trip generation. However, a 3% mode split was retained for the estimation by Trip Generation by Travel Mode in **Section 5.2.5**. Thus, vehicle trips forecasted herein are likely a slight overestimate. This results in a more conservative assessment of the traffic operational impact of the proposed development on the boundary road network.

5.2.4. Person Trip Generation

The total person trips generated by the proposed development were forecasted based on the vehicle trip generation in **Section 5.2.2** and the mode split in **Section 5.2.3**. The ITE Trip Generation forecast is assumed to reflect the existing mode split for vehicle trips. Therefore, to determine person trip generation forecasts, the ITE vehicle trip generation were divided by the existing vehicle mode split of

81% (as discussed in **Section 5.2.4**).

The resulting person trip generation forecast is summarized below in **Table 19**.

Table 19: Site Person Trip Generation

ITE Land Use Category	Peak Hour	Trips Generated		
		Total	Inbound	Outbound
LUC 222 "Multifamily Housing (High Rise)"	A.M.	27	2	25
	P.M.	18	14	4
LUC 710 "General Office Building"	A.M.	27	25	2
	P.M.	70	33	37
LUC 822 "Strip Retail Plaza (<40k)"	A.M.	27	16	11
	P.M.	26	4	22
Total Development Person Trips	A.M.	81	43	38
	P.M.	114	51	63

As shown in **Table 19**, the proposed development is expected to generate 81 and 114 person trips in the a.m. and p.m. peak hours, respectively.

5.2.5. Trip Generation by Travel Mode

To determine the final trip generation estimates by travel mode, the trip generation mode split identified in **Section 5.2.3** was applied to the net external person trips outlined in **Section 5.2.4**. **Table 20** outlines the trip generation forecast for the 2025 horizon year, and **Table 21** outlines the trip generation for the 2030 and 2035 horizon year.

Table 20: Site Trip Generation (2025)

Transportation Mode	A.M. Peak Hour			P.M. Peak Hour		
	Total	Inbound	Outbound	Total	Inbound	Outbound
Vehicle Transportation	65	34	31	89	40	49
Transit	10	6	4	17	8	9
Active Transportation	4	2	2	6	3	3
TDM (Carpooling Trips)	2	1	1	3	1	2
External Person Trips Total	81	43	38	115	52	63

Table 21: Site Trip Generation (2030/2035)

Transportation Mode	A.M. Peak Hour			P.M. Peak Hour		
	Total	Inbound	Outbound	Total	Inbound	Outbound
Vehicle Transportation	58	31	27	83	37	46
Transit	17	9	8	23	11	12
Active Transportation	4	2	2	6	3	3
TDM (Carpooling Trips)	2	1	1	3	1	2
External Person Trips Total	81	43	38	115	52	63

5.3 Trip Distribution

The vehicle trips generated by the proposed development were distributed to the boundary road network based on 2016 Transportation Tomorrow Survey (TTS) data. TTS is a comprehensive survey of transportation characteristics of households in the Greater Toronto Area (GTA) and surrounding areas.

For the proposed development, TTS results were filtered to vehicle trips entering and exiting 2006 GTA Zone 4014 during the weekday a.m. and p.m. peak periods. The zone approximately represents the entirety of the Midtown Oakville Growth Area.

From this query, trip destinations were determined, and percentage of trips assigned to each destination was accounted for. Trips were assumed to travel to and from their destination points based on the most convenient route. The resultant trip distribution is outlined in **Table 22**.

Table 22: Trip Distribution

Arriving From / Departing To	Percentage
Queen Elizabeth Way (West)	22%
Queen Elizabeth Way (East)	21%
Trafalgar Road (North)	33%
Trafalgar Road (South)	2%
Cornwall Road (West)	11%
Cornwall Road (East)	2%
Cross Avenue (West)	4%
South Service Road East (East)	5%
Total	100%

Figure 11 outlines the trip distribution used for the 2025 and 2030 analysis scenarios. **Figure 12** outlines the trip distribution for the 2035 analysis period. **Appendix J** contains the TTS data and detailed trip distribution calculations.

5.4 Trip Assignment

The trip distribution outlined in **Section 5.3** was applied to the site vehicle trip generation to calculate the trip assignment. Trips were assumed to travel to and from their destination points based on the most convenient route.

Figures 13, 14 and 15 outline the trip assignment for the 2025, 2030, and 2035 horizon years, respectively.

6.0 Future Total Conditions

6.1 Basis of Assessment

To determine future total traffic volumes for each of the future horizon years, the site generated traffic volumes for the horizon year were added to the corresponding future background traffic volumes. The 2025 future total traffic volumes, calculated by summing **Figures 8 and 13**, are provided as **Figure 16**. The 2030 future total traffic volumes, calculated by summing **Figures 9 and 14**, are provided as **Figure 17**. Finally, the 2035 future total traffic volumes, calculated by summing **Figures 10 and 15**, are provided as **Figure 18**.

6.2 Signal Warrant Analysis

A signal warrant analysis was conducted for the intersection of South Service Road East and Davis Road. The analysis followed the procedures specified in Chapter 4 of the "Ontario Traffic Manual – Book 12", March 2012. Justifications 1 (Minimum Vehicular Volume), 2 (Delay to Cross Traffic), 3 (Combination of Justifications 1 and 2), and 4 (4-Hour Volume) were selected as the most appropriate warrants to assess.

The average hour volume was determined using the following formula from OTM Book 12:

$$AHV = (amPHV + pmPHV) / 4$$

Where;

AHV = average hour volume

PHV = peak hour volume

Table 23 outlines the results of the signal warrant analysis. **Appendix K** contains the signal warrant sheets.

Table 23: Signal Warrant Analysis Results

Location	Operating Environment	Horizon Year	Number of lanes on major road	Traffic Signals Warranted?
South Service Road East and Davis Road	Urban	2030 Future Total	Two	No
	Urban	2035 Future Total	Two	No

The results of the signal warrant analysis indicate that traffic signals are not warranted at the Davis Road connection to South Service Road East under any of the study horizons. However, the new QEW EB off-ramp connection to South Services Road is planned to be signalized according to the MOCEA, therefore, the intersection was modelled under both the stop-control (minor street) and signalization configurations in the 2035 horizon.

Given that the only access to the site is through this intersection, signal warrants were not checked at the site access connection to Davis Road as the intersection will possess fewer traffic movements than at the South Service Road and Davis Road intersection.

6.3 Intersection Operations

The future total intersection operations at the study intersections were analyzed using the 2025, 2030, and 2035 future total traffic volumes illustrated in **Figures 16, 17, and 18** respectively. Detailed capacity analysis worksheets are included in **Appendix G**.

Tables 24, 25 and 26 outline the 2025, 2030, and 2035 future total traffic operations.

Table 24: 2025 Future Total Traffic Operations

Intersection	Control	Peak Hour	Level of Service ¹	Control Delay	Critical v/c ratio ²	95 th Percentile Queue Length > Storage Length ³
Trafalgar Road and QEW WB ramps / North Service Road E.	Signal	A.M.	C	21.2s	0.93 (SBR⁴)	None
		P.M.	C	23.9s	0.95 (SBR⁴)	None
Trafalgar Road and QEW EB ramps	Signal	A.M.	C	23.9s	0.90 (EBR) 0.87 (SBT)	None
		P.M.	C	28.0s	0.82 (EBL)	None
Trafalgar Road and South Service Road East / Cross Avenue	Signal	A.M.	D	38.7s	0.75 (EBL)	89.4m > 55.0m (SBL)
		P.M.	D	35.4s	0.85 (EBL)	172.8m > 130.0m (EBL) 75.0m > 55.0m (SBL)
Trafalgar Road and Cornwall Road	Signal	A.M.	C	34.3s	0.81 (SBL)	99.4m > 85.0m (EBL1) 109.3m > 105.0m (EBL2) 40.7m > 40.0m (NBL)
		P.M.	D	39.2s	0.82 (SBL)	108.2m > 85.0m (EBL1) 118.1m > 105.0m (EBL2)
South Service Road East and Davis Road	Stop (Minor)	A.M.	B	11.5s	0.09 (NB)	None
		P.M.	B	12.8s	0.14 (WB)	None
Davis Road and Site Access	Stop (Minor)	A.M.	A	8.5s	0.03 (SB)	None
		P.M.	A	8.6s	0.05 (SB)	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro/ICU). The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM2000).

Note 2: The critical v/c ratio is considered to be the maximum v/c ratio for movements at the intersection where the maximum v/c ratio does not exceed the critical thresholds identified in **Section 3.7.2**. All v/c ratios that exceed the critical thresholds outlined in are bolded.

Note 3: The 95th percentile queue lengths were derived from SimTraffic reports using 15-minute seeding, 60-minute simulation and an average of 5 runs. Queues which exceed the designated storage length of the turn lane but can be accommodated by a centre turn lane were not documented in this table.

Table 25: 2030 Future Total Traffic Operations

Intersection	Control	Peak Hour	Level of Service ¹	Control Delay	Critical v/c ratio ²	95 th Percentile Queue Length > Storage Length ³
Trafalgar Road and QEW WB ramps / North Service Road E.	Signal	A.M.	C	24.9s	1.03 (SBR⁴)	None
		P.M.	C	31.7s	1.07 (SBR⁴) 0.90 (NBT) 0.79 (WBL) 0.79 (WBT)	None
Trafalgar Road and QEW EB ramps	Signal	A.M.	C	29.2s	0.99 (EBR) 0.97 (SBT)	211.8m > 175.0m (EBL)
		P.M.	C	29.9s	0.87 (NBT) 0.85 (EBL) 0.81 (EBR)	199.9m > 175.0m (EBL)
Trafalgar Road and South Service Road East / Cross Avenue	Signal	A.M.	D	44.7s	0.85 (SBT)	157.6m > 130.0m (EBL) 88.6m > 55.0m (SBL)
		P.M.	D	37.5s	0.89 (EBL)	168.9m > 130.0m (EBL) 77.2m > 55.0m (SBL)
Trafalgar Road and Cornwall Road	Signal	A.M.	C	34.1s	0.85 (SBL)	112.9m > 85.0m (EBL1) 120.1m > 105.0m (EBL2) 92.2m > 85.0m (WBR) 43.9m > 40.0m (NBL)
		P.M.	D	40.3s	0.88 (EBL)	102.7m > 85.0m (EBL1) 111.3m > 105.0m (EBL2) 40.5m > 40.0m (NBL) 92.3m > 90.0m (SBL1)
South Service Road East and Davis Road	Stop (Minor)	A.M.	B	11.7s	0.09 (NB)	None
		P.M.	B	12.9s	0.13 (WB)	None
Davis Road and Site Access	Stop (Minor)	A.M.	A	8.5s	0.03 (SB)	None
		P.M.	A	8.5s	0.04 (SB)	None

Ditto Notes Table 24.

Table 26: 2035 Future Total Traffic Operations

Intersection	Control	Peak Hour	Level of Service ¹	Control Delay	Critical v/c ratio ²	95 th Percentile Queue Length > Storage Length ³
Trafalgar Road and QEW WB ramps / North Service Road E.	Signal	A.M.	C	32.2s	1.14 (SBR⁴)	None
		P.M.	D	47.7s	1.20 (SBR⁴) 1.00 (NBT) 0.82 (WBT) 0.82 (WBL)	83.0m > 60.0m (WBR)
Trafalgar Road and QEW EB ramps	Signal	A.M.	C	21.6s	0.91 (SBT) 0.88 (EBL) 0.81 (EBR)	200.3m > 175.0m (EBL)
		P.M.	E	58.6s	1.10 (EBR) 1.07 (NBT)	218.2m > 175.0m (EBL)
Trafalgar Road and South Service Road East / Cross Avenue	Signal	A.M.	D	45.5s	0.90 (SBT)	168.0m > 130.0m (EBL) 88.9m > 55.0m (SBL)
		P.M.	D	38.3s	0.91 (EBL) 0.89 (SBT) 0.86 (NBT)	158.0m > 130.0m (EBL) 81.5m > 55.0m (SBL)
Trafalgar Road and Cornwall Road	Signal	A.M.	D	35.7s	0.89 (SBL)	100.3m > 85.0m (EBL1) 106.3m > 105.0m (EBL2) 106.5m > 85.0m (WBR)
		P.M.	D	41.8s	0.93 (SBL)	101.3m > 85.0m (EBL1) 111.7m > 105.0m (EBL2) 109.6m > 85.0m (WBR) 108.9m > 90.0m (SBL1)
South Service Road East and Davis Road	Signal	A.M.	B	16.2s	0.79 (EB)	None
		P.M.	A	6.0s	0.38 (EB)	None
	Stop (Minor)	A.M.	C	24.7s	0.78 (EB)	None
		P.M.	B	13.6s	0.17 (EB)	None
South Service Road East and 320 Davis Road Access	Stop (Minor)	A.M.	B	10.8s	0.17 (SB)	None
		P.M.	B	10.3s	0.14 (SB)	None
Davis Road and Site Access	Stop (Minor)	A.M.	A	8.5s	0.03 (SB)	None
		P.M.	A	8.5s	0.04 (SB)	None

Ditto Notes Table 24.

All the study intersections are forecast to operate similarly to their respective future background conditions. Except for the Trafalgar Road and QEW EB ramp which operates at a LOS "E" in the p.m. peak hour, all the study intersections are projected to operate at a LOS "D" or better during the peak hours.

The noted operational issues and recommended potential mitigation measures under the future background apply to the future total conditions.

Overall, the boundary road network is expected to operate adequately into the 2035 ultimate horizon year. The addition of site generated traffic to the boundary road network is not expected to materially impact traffic operations. Therefore, the proposed development is supportable from a traffic operations perspective.

7.0 Safety Review

This section reviews transportation safety of the proposed development. The purpose of the safety review is to identify any safety deficiencies and to identify how the development proposes to maximize safety for all road users. The safety review assesses spacing and sight lines at the access along with internal site circulation in the following subsections.

7.1 Access Spacing and Corner clearance

The development includes a site access connection to Davis Road. It is noted that the existing site maintains a site access in nearly the same location as the access proposed to serve the development as outlined in the site plan in **Appendix A**.

Access spacing was checked against the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR) requirements. Per Figure 8.8.2 of the manual, a minimum 15m separation distance is suggested for local roads. A separation to South Service Road East of more than 50m was measured. Further, the access is at least 4m away from the adjacent driveway access to the Oakville Auto Center, satisfying the driveway spacing requirements of the TAC GDGCR Figure 8.9.2. Therefore, the proposed site connection spacing satisfies the minimum suggested intersection spacing requirements per the TAC GDGCR.

7.2 Sight Distance Analysis

The available sightlines at the proposed Ninth Line connections were measured and compared to the standards set out in the TAC GDGCR. Sight distance was measured from the proposed site accesses using the following assumptions:

- A standard driver eye height of 1.08 metres for a passenger car, and
- A 4.4 metre setback from the approximate extension of the outer curb to represent a vehicle waiting to exit the site.

Intersection sight distance is calculated using equation 9.9.1 from the GDGCR as outlined below:

$$ISD = 0.278 * V_{major} * tg$$

Where;

ISD = Intersection Sight Distance

V major = design speed of roadway (km/h)

tg = assumed time gap for vehicles to turn from stop onto roadway (s)

The design speed of a roadway in an urban environment is typically 10 km/h greater than the posted speed limit. Davis Road does not have a posted speed limit. As discussed in **Section 3.3**, a speed limit of 50 km/h was assumed for the roadway. Accordingly, a design speed of 60km/h was used for the evaluation of sight distance.

Table 27 outlines the sight distance analysis for the Davis Road site access.

Table 27: Sight Distance Analysis

Feature	Davis Road site access
Access Type	Full-Moves
Intersection Control	Stop (Minor Street)
Assumed Design Speed	60 km/h
Base Time Gap	7.5 s ¹ Left-turn 6.5 s Right-turn
Grade of Roadway	Less than 3%
Horizontal Alignment of Roadway	Straight
Sight Distance Required	Left - 130m Right - 110m
Measured Sight Distance	Visibility of intersection (looking west) >150m (looking east)
Minimum Sight Distance Satisfied?	Left turn – Yes Right turn – Yes

Note 1: Time gap for left-turning vehicles from a stop onto a two-lane highway with no median and with a grade less than 3%. Value from Table 9.9.3 in the GDGCR.

Note 2: Sight distance values calculated from Intersection Sight Distance equation 9.9.1 in the GDGCR.

As outlined in **Table 27**, minimum sight distance requirements are satisfied at the site access connection to Davis Road. Therefore, the proposed development is supportable from a sight distance perspective.

7.3 Internal Site Circulation

Detailed vehicle turning diagrams have been provided to illustrate internal site circulation. Vehicle turning analysis was conducted for the most constrained vehicle profiles expected to navigate through the site: a standard pumper firetruck and a Region of Halton front-load garbage truck. Furthermore, vehicle turning analysis using passenger vehicles for the most constrained parking spaces and parking garage servicing routes were analyzed to ensure accessibility throughout the site.

Vehicle turning analysis indicates that there are no expected maneuverability constraints within the site. Refer to vehicle turning diagrams in **Appendix K**.

8.0 Transportation Demand Management

There are existing and planned Transportation Demand Management (TDM) opportunities in the Town of Oakville and near the site to encourage the use of non-auto transportation options, as outlined in **Section 3.4**, **Section 3.5**, and **Section 4.4**. The existing and future background improvements to the road, transit and active transportation networks are expected to reduce dependence on single occupancy vehicle trips.

Furthermore, there are site specific transportation demand management measures included as part of the proposed development that will promote the use of transit and active transportation modes. As shown in **Appendix A**, the Site Plan identifies internal pedestrian walkways which permit pedestrian

circulation within the site. Furthermore, the site proposes to include a sidewalk connecting along the north side of Davis Road to South Service Road East. This direct connection to the existing pedestrian network improves safety and convenience of pedestrian movement and access to the boundary roadway, transit and nearby land uses.

The site additionally proposes 99 bicycle parking spaces per the Site Plan in **Appendix A**. As highlighted in the 349 Davis Road Parking Justification Study (by Crozier, May 2022), this bicycle parking supply is in excess of both the Town of Oakville Zoning By-Law No. 2014-014 and the Midtown Oakville Parking Strategy. Therefore, it is expected that the provision for additional bicycle parking spaces than the set out requirements will promote the cycling transportation mode and thereby reduce dependence on vehicle trips for shorter trips.

The outlined site specific TDM measures are expected to help the development capitalize on the existing and planned TDM opportunities in the area.

9.0 Conclusions & Recommendations

This study has assessed the transportation impacts of the proposed mixed-use development in the Town of Oakville, Region of Halton. The analyses herein regarding the proposed development has resulted in the following key findings:

- Overall, the study intersections are currently operating acceptably at a LOS "D" or better during the peak hours. A few movements are operating near capacity at the intersection of Trafalgar Road and QEW ramps. Similarly, the 95th queuing results indicate a couple auxiliary turn storage lanes may be exceeded during the peak hours at the Trafalgar Road intersections with Cornwall Road and South Service Road East / Cross Avenue.
- In the 2025 horizon year, the proposed development is forecast to generate 65 and 89 vehicle trips in the a.m. and p.m. peak hours, respectively. In the 2030 and 2035 horizon years, the proposed development is forecast to generate 58 and 83 vehicle trips in the a.m. and p.m. peak hours, respectively – consistent with the modal split projections from the Region.
- The ultimate horizon 2035 trip generation forecast projects 23 and 32 non-vehicular trips generated by the proposed development in the a.m. and p.m. peak hours, respectively.
- Analysis of future background traffic operations indicates that the study intersections along Trafalgar Road are expected to operate near capacity in the ultimate 2035 horizon with a few movements at the QEW ramp intersections operating above capacity. However, under all future background analysis scenarios, the boundary road network is forecast to operate at a LOS "D" or better during the peak hours, except at the Trafalgar Road and South Service Road East intersection, where operations are projected to be a LOS "E" during the critical p.m. peak hour. Several opportunities for operational improvements were identified in the future background and are included as part of the Study recommendations.
- Under the future total analysis scenarios, operations are forecast to remain similar to the associated future background scenario at all study intersections. Under the ultimate 2035 horizon year analysis, the study intersections are forecast to operate at a LOS "D" or better during the peak hours, or the same as future background conditions. At the intersection of Trafalgar Road and QEW eastbound ramps, operations are projected to be LOS "E" during the critical p.m. peak hour, consistent with the 2035 future background conditions.

- The maximum control delay increment and volume-to-capacity ratio increase in the future total scenarios compared to the corresponding future background scenarios at any of the study intersections is forecast to be minimal, at 0.9s and 0.01, respectively. This indicates that site traffic does not materially impact traffic operations at the study intersections. Therefore, no external road improvements attributable to the proposed development are required.
- The available sight distance at the proposed site connection to Davis Road exceeds the minimum sight distance requirements set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR), June 2017. Further, the site satisfies the minimum corner clearance and accessing spacing requirements per the TAC-GDGCR. Further, no expected maneuverability constraints within the site for waste collection or fire trucks are identified.
- In addition to the background active transportation and transit improvements expected in the vicinity of the subject site, the development proposal includes several site specific transportation demand management measures that are expected to reduce dependence on vehicle transportation:
 - The development proposal includes a sidewalk connection along the north side of Davis Road to South Service Road East. This direct connection to the existing pedestrian network improves safety and convenience of pedestrian movement and access to the boundary roadway, transit and nearby land uses.
 - The site proposes a bicycle parking supply of 98 spaces, which is in excess of both the Town of Oakville Zoning By-Law requirements and the Midtown Oakville Parking Strategy. This measure is expected to promote the bicycle transportation mode.

In addition, several recommendations have been identified based the findings and analysis of this study to support the future transportation conditions in the study area. It is recommended that:

- The MTO and Region explore opportunities including timing plan setup adjustments and or turning movement prohibitions (as applicable) in the future to increase capacity for southbound right-turn traffic on Trafalgar Road entering the QEW WB on-ramp and North Service Road.
- At the intersection of Trafalgar Road and Cornwall Road, the Region and Town explore mitigation measures such as timing plan coordination along Cornwall Road (if not already), timing plan adjustments and additional regulatory signage (ex. do not block intersection) to limit operational and potential safety issues at the adjacent upstream intersections on Cornwall Road.
- The MTO explore adding a right-turn storage lane to the QEW eastbound off-ramp connection to Trafalgar Road in future (ie. Beyond 2030) if traffic volumes follow the pattern forecast by the MOCEA.
- The remaining study intersections aside the proposed site access should be monitored by the Region and Town with timing plans adjusted in future for optimal operations as needed.

The analysis contained within this report was prepared using the Site Plan prepared by Studio Veronica Madonna Architect (dated April 2022). Minor revisions to the site plan are not expected to affect the conclusions contained within this report.

In conclusion, the Official Plan Amendment and Zoning By-Law Amendment applications can be supported from a traffic operations perspective as the boundary road network can accommodate the increase in traffic volumes attributable to the proposed development at 349 Davis Road in the Town of Oakville.

Sincerely,

C.F. CROZIER & ASSOCIATES INC.

DRAFT

Peter Apasnore MAsc., P.Eng.,PTOE
Project Manager

/AH

J:\2200\2259- 1539059 Ontario Inc\6324- 349 Davis Road\Reports\Transportation Impact Study\2022.05.09_349 Davis Road TIS (DRAFT).docx

C.F. CROZIER & ASSOCIATES INC

DRAFT

Aidan Hallsworth, EIT
Transportation

APPENDIX A

Site Plan

DRAFT

APPENDIX B

Correspondence

DRAFT

Aidan Hallsworth

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: Wednesday, March 23, 2022 2:46 PM
To: Aidan Hallsworth
Cc: Campbell, Michaela
Subject: TIS&PJS Terms of Reference - 349 Davis Road, Oakville
Attachments: 2022 01 18_349 Davis Rd_ Revised Site Plan.pdf; 10307801 - TRAFALGAR @ SOUTH SERVICE.pdf; 10307701 - TRAFALGAR @ CORNWALL.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Aidan,

Thank you for the terms of reference for your transportation study.

I have reviewed the terms of reference (below) and have the following transportation planning comments from Halton.

For the Transit mode splits, as well as TDM & Active Transportation assumptions, please use:

Halton's Transportation Master Plan 2011 utilizes a transit mode split of 10% for 2021, 15% for 2026 and 20% for 2031. Assumption of travel via other modes (active transportation i.e.: walk, cycle) should utilize a 5% mode split for 2026. Transportation Demand Management (TDM) assumptions of 3% for 2026 would also be acceptable. **Transit mode splits will need to be adjusted from the 2011 TMP assumptions to reasonable percentages based on current year (2022) and "2025/2030/2035" planned and proposed mode splits (based on existing facilities and service in the area to date (planned &/or proposed)). Reasonable assumptions and rationale must be clearly outlined in the Study.**

The proposed analysis of the weekday a.m. and p.m. peak periods, considering the existing (2022) scenario, the full-buildout year (assumed by 2025), along with five-years (2030) and ten-years (2035) beyond buildout, per MTO guidelines, is acceptable.

As requested, please find attached a 2019 TMC for Trafalgar at South Service Road.

For the study area intersection proposed, please add Trafalgar Road at Cornwall Road. The 2019 TMC is also attached.

Traffic Data/Growth Rate:

Any Regional information (traffic counts, signal timing) if needed, can be obtained from Halton through a request to our Road Operations staff at trafficdatarequets@halton.ca

Please use a 2% growth rate.

Trafalgar Road:

The timing of the implementation of the Trafalgar Road HOV lanes is undetermined at this time. As noted in the terms of reference, please assume the existing lane configuration along this section on Trafalgar Road.

Halton – Access, TIS Guidelines:

The Study must be in accordance to Halton Region’s Transportation Impact Study Guidelines (2015).

Background Developments:

Town staff will provide all background developments to consider as part of the study.

Other general Study comments include:

The TIS report will include:

- *Site Plan and Map,*
- *Size & Number of Development Phases,*
- *Existing Conditions (Study Area Intersections, Road Network, Pedestrian Routes, Cycling Routes, Transit Services),*
- *Existing Traffic Conditions (Site Operating Characteristics, Data Collection/Traffic Counts, Analysis Periods (5 years Ahead),*
- *Future Background Conditions (Horizon Years, Horizon Year Volumes)*
- *Background Traffic Demand (with TMC’s < 2 years old),*
- *Background Traffic Demand Forecast (with acceptable growth rates)*
- *Site Generated Traffic (Transit Modal Split, Trip Generation/Distribution/Assignment)*
- *Future Total Traffic Demand,*
- *Capacity Analysis (by Intersection, with LOS, Avg. Delay, V/C ratios),*
- *Traffic Impacts (Tables – Total Traffic with/without Mitigation)*
- *Access Considerations – Existing, Proposed, Geometrics (turn lanes, sight lines),*
- *Recommendations - Identify required/recommended road improvements either as a result of the development impacts, or general non-development improvements.*
- *TDM recommendations (Transit, Pedestrian & Cycling Facilities Analysis)*
- *Conclusions*

The above is also subject to the review and approval by both Town of Oakville and the Ministry of Transportation.

Thanks again for circulating.

Matt

Matt Krusto
Supervisor, Transportation Development Review
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 7225 | 1-866-442-5866



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From: Campbell, Michaela <Michaela.Campbell@halton.ca>
Sent: March 17, 2022 10:06 AM
To: ahallsworth@cfcrozier.ca
Cc: Krusto, Matt <Matt.Krusto@halton.ca>
Subject: TIS&PJS Terms of Reference - 349 Davis Road, Oakville

Hello Aidan,

I have been forwarded your email to Bernie regarding a Terms of Reference for a Traffic Impact Study for the proposal development located at 349 Davis Road in Oakville.

Please find Matt Krusto cc'd in this email. He is the Supervisor for Transportation Development that will be able to comment on your Terms of Reference.

Please let me know if you have any additional questions.

Thank you,
Michaela

Per the attached conceptual site plan, the development proposes:

- A 20-storey mixed use building comprised of:
 - Four (4) commercial units with a combined Gross Floor Area (GFA) of 1,042m²
 - Six (6) office units with a combined Gross Floor Area (GFA) of 3,583.2m²
 - A total of 98 residential apartment dwelling units
- A total of 235 vehicle parking spaces located across a two-level underground parking garage, a three (3) level above-ground parking garage, and a surface parking lot
- A single full-moves site access connection to Davis Road

Transportation Impact Study – Scope:

The Transportation Impact Study will be completed in accordance with the Halton Region Traffic Impact Study Guidelines (January 2015) and the MTO's General Guidelines for the Preparation of Traffic Impact Studies (February 2021).

- It is understood that the site is located within the Midtown Oakville Growth Area per the Town's Official Plan (as of August 31, 2021). The Traffic Impact Study will not consider the proposed Cross Avenue realignment and Cross Avenue QEW EB off-ramp given these improvements would impact the current development proposal. Instead, the study will analyze transportation impacts given the existing road network and recommend improvements to the network, as required. Apart from the conversion of Trafalgar Road to 4+2HOV lanes, road improvements will be identified based on the existing road network configuration as required for the future background and future total scenarios.
- Analysis of the weekday a.m. and p.m. peak periods will suffice. The TIS scope will consider the existing (2022) scenario, the full-buildout year (assumed by 2025), along with five-years (2030) and ten-years (2035) beyond buildout, per MTO guidelines.

Aidan Hallsworth

From: White, Mark J. (MTO) <Mark.J.White@ontario.ca>
Sent: Wednesday, April 27, 2022 11:25 AM
To: Aidan Hallsworth
Cc: Peter Apasnore
Subject: RE: TIS&PJS Terms of Reference - 349 Davis Road, Oakville

Good afternoon Aidan,

Please see below comments regarding the Traffic ToR.

1. The ministry has noted that a couple of developments have come in that will be impacting the QEW/Trafalgar interchange. The ministry would prefer the submission of one combined TIS for all developments that would use the QEW/Trafalgar Road interchange.
 - a. In case, each developer submits separate TIS, then MTO will review, on first come first serve basis.
2. Existing road network will be used for all analysis.
In case, a developer proposes any addition/modification to existing road network, it should be developer's responsibility and be part of the project.
If a particular road improvement by the Town/Region is included in the TIS then a written confirmation by the Town/Region MUST be provided otherwise the TIS will not be accepted.
3. QEW/Trafalgar Road IC: Traffic analysis would be acceptable using single IC.
4. Traffic forecasts (2% annually) would be acceptable for the TISs.

Please let me know if you have any questions.

Thanks,

Mark White
Corridor Management Planner
Ministry of Transportation | Central Region
159 Sir William Hearst Ave. 7th Floor,
Toronto, ON M3M 0B7
Mark.j.white@ontario.ca

From: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Sent: April 20, 2022 2:26 PM
To: White, Mark J. (MTO) <Mark.J.White@ontario.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>
Subject: RE: TIS&PJS Terms of Reference - 349 Davis Road, Oakville

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Hi Mark,

Hope all is well. I'm following up again on the Transportation Impact Study Terms of Reference for 349 Davis Road that was sent over a month ago now. We would greatly appreciate feedback at the earliest on our proposed scope of work.

Aidan Hallsworth

From: Peter Apasnore
Sent: Friday, April 22, 2022 7:31 AM
To: Aidan Hallsworth
Subject: FW: TIS&PJS Terms of Reference - 349 Davis Road, Oakville
Attachments: 166_SouthServiceRd_PreliminarySitePlan_2021-11-24.pdf

Peter Apasnore, M.A.Sc., P.Eng., PTOE | Project Engineer
DID: 416.842.0029

From: Aquisha Khan <aquisha.khan@oakville.ca>
Sent: April 21, 2022 7:35 PM
To: Peter Apasnore <papasnore@cfcrozier.ca>
Subject: RE: TIS&PJS Terms of Reference - 349 Davis Road, Oakville

Hi Peter;

It was a pleasure chatting with you today. As per our discussions please find my comments below.

Regards

Aquisha Khan, P. Eng.
Transportation Engineer,
Transportation Strategy Department,
Town of Oakville | P: 905-845-6601 | www.oakville.ca

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From: Peter Apasnore <papasnore@cfcrozier.ca>
Sent: April 12, 2022 12:16 PM
To: Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Matt Krusto <matt.krusto@halton.ca>; Aidan Hallsworth <ahallsworth@cfcrozier.ca>; Jonabelle T <jonabelle@corbettlandstrategies.ca>; John Corbett <john@corbettlandstrategies.ca>
Subject: RE: TIS&PJS Terms of Reference - 349 Davis Road, Oakville

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Hi Aquisha,

Thanks for your input. Please see responses to your comments [below in green](#).

I left you a voicemail yesterday regarding this as well and I'm happy to chat further.

Thank you,

Peter Apasnore, M.A.Sc., P.Eng., PTOE | Project Engineer
211 Yonge Street, Suite 600 | Toronto, ON M5B 1M4
T: 416.477.3392



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From: Aquisha Khan <aquisha.khan@oakville.ca>
Sent: April 8, 2022 10:32 AM
To: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>; Matt Krusto <matt.krusto@halton.ca>
Subject: RE: TIS&PJS Terms of Reference - 349 Davis Road, Oakville

Hello Aidan/Peter;

Please find my comments for the proposed scope of work on the above mentioned development below. If you have any questions or concerns, please feel free to contact me.

Regards;

Aquisha Khan, P. Eng.

Transportation Engineer,
Transportation and Engineering Department,
Town of Oakville | P: 905-845-6601 | www.oakville.ca

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Aquisha Khan, P. Eng.
Transportation Engineer
Transportation and Engineering
Town of Oakville | 905-845-6601, ext.3236 | www.oakville.ca

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From: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Sent: March 31, 2022 10:44 AM
To: Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Syed Rizvi <syed.rizvi@oakville.ca>; Peter Apasnore <papasnore@cfcrozier.ca>
Subject: RE: TIS&PJS Terms of Reference - 349 Davis Road, Oakville

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Hello again,

Following up on the below Terms of Reference sent out over two weeks ago. If you could provide your feedback on our proposed scope at the earliest, that would be greatly appreciated.

Thanks,

Aidan Hallsworth | Engineering Intern
211 Yonge Street, Suite 301 | Toronto, ON M5B 1M4
T: 416.477.3392



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Read our latest news and announcements [here](#).

From: Syed Rizvi <syed.rizvi@oakville.ca>
Sent: Monday, March 21, 2022 11:48 AM
To: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Cc: Aquisha Khan <aquisha.khan@oakville.ca>
Subject: FW: TIS&PJS Terms of Reference - 349 Davis Road, Oakville

Hi Aidan,

The proposed development is located in the Town's East District and Aquisha Khan is the Transportation Engineer for the East District of Town, by way of copying her in this email she will provide comments on the TOR upon her return to office next week.

Thanks,
Syed

Syed Rizvi, M.Sc., P. Eng
Transportation Engineer
Transportation and Engineering
Town of Oakville | 905-845-6601, ext.3981 | www.oakville.ca

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Please consider the environment before printing this email.
<http://www.oakville.ca/privacy.html>

From: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Sent: March 15, 2022 1:31 PM
To: Syed Rizvi <syed.rizvi@oakville.ca>; Bernie.Stager@halton.ca; Graham Routledge <graham.routledge@ontario.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>
Subject: TIS&PJS Terms of Reference - 349 Davis Road, Oakville

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Hello all,

We are reaching out to present a Terms of Reference for a Traffic Impact Study (TIS) and Parking Justification Study (PJS) for the proposed mixed-use development at 349 Davis Road in the Town of Oakville.

Our proposed workplan is presented below. I have underlined a couple important items that require responses from each of you. We would appreciate your feedback on our proposed Terms of Reference. Should you have any questions or concerns, please feel free to contact me or Peter Apasnore (cc'd), we would be more than happy to discuss.

Thank you,

Per the attached conceptual site plan, the development proposes:

- A 20-storey mixed use building comprised of:
 - Four (4) commercial units with a combined Gross Floor Area (GFA) of 1,042m²
 - Six (6) office units with a combined Gross Floor Area (GFA) of 3,583.2m²
 - A total of 98 residential apartment dwelling units
- A total of 235 vehicle parking spaces located across a two-level underground parking garage, a three (3) level above-ground parking garage, and a surface parking lot
- A single full-moves site access connection to Davis Road

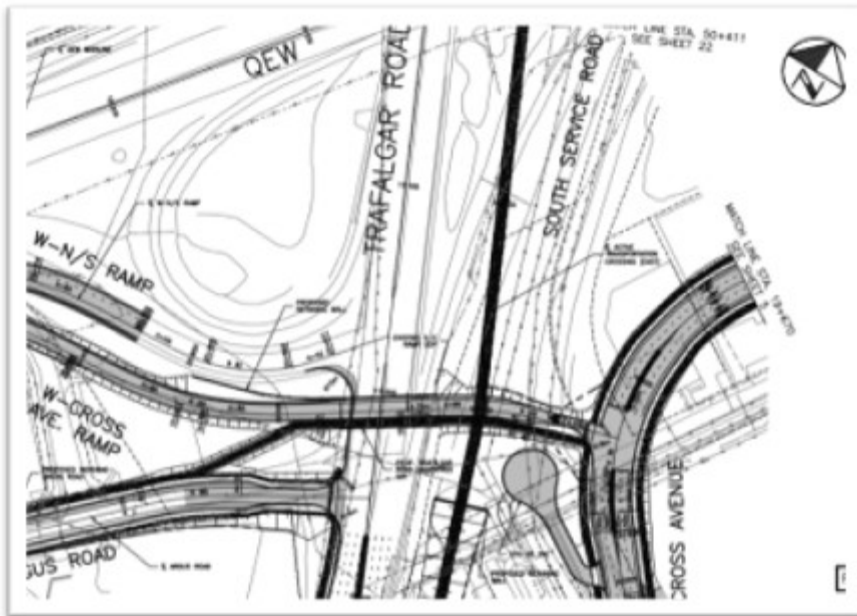
Transportation Impact Study – Scope:

The Transportation Impact Study will be completed in accordance with the Halton Region Traffic Impact Study Guidelines (January 2015) and the MTO's General Guidelines for the Preparation of Traffic Impact Studies (February 2021).

- It is understood that the site is located within the Midtown Oakville Growth Area per the Town's Official Plan (as of August 31, 2021). The Traffic Impact Study will not consider the proposed Cross Avenue realignment and Cross Avenue QEW EB off-ramp given these improvements would impact the current development proposal. Instead, the study will analyze transportation impacts given the existing road network and recommend improvements to the network, as required. Apart from the conversion of Trafalgar Road to 4+2HOV lanes, road improvements will be identified based on the existing road network configuration as required for the future background and future total scenarios.

[AK:] The site has to consider the proposed Cross Avenue realignment and Cross Avenue QEW EB off-ramp as outlined in the approved 2013 EA study. Town staff will not accept the assessment without the inclusion of the Cross Avenue realignment and the Cross Avenue QEW off-ramp.

Please refer to the image below, which was taken from Sheet 2, Appendix K of the Midtown Oakville Final Environmental Study Report.



As shown above, the Cross Avenue realignment and ramp intersection is within the 349 Davis Road site. Our understanding based on the first pre-consultation is the City is supportive of an application for the site. We are unable to consider the subject intersection or realignment in this study as it renders the site undevelopable and traffic analysis for the site will make no sense. As such, as noted already, the study will focus on analyzing the existing transportation network and recommend improvements as required. **[AK:] The EA study needs to be incorporated.**

- Analysis of the weekday a.m. and p.m. peak periods will suffice. The TIS scope will consider the existing (2022) scenario, the full-buildout year (assumed by 2025), along with five-years (2030) and ten-years (2035) beyond buildout, per MTO guidelines. **[AK:] Please include 2045 in your horizon analysis.** Please clarify why a 2045 horizon is required to assess the transportation impacts to the proposed development. Previous transportation studies for developments of similar context and scope (e.g., the noted studies for the 157 Cross Avenue and 485 Trafalgar Road / 271 Cornwall Road background developments) did not analyze a 2045 horizon. Further, the Region of Halton TIS guidelines outline a horizon year of five years beyond the existing scenario, and ten years as requested by Halton Region staff. The MTO TIS guidelines outline the horizons as originally proposed. Therefore, it is our opinion that horizons years of 2025, 2030, and 2035 are sufficient to assess the transportation impacts of the development proposal. **[AK:] Please disregard the 2045 horizon.**

- Analysis of the following study intersections will suffice:
 - Trafalgar Road and North Service Road East / QEW WB off-ramp
 - Trafalgar Road and QEW EB off-ramp
 - Trafalgar Road and South Service Road East / Cross Avenue
 - South Service Road East and Davis Road **[AK:]** (this intersection should include the off-ramp volumes anticipated for future horizons as per the Midtown Oakville EA)
 - Davis Road and the proposed site access

[AK:] the study intersection should include the following for the future horizons that aligns with the existing Midtown Oakville EA study:

- Davis Road & North South Crossing
- Cross Avenue Realignment and Station Road
- Trafalgar Road & QEW WB on-ramp
- Trafalgar Road & WEQ EB on-ramp

Noted, The on-ramp intersections to Trafalgar Road noted above will be included within the proposed scope of work.

Per the Mid-Town study, Davis Road is not planned to be kept, except to retain an access to the existing 354 Davis Road site. Therefore, Davis Road & North South Crossing does not exist and can't be analyzed. Further, as previously outlined, improvements in the Midtown EA that impact the development proposal cannot be considered within the scope, therefore, the Cross Avenue / Station Road intersections will not be included in the TIS scope. **[AK:]** These intersections are forecasted in the EA study and should be assessed as future intersections.

- Existing, future background and future total traffic operations will be analyzed using Synchro 11. Standard traffic operations metrics for signalized and unsignalized intersections including delays, volume-to-capacity ratios, and 95th percentile queue length will be analyzed and reported on. **[AK:]** ok
- Traffic counts will be commissioned at the above noted study intersections along South Service Road East. We will compare the results of the traffic survey with the Halton Region traffic survey at Trafalgar Road & South Service Road (2017) to understand if and/or what pandemic traffic demand adjustments shall be applied to the above noted study intersections. [@Syed Rizvi](#) or @Bernie.Stager@halton.ca, *if you could advise if there are more recent pre-pandemic counts conducted at this intersection, or refer us to the appropriate contact, we would greatly appreciate it.* **[AK:]** please undertake new traffic counts for the existing horizon(2022) for study intersections and compare with the pre-pandemic counts.
- Traffic counts were previously conducted in 2019 at the MTO ramp terminal study intersections as part of the Olde Oakville Transportation Study (July 2019, by R.J. Burnside & Associates Limited). These traffic counts from 2019 will be grown to 2022 levels using the growth rates that will be applied for the future traffic volume projections. **[AK:]** see comment above
Per request, traffic counts will be undertaken at the study intersection and will be compared with the pre-pandemic counts, where applicable. The more conservative volumes will be used and volume balancing applied as applicable.
- Traffic operations will be analyzed using Synchro 11. Standard operational measures of effectiveness will be analyzed and reported on. (ie. level of service, control delay, volume-to-capacity ratios, and 95th percentile queues). **[AK:]** ok

- Per the Region of Halton Transportation Master Plan (2011), modification of Trafalgar Road to a 4+2 Lanes for Transit/HOV configuration has been identified as an improvement near the subject site in the 2031 Transportation System. [@Bernie.Stager@halton.ca](mailto:Bernie.Stager@halton.ca): *Please advise on the timing of this change, otherwise we will assume current configuration.* When HOV lanes are to be implemented, per the Region of Halton TIS guidelines, we will assign a lane utilization factor of 0.80 for each HOV lane.

- Future traffic growth projections:

- [@Syed Rizvi](mailto:Syed.Rizvi@halton.ca): *As discussed above, the Midtown Oakville EA improvements make the development proposal undevelopable. Therefore, unless otherwise advised, we will only consider the two background developments identified on the Town of Oakville's development applications website to capture background growth in the Midtown Oakville area:*

- 271 Cornwall Road and 485 Trafalgar Road – Two mixed use buildings (14 and 19 storeys)
- 157 Cross Avenue – A 26 storey mixed use building

[AK:] please include these as background developments, calculate the trip generations where applicable:

- Empress Capital Group Ltd. c/o API Development Consultants Inc. - 170 North Service Road West - Z.1517.18 & OPA 1517.18 **[AK:] Please disregard this intersection. I didn't realize it was outside the midtown study area.**
- Region of Halton - 320 Davis Road - 1612.017/02

The 320 Davis Road development will be added to the proposed scope. As far as can be ascertained, a transportation study was not prepared for this pumper station building expansion. Given the pumper station land use does not have widely available applicable traffic data to estimate background traffic volumes, site traffic will instead be estimated based on traffic volumes associated with the west approach (which is access to the site). Gross Floor Area increment will be used to estimate expected traffic growth resulting from the building expansion.

The 170 North Service Road West development is located approximately 2Km away from the 349 Davis Road site. The background development is located near the QEW/403 highway interchange with Dorval Drive. It is not expected this site will have a material impact to the proposed study intersections. We propose to exclude this background development from the study scope – please confirm.

[AK:] As per our discussion, the additional background development is as follows:

- 166 South Service Road (see attached for preliminary site plan) – these buildings will consist of approximately 1,720 residential high-rise units. Please include in your assessment.

- [@Bernie.Stager@halton.ca](mailto:Bernie.Stager@halton.ca): *Please advise on what approach the Region prefers for estimating traffic growth along Trafalgar Road.* If traffic data to support growth rates is not available, an industry standard growth rate of 2% per annum will be used.
- [@Graham Routledge](mailto:Graham.Routledge@halton.ca): *Please advise on growth rates to apply to the MTO ramps.* If traffic data to support growth rates is not available, an industry standard growth rate of 2% per annum will be used.

- Site Trip Generation will be forecasted using the Institute of Transportation Engineers' Trip Generation Manual, 11th Edition. Site trips will be distributed to the road network using the 2016 Transportation Tomorrow Survey Data. **[AK:] ok**

- Comparison of the future background and total traffic operations will be performed to identify if capacity issues are to occur per the development proposal herein and recommend mitigation measures, as necessary.[\[AK: \] ok](#)
- The proposed full-moves site access will be reviewed from a safety perspective with regards to design vehicle maneuverability, drive sight lines, intersection spacing, and corner clearance. The safety assessment will be based on the standards set out by the Transportation Associates of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR).[\[AK: \] ok](#)
- Existing and future Transportation Demand Management (TDM) opportunities will be reviewed along with site specific measures that may be implemented to reduce SOV trips and promote non-auto transportation.[\[AK: \] ok](#)

Parking Justification Study – Scope:

- Review the Town’s minimum parking requirements according to the Town’s Zoning By-Law No. 2014-014 and compare with the proposed supply. Further, the parking supply will be compared to the rates identified in the Midtown Oakville Parking Strategy.[\[AK: \] ok](#)
- Forecast the peak parking demand and determine whether the parking supply is sufficient to meet the calculated demand, using the Institute of Transportation Engineers Parking Generation Manual 5th Edition and Transportation Tomorrow Survey Data, as applicable.[\[AK: \] ok](#)
- We will utilize previously conducted parking surveys from proxy sites with similar characteristics to the proposed development to support a reduced parking rate.[\[AK: \] ok](#)
- Identify Transportation Demand Management (TDM) opportunities available to the site and assess potential site-specific measures that may be used to further support a reduced parking supply.[\[AK: \] ok](#)
- Based on the findings, confirm the adequacy or shortfall of the proposed parking supply and provide recommendations.[\[AK: \] ok](#)

Aidan Hallsworth | Engineering Intern
 211 Yonge Street, Suite 301 | Toronto, ON M5B 1M4
 T: 416.477.3392



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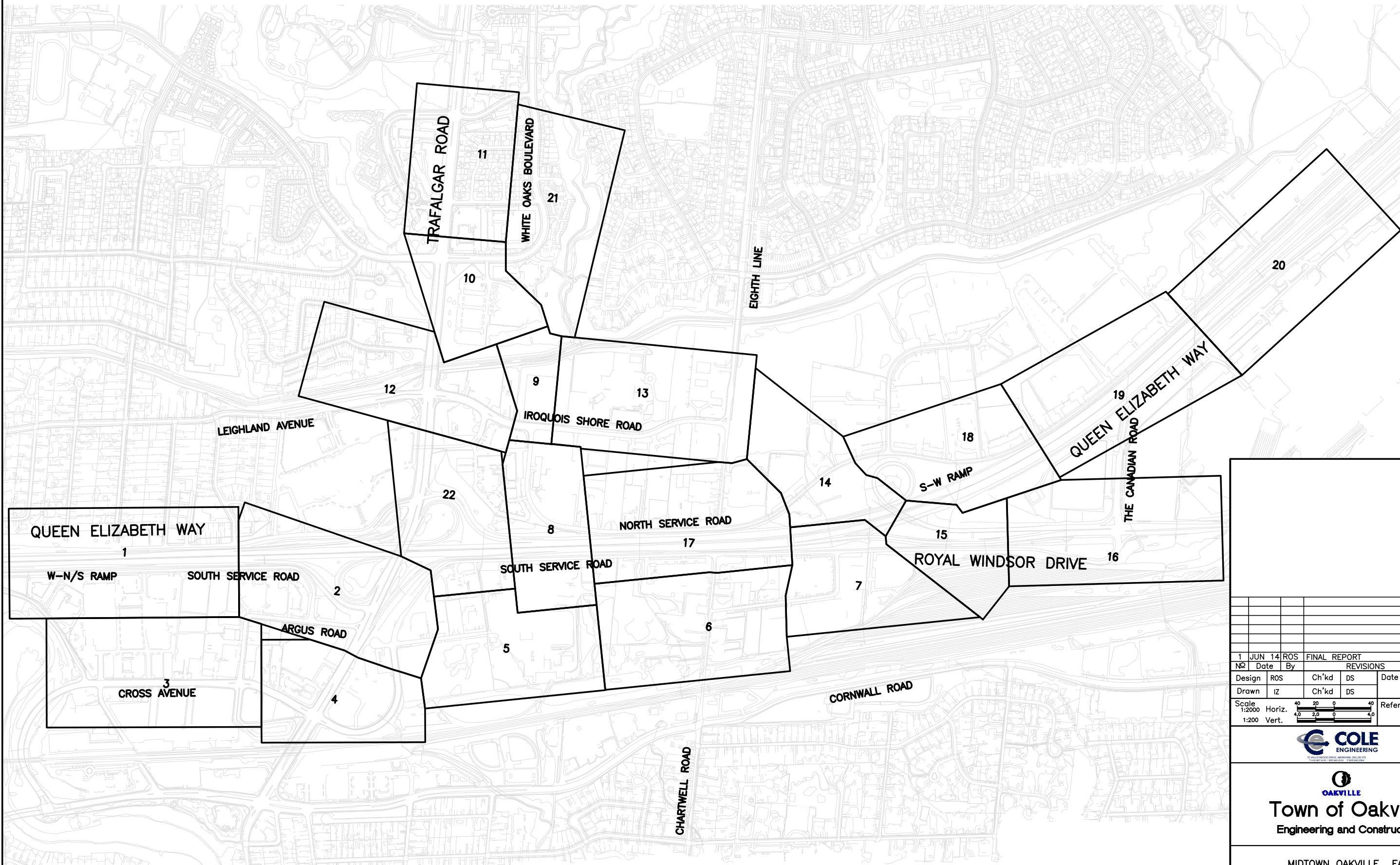
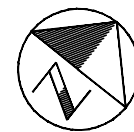
APPENDIX C

Municipal Excerpts

DRAFT

**Midtown Oakville Transportation and Stormwater
Municipal Class EA Final Report June 2014**

**APPENDIX K
PRELIMINARY DESIGN**



1	JUN 14	ROS	FINAL REPORT	SS	IZ
No	Date	By	REVISIONS	MANU	CAD
Design	ROS	Ch'kd	DS	Date	JUNE 2014
Drawn	IZ	Ch'kd	DS	References	
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	1:200	Vert.	0 2.0 4.0		

COLE ENGINEERING

OAKVILLE

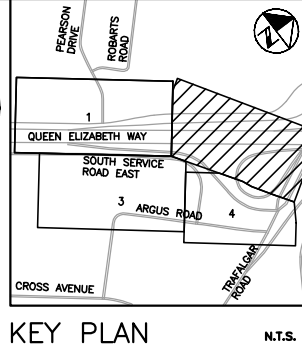
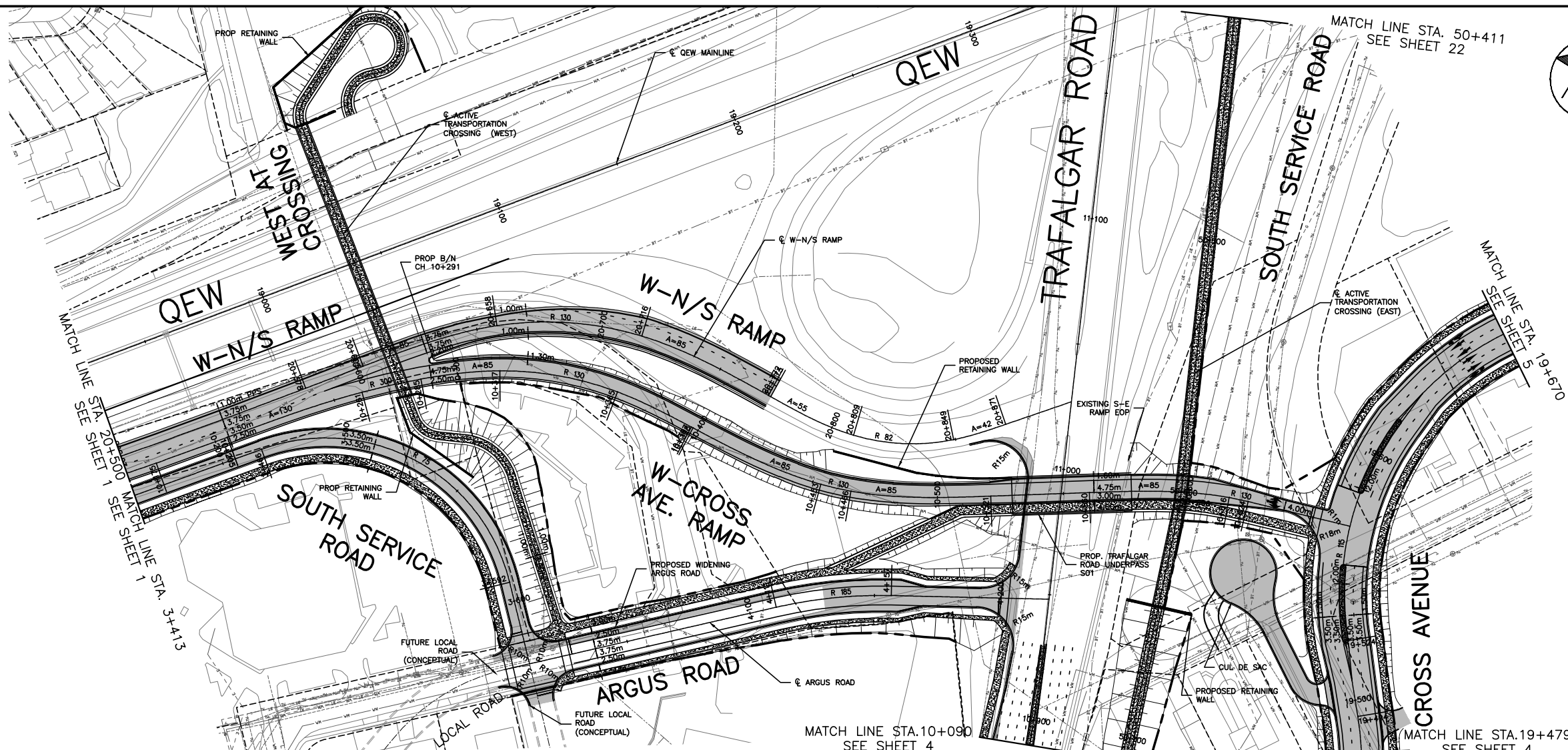
Town of Oakville

Engineering and Construction

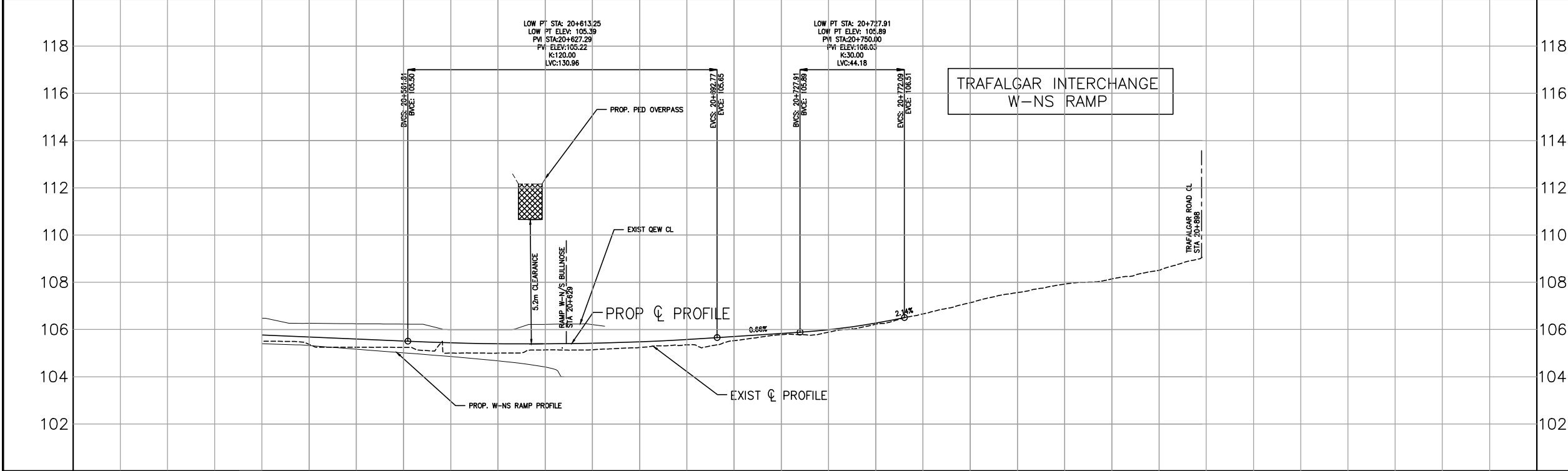
MIDTOWN OAKVILLE EA
SHEET LAYOUT PLAN

IN THE TOWN OF OAKVILLE

Consultant File No TR11-767	Municipal Drawing No
CONTRACT No	Drawing No SHEET 0 OF 36



PRELIMINARY



LEGEND

- PROPOSED ROAD / WIDENING
- PROPOSED SIDEWALK / MEDIAN
- EXISTING ROW
- PROPOSED ROW
- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING GASMAIN
- EXISTING BELL CABLE
- EXISTING COGECO / ROGERS CABLE
- EXISTING HYDRO CABLE

1	JUN 14	ROS	FINAL REPORT	SS	IZ
REVISIONS				MANU CAD	
Design	ROS	Ch'kd	DS	Date JUNE 2014	
Drawn	IZ	Ch'kd	DS		

Scale
 1:2000 Horiz.
 1:200 Vert.



Town of Oakville
 Engineering and Construction

ELEVATIONS	106.591	106.576	106.560	106.544	106.528	106.512	106.496	106.480	106.464	106.448	106.432	106.416	106.400	106.384	106.368	106.352	106.336	106.320	106.304	106.288	106.272	106.256	106.240	106.224	106.208	106.192	106.176	106.160	106.144	106.128	106.112	106.096	106.080	106.064	106.048	106.032	106.016	106.000	ELEVATIONS
CHAINAGE	20+500	20+520	20+540	20+560	20+580	20+600	20+620	20+640	20+660	20+680	20+700	20+720	20+740	20+760	20+780	20+800	20+820	20+840	20+860	20+880	CHAINAGE																		

MIDTOWN OAKVILLE EA
TRAFALGAR ROAD INTERCHANGE
 FROM STA. 20+500 TO STA. 20+733
 IN THE TOWN OF OAKVILLE

Consultant File N ^o	Municipal Drawing N ^o
TR11-767	
CONTRACT N ^o	Drawing N ^o
	SHEET 2 OF 36



Midtown Oakville
Transportation and Stormwater
Municipal Class
Environmental Assessment
Final Report
June 2014

Volume 1 of 3
Report and Appendices A to C

6. Design Elements of the Preferred Concept

This section describes the engineering features and mitigation measures for the preferred concept identified in **Section 5**. The preferred concept for Midtown Oakville was developed and refined with input from the project team, technical agencies, and various stakeholders, and includes the following:

Improvements to the QEW Trafalgar Road Interchange

- Realignment of the existing eastbound QEW off-ramp
- New eastbound QEW direct off-ramp to Cross Avenue
- New multi-use trail from Argus Road to Cross Avenue under Trafalgar Road
- Realignment of South Service Road
- Realignment of Argus Road

Improvements to the QEW Royal Windsor Drive Interchange

- New westbound QEW off-ramp
- New eastbound QEW on-ramp, including auxiliary lane to Ford Drive off-ramp
- Realignment of eastbound QEW off-ramp
- New eastbound QEW direct off-ramp to Cross Avenue
- Widening and extension of Royal Windsor Drive to to Iroquois Shore Road at Eighth Line
- Realignment of North Service Road
- Realignment of South Service Road

New North-South Crossing across QEW

- Provides pedestrian / cyclist facilities
- Provides dedicated bus lanes
- Provides general purpose lanes
- Accommodates potential widening of the QEW that may be contemplated by MTO

Extension of Cross Avenue

- New connection from Trafalgar Road to Royal Windsor Drive
- Provides pedestrian / cyclist facilities
- Accommodates general purpose lanes
- Accommodates lay-by parking where appropriate

Widening of Iroquois Shore Road

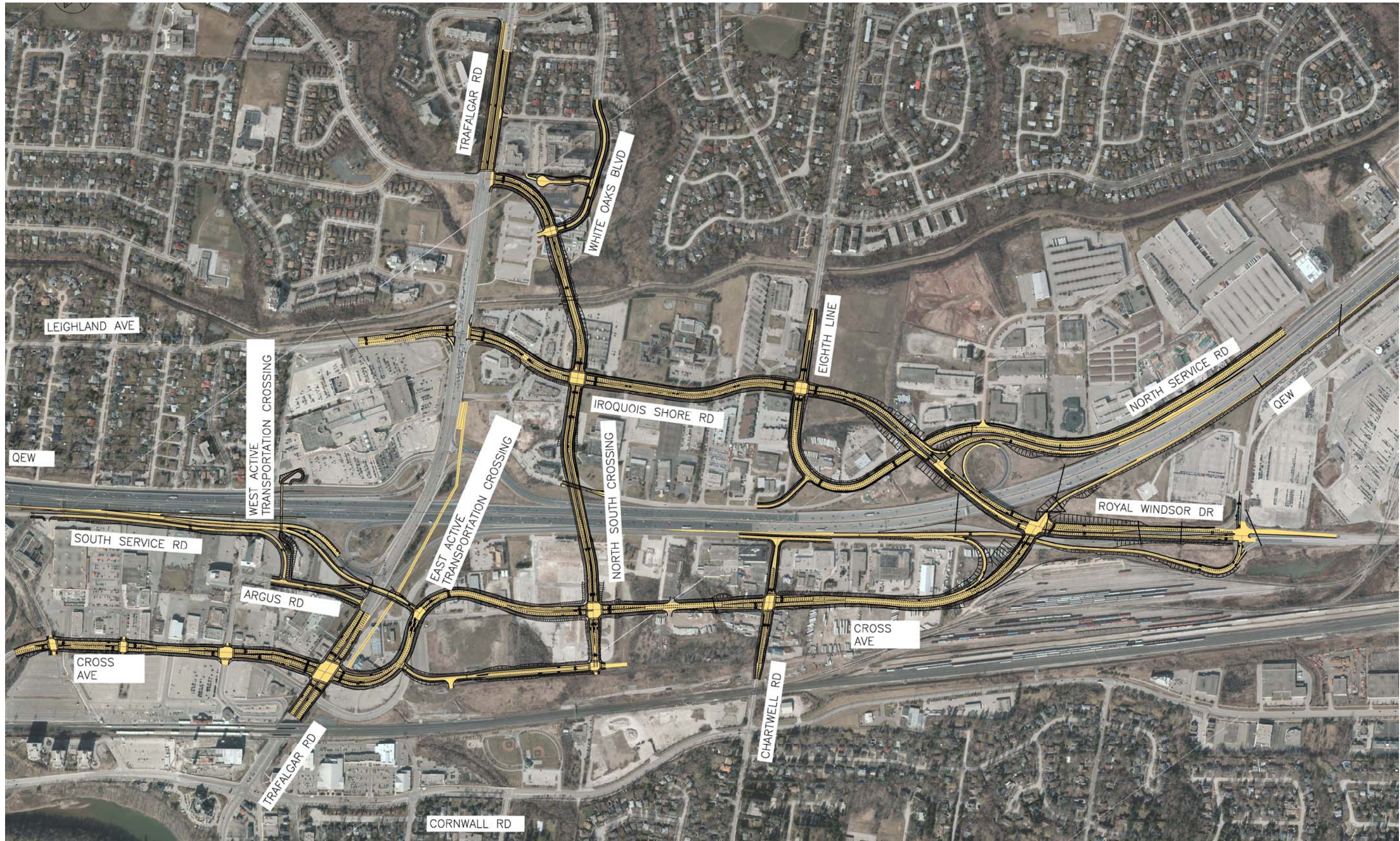
- Provides continuous pedestrian / cyclist facilities on both sides of the road
- Accommodates one additional general purpose lane in each direction plus a median turn lane

Active Transportation Crossings across QEW

- Active transportation crossing of QEW on the east side of Trafalgar Road
- Active transportation crossing of QEW on the west side of Trafalgar Road

Figure 6-1 shows the overall preliminary design of the recommended concept for Midtown Oakville.

Figure 6-1: Preliminary Design of Recommended Concept



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6.1. Road Characteristics and Typical Sections

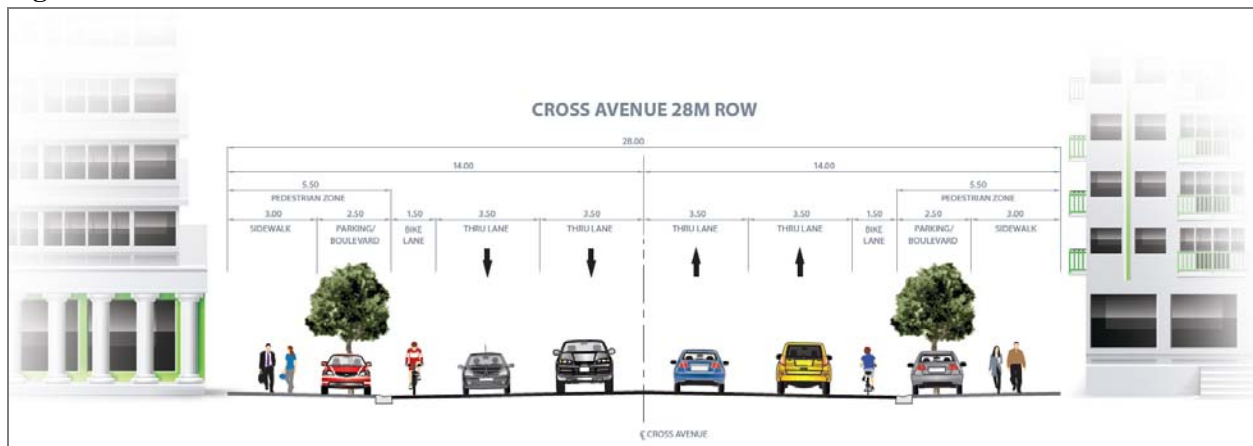
Midtown Oakville is to be transformed into a complete mixed use community with offices, condominiums, civic spaces, parks and plazas. Roadways are envisaged as main streets or commercial/employment corridors with accommodation for pedestrians, cyclists, public transit, and general purpose traffic. A description of the role and function of the roadways in Midtown Oakville are provided below.

6.1.1. Cross Avenue

Cross Avenue is proposed to be the “main street” for Midtown Oakville. It will be a multi-modal corridor serving pedestrians, cyclists, public transit, and general purpose traffic. West of Trafalgar Road, Cross Avenue will have more of a pedestrian-focused streetscape. East of Trafalgar Road, the extension of Cross Avenue will primarily serve commercial/employment lands.

Within the proposed right-of-way of 28 m, Cross Avenue will have four 3.5 m general purpose travel lanes, two 1.5 m bike lanes, and 5.5 m boulevards as shown in **Figure 6-2**. The 5.5 m boulevards are intended to include 3.0 m sidewalks and 2.5 m lay-by parking. In areas without lay-by parking, the full 5.5 m boulevard is designated as a pedestrian zone.

Figure 6-2: Cross Avenue Cross-section



6.1.2. North-South Crossing

The North-South Crossing is proposed to be a multi-modal corridor serving transit, cyclists, pedestrians, and general purpose traffic. Reserved bus lanes are proposed from Trafalgar Road to the proposed bus loop located on the east side of Trafalgar Road. North of Iroquois Shore Road, the North-South Crossing will have a 28 m right-of-way. South of Iroquois Shore Road, the North-South Crossing will need a 32 m right-of-way to accommodate median turn lanes.

Within the proposed 28 m right-of-way, the North-South Crossing will have two 3.5 m general purpose lanes, two 3.75 m transit lanes, two 1.5 m bike lanes, two 2.5 m boulevards, and a 3.0 m multi-use trail on one side, and a 1.5 m sidewalk on the other side as shown in **Figure 6-3**. Where a 32 m right-of-way is required, a 5.0 m median will be provided which is intended to accommodate exclusive turn lanes at the intersection with Cross Avenue as shown in **Figure 6-4**.

Figure 6-3: North-South Crossing Cross-section (North of Iroquois Shore Road)

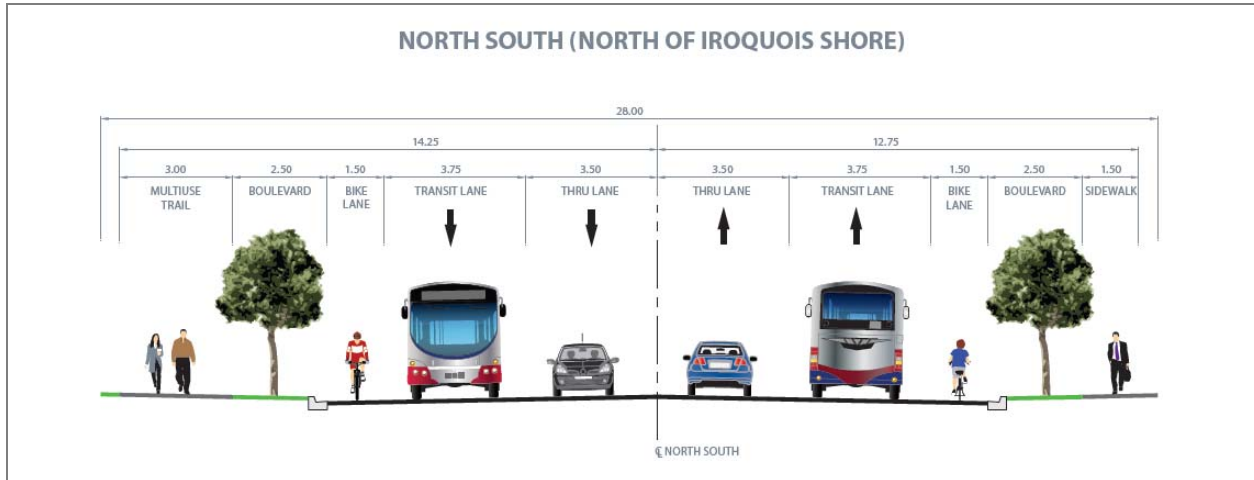
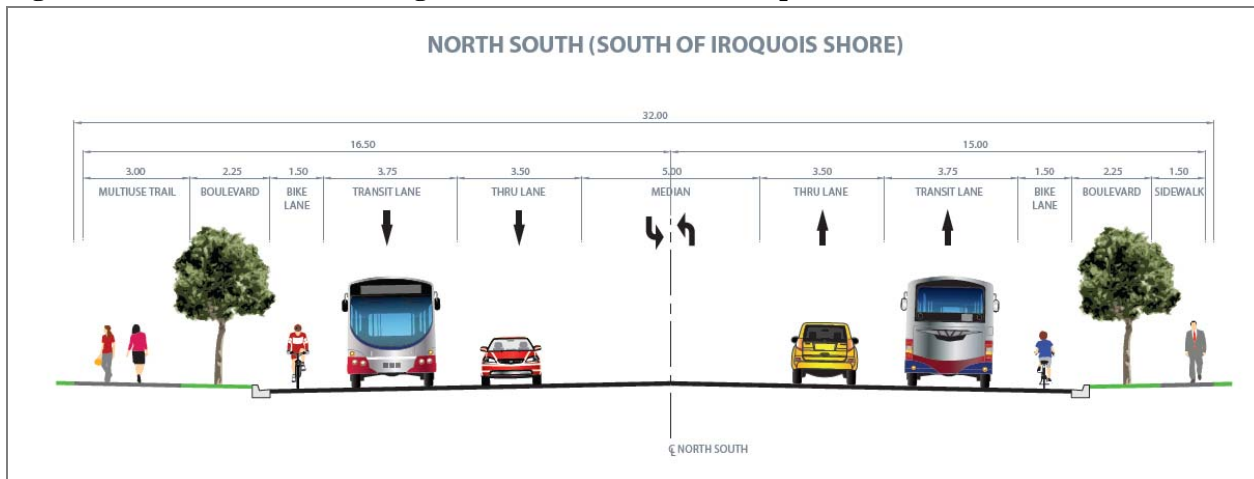


Figure 6-4: North-South Crossing Cross-section (South of Iroquois Shore Road)



6.1.3. Royal Windsor Drive

Royal Windsor Drive is a multi-modal corridor serving transit, cyclists, pedestrians, and general purpose traffic. The extension to Iroquois Shore Road provides new opportunities for all users. North of QEW, Royal Windsor Drive will have a 32 m right-of-way. South of QEW, Royal Windsor Drive will need a 36 m right-of-way to accommodate median turn lanes.

Within the proposed 32 m right-of-way, Royal Windsor Drive will have four 3.5 m general purpose lanes, two 3.0 m boulevards, and a 3.0 m bike trail and 2.0 m multi-use trail on one side as shown in **Figure 6-5**. Where a 36 m right-of-way is required, Royal Windsor Drive will have four 3.5 m general purpose lanes, 9.0 median, with a right turn lane on one side, and a 2.5 m boulevard, a 3.0 m bike trail and a 2.0 m multi-use trail on the other side as shown in **Figure 6-6**.

Figure 6-5: Royal Windsor Drive Cross-section (North of QEW)

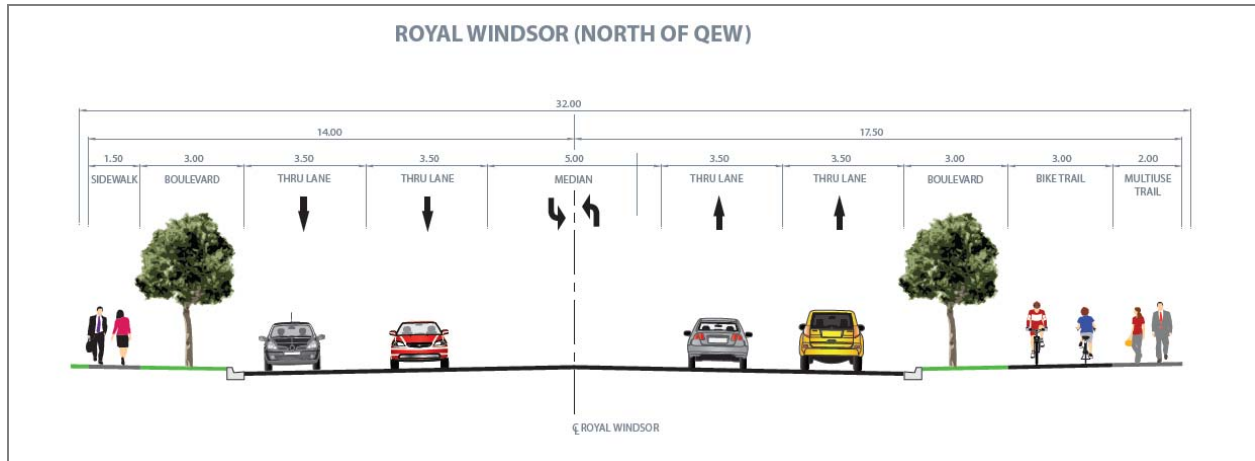
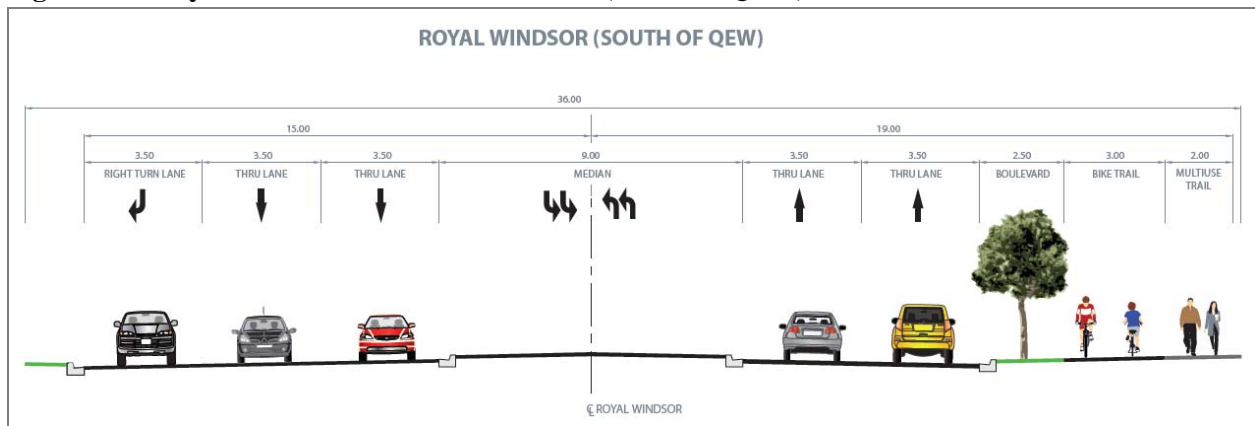


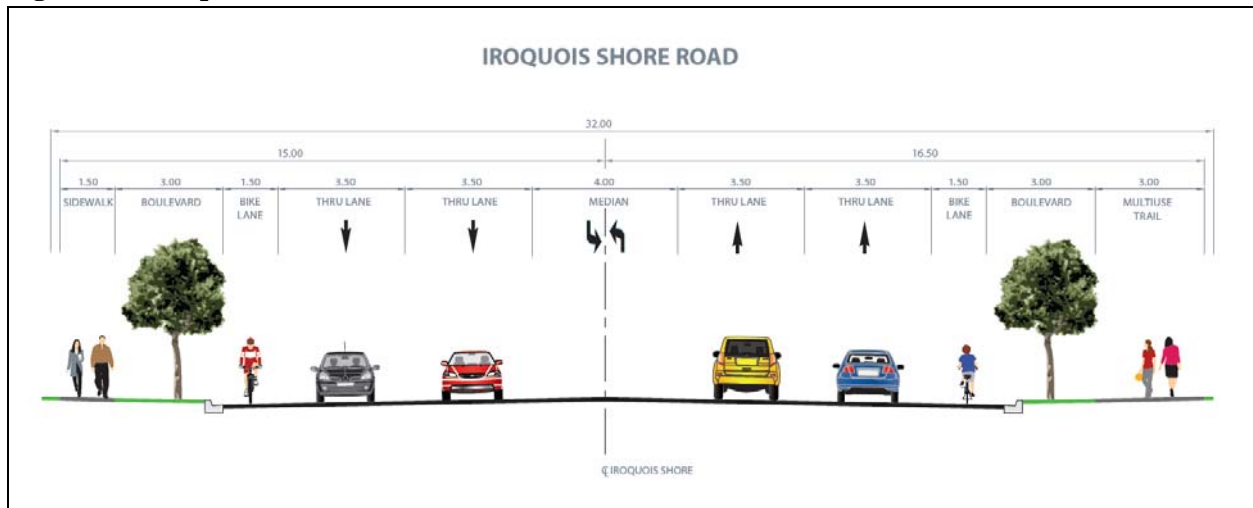
Figure 6-6: Royal Windsor Drive Cross-section (South of QEW)



6.1.4. Iroquois Shore Road

Iroquois Shore Road is a multi-modal corridor serving transit, cyclists, pedestrians, and general purpose traffic. The widening of Iroquois Shore Road will provide benefits to all users. Iroquois Shore Road will have a 32 m right-of-way, which will accommodate four 3.5 m general purpose lanes, two 1.5 m bike lanes, two 3.0 m boulevards, one 3.0 m multi-use trail, and one 1.5 m sidewalk as shown in **Figure 6-7**.

Figure 6-7: Iroquois Shore Road Cross-section



6.1.5. East Active Transportation Crossing

An active transportation crossing of the QEW is provided on the east side of Trafalgar Road which enables cyclists and pedestrians to cross the QEW and all associated ramps within a separated right-of-way. This crossing offers users a direct connection between Oakville Place Drive and the Oakville GO station along the east side of Trafalgar Road. The closeness of the crossing to Trafalgar Road makes it an ideal alternative for those wishing to walk or cycle northbound or southbound along Trafalgar Road which presents opportunities for conflicts between vehicles and cyclists and pedestrians. Due to the redevelopment of Midtown Oakville over the next decade or so, it is anticipated the crossing will accommodate many residents, visitors, and employees within the area.

This facility is contained within a separated right-of-way for cyclists and pedestrians only. It is equipped with stairs/ramps and resting areas for users on both the ascent and descent. At the highest point (i.e. across the QEW), cyclists and pedestrians would be allowed to travel without exerting substantial effort as the slopes are designed to be compliant with Accessibility for Ontarians with Disabilities Act (AODA) standards.

6.1.6. West Active Transportation Crossing

An active transportation crossing of the QEW is provided on the west side of Trafalgar Road which connects the southwest corner of Oakville Place and the adjacent residential neighbourhood to Midtown Oakville and the Oakville Gestation, as well as other areas south of the QEW and west of Trafalgar Road. The crossing was limited in terms of the flexibility of its location due to an existing pier which was previously constructed for this crossing (approximately 300 m west of Trafalgar Road). However, due to the redevelopment of Midtown Oakville over the next decade or so, it is anticipated the crossing will accommodate many residents, visitors, and employees within the area.

APPENDIX D

Transit Information

DRAFT

Oakville Transit service schedules

Effective March 20, 2022 until further notice

For latest information, visit our website at oakvilletransit.ca or follow us on social media   @oakvilletransit

School specials will operate. Visit our website for maps and schedules.

Senior specials, charters and Late Night Service will not operate.

1 Trafalgar										
Timepoint	Oakville GO (Depart)	Sheridan College	Trafalgar & Upper Middle	Uptown Core	Trafalgar / 407 GO Carpool (Arr.)	Trafalgar / 407 GO Carpool (Dep.)	Uptown Core	Trafalgar & Upper Middle	Sheridan College	Oakville GO (Arrive)
Monday to Friday										
To Highway 407 GO Carpool						To Oakville GO				
	--	--	--	--	--	6:04	6:10	6:16	6:19	6:28
a.m.	6:05	6:14	6:17	6:25	6:33	6:38	6:44	6:50	6:53	7:02
	7:05	7:14	7:17	7:25	7:33	7:38	7:44	7:50	7:53	8:02
	8:05	8:14	8:17	8:25	8:33	8:38	8:44	8:50	8:53	9:02
	9:05	9:14	9:17	9:25	9:33	9:38	9:44	9:50	9:53	10:02
<i>and every 60 minutes until</i>										
p.m.	7:05	7:14	7:17	7:25	7:33	7:38	7:44	7:50	7:53	8:02
	8:05	8:14	8:17	8:25	8:33	8:38	8:44	8:50	8:53	9:02
	9:05	9:14	9:17	9:25	9:33	9:38	9:44	9:50	9:53	10:02
	10:05	10:14	10:17	10:25	10:33	10:38	10:44	10:50	10:53	11:02
	11:05	11:14	11:17	11:25	11:33	11:38	11:44	11:50	11:53	12:02

3 Third Line										
Timepoint	South Oakville Centre (Depart)	Bronte GO (Northbound)	Third Line & Upper Middle	Hospital (Arrive)	Hospital (Depart)	Third Line & Upper Middle	Bronte GO (Southbound)	Third Line & Rebecca	Lakeshore & Bronte	South Oakville Centre (Arrive)
Monday to Friday										
To Hospital					To South Oakville Centre					
	--	--	--	--	5:51	5:59	6:06	6:11	6:15	6:25
a.m.	5:58	6:06	6:13	6:21	6:21	6:29	6:36	6:41	6:45	6:55
	6:28	6:36	6:43	6:51	6:51	6:59	7:06	7:11	7:15	7:25
	6:58	7:06	7:13	7:21	7:21	7:29	7:36	7:41	7:45	7:55
	7:28	7:36	7:43	7:51	7:51	7:59	8:06	8:11	8:15	8:25
	7:58	8:06	8:13	8:21	8:21	8:29	8:36	8:41	8:45	8:55
	8:28	8:36	8:43	8:51	8:51	8:59	9:06	9:11	9:15	9:25
	8:58	9:06	9:13	9:21	9:21	9:29	9:36	9:41	9:45	9:55
	9:28	9:36	9:43	9:51	9:51	9:59	10:06	10:11	10:15	10:25
<i>and every 30 minutes until</i>										
p.m.	2:58	3:06	3:13	3:21	3:21	3:29	3:36	3:41	3:45	3:55
	3:28	3:36	3:43	3:51	3:51	3:59	4:06	4:11	4:15	4:25
	3:58	4:06	4:13	4:21	4:21	4:29	4:36	4:41	4:45	4:55
	4:28	4:36	4:43	4:51	4:51	4:59	5:06	5:11	5:15	5:25
	4:58	5:06	5:13	5:21	5:21	5:29	5:36	5:41	5:45	5:55
	5:28	5:36	5:43	5:51	5:51	5:59	6:06	6:11	6:15	6:25
	5:58	6:06	6:13	6:21	6:21	6:29	6:36	6:41	6:45	6:55
	6:28	6:36	6:43	6:51	6:51	6:59	7:06	7:11	7:15	7:25
	6:58	7:06	7:13	7:21	7:21	7:29	7:36	7:41	7:45	7:55
	7:28	7:36	7:43	7:51	7:51	7:59	8:06	8:11	8:15	8:25
	7:58	8:06	8:13	8:21	8:21	8:29	8:36	8:41	8:45	8:55
8:28	8:36	8:43	8:51	8:51	8:59	9:06	9:11	9:15	9:25	
8:58	9:06	9:13	9:21	9:21	9:29	9:36	9:41	9:45	9:55	
9:28	9:36	9:43	9:51	9:51	9:59	10:06	10:11	10:15	10:25	
9:58	10:06	10:13	10:21	10:21	10:29	10:36	10:41	10:45	10:55	
10:28	10:36	10:43	10:51	10:51	10:59	11:06	11:11	11:15	11:25	
10:58	11:06	11:13	11:21	11:21	11:29	11:36	11:41	11:45	11:55	
11:28	11:36	11:43	11:51	11:51	11:59	12:06	12:11	12:15	12:25	
11:58	12:06	12:13	12:21	12:21	12:29	12:36	12:41	12:45	12:55	

3 Third Line										
Timepoint	South Oakville Centre (Depart)	Bronte GO (Northbound)	Third Line & Upper Middle	Hospital (Arrive)	Hospital (Depart)	Third Line & Upper Middle	Bronte GO (Southbound)	Third Line & Rebecca	Lakeshore & Bronte	South Oakville Centre (Arrive)
Saturday										
To Hospital					To South Oakville Centre					
	--	--	--	--	7:00	7:08	7:15	7:20	7:24	7:34
a.m.	7:37	7:45	7:52	8:00	8:00	8:08	8:15	8:20	8:24	8:34
	8:37	8:45	8:52	9:00	9:00	9:08	9:15	9:20	9:24	9:34
	9:37	9:45	9:52	10:00	10:00	10:08	10:15	10:20	10:24	10:34
	<i>and every 60 minutes until</i>									
p.m.	8:37	8:45	8:52	9:00	9:00	9:08	9:15	9:20	9:24	9:34
	9:37	9:45	9:52	10:00	10:00	10:08	10:15	10:20	10:24	10:34
	10:37	10:45	10:52	11:00	11:10	11:18	11:24	11:29	11:33	11:40
	11:40	11:47	11:52	12:00	--	--	--	--	--	--
Sunday / Holidays										
	--	--	--	--	8:00	8:08	8:15	8:20	8:24	8:34
a.m.	8:37	8:45	8:52	9:00	9:00	9:08	9:15	9:20	9:24	9:34
	9:37	9:45	9:52	10:00	10:00	10:08	10:15	10:20	10:24	10:34
	10:37	10:45	10:52	11:00	11:00	11:08	11:15	11:20	11:24	11:34
	<i>and every 60 minutes until</i>									
p.m.	4:37	4:45	4:52	5:00	5:00	5:08	5:15	5:20	5:24	5:34
	5:37	5:45	5:52	6:00	6:00	6:08	6:15	6:20	6:24	6:34
	6:37	6:45	6:52	7:00	7:00	7:08	7:15	7:20	7:24	7:34
	7:37	7:45	7:52	8:00	--	--	--	--	--	--

For latest information, visit our website at oakvilletransit.ca or follow us on social media   @oakvilletransit

Info Line 905-815-2020 care-A-van 905-337-9222

While every effort will be made to operate our service to these timetables, all schedules including bus stop times and transfer times are based on normal traffic and weather conditions and as such are subject to change. Oakville Transit will not be responsible for any loss, damage or inconvenience that may result from any errors, omissions or service delays.

Oakville Transit service schedules

Effective March 20, 2022 until further notice

4 Speers - Cornwall (East)										4 Speers - Cornwall (West)										
Timepoint	Bronte GO (Depart)	Speers & Third Line	Speers & Fourth Line	Speers & Kerr	Oakville GO (Depart)	Cornwall & Chartwell	Cornwall & Maple Grove	Ford & Royal Windsor	Sheridan Gdn. & W. Churchill	Clarkson GO (Arrive)	Clarkson GO (Depart)	Sheridan Gdn. & W. Churchill	Ford & Royal Windsor	Cornwall & Maple Grove	Cornwall & Chartwell	Oakville GO (Arrive/Depart)	Speers & Kerr	Speers & Fourth Line	Speers & Third Line	Bronte GO (Arrive)
Monday to Friday																				
Eastbound to Clarkson GO										Westbound to Bronte GO										
	-	-	-	-	-	-	-	-	-		6:20	6:24	6:27	6:29	6:32	6:40	6:44	6:48	6:51	6:54
a.m.	6:08	6:11	6:15	6:20	6:25	6:30	6:34	6:38	6:41	6:50	6:50	6:54	6:57	6:59	7:02	7:10	7:14	7:18	7:21	7:24
	6:35	6:38	6:42	6:47	6:53	6:58	7:01	7:05	7:08	7:16	7:20	7:24	7:27	7:29	7:32	7:40	7:44	7:48	7:51	7:54
	7:05	7:08	7:12	7:17	7:23	7:28	7:31	7:35	7:38	7:46	7:50	7:54	7:57	7:59	8:02	8:10	8:14	8:18	8:21	8:24
	7:35	7:38	7:42	7:47	7:53	7:58	8:01	8:05	8:08	8:16	8:20	8:24	8:27	8:29	8:32	8:40	8:44	8:48	8:51	8:54
	8:05	8:08	8:12	8:17	8:23	8:28	8:31	8:35	8:38	8:46	8:50	8:54	8:57	8:59	9:02	9:10	9:14	9:18	9:21	9:24
	8:35	8:38	8:42	8:47	8:53	8:58	9:01	9:05	9:08	9:16	9:20	9:24	9:27	9:29	9:32	9:40	9:44	9:48	9:51	9:54
	9:05	9:08	9:12	9:17	9:23	9:28	9:31	9:35	9:38	9:46	9:50	9:54	9:57	9:59	10:02	10:10	10:14	10:18	10:21	10:24
	9:35	9:38	9:42	9:47	9:53	9:58	10:01	10:05	10:08	10:16	10:20	10:24	10:27	10:29	10:32	10:40	10:44	10:48	10:51	10:54
	<i>and every 30 minutes until</i>									<i>and every 30 minutes until</i>										
	3:05	3:08	3:12	3:17	3:23	3:28	3:31	3:35	3:38	3:46	3:50	3:54	3:57	3:59	4:02	4:10	4:14	4:18	4:21	4:24
	3:35	3:38	3:42	3:47	3:53	3:58	4:01	4:05	4:08	4:16	4:20	4:24	4:27	4:29	4:32	4:40	4:44	4:48	4:51	4:54
	4:05	4:08	4:12	4:17	4:23	4:28	4:31	4:35	4:38	4:46	4:50	4:54	4:57	4:59	5:02	5:10	5:14	5:18	5:21	5:24
	4:35	4:38	4:42	4:47	4:53	4:58	5:01	5:05	5:08	5:16	5:20	5:24	5:27	5:29	5:32	5:40	5:44	5:48	5:51	5:54
	5:05	5:08	5:12	5:17	5:23	5:28	5:31	5:35	5:38	5:46	5:50	5:54	5:57	5:59	6:02	6:10	6:14	6:18	6:21	6:24
	5:35	5:38	5:42	5:47	5:53	5:58	6:01	6:05	6:08	6:16	6:20	6:24	6:27	6:29	6:32	6:40	6:44	6:48	6:51	6:54
p.m.	6:05	6:08	6:12	6:17	6:23	6:28	6:31	6:35	6:38	6:46	6:50	6:54	6:57	6:59	7:02	7:10	7:14	7:18	7:21	7:24
	6:35	6:38	6:42	6:47	6:53	6:58	7:01	7:05	7:08	7:16	7:20	7:24	7:27	7:29	7:32	7:40	7:44	7:48	7:51	7:54
	7:05	7:08	7:12	7:17	7:23	7:28	7:31	7:35	7:38	7:46	7:50	7:54	7:57	7:59	8:02	8:10	8:14	8:18	8:21	8:24
	7:35	7:38	7:42	7:47	7:53	7:58	8:01	8:05	8:08	8:16	8:20	8:24	8:27	8:29	8:32	8:40	8:44	8:48	8:51	8:54
	8:35	8:38	8:42	8:47	8:53	8:58	9:01	9:05	9:08	9:16	9:20	9:24	9:27	9:29	9:32	9:40	9:44	9:48	9:51	9:54
	9:35	9:38	9:42	9:47	9:53	9:58	10:01	10:05	10:08	10:16	10:20	10:24	10:27	10:29	10:32	10:40	10:44	10:48	10:51	10:54
	10:35	10:38	10:42	10:47	10:53	10:58	11:01	11:05	11:08	11:16	11:20	11:24	11:27	11:29	11:32	11:40*	*Ends at Oakville GO			
	11:35	11:38	11:41	11:45	11:50	11:55	11:57	12:00	12:03	12:10	-	-	-	-	-	-	-	-	-	-

4 Speers - Cornwall (East)										4 Speers - Cornwall (West)										
Timepoint	Bronte GO (Depart)	Speers & Third Line	Speers & Fourth Line	Speers & Kerr	Oakville GO (Depart)	Cornwall & Chartwell	Cornwall & Maple Grove	Ford & Royal Windsor	Sheridan Gdn. & W. Churchill	Clarkson GO (Arrive)	Clarkson GO (Depart)	Sheridan Gdn. & W. Churchill	Ford & Royal Windsor	Cornwall & Maple Grove	Cornwall & Chartwell	Oakville GO (Arrive/Depart)	Speers & Kerr	Speers & Fourth Line	Speers & Third Line	Bronte GO (Arrive)
Saturday																				
Eastbound to Clarkson GO										Westbound to Bronte GO										
	-	-	-	-	-	-	-	-	-		7:20	7:24	7:27	7:29	7:32	7:40	7:44	7:48	7:51	7:54
a.m.	7:35	7:38	7:42	7:47	7:53	7:58	8:01	8:05	8:08	8:16	8:20	8:24	8:27	8:29	8:32	8:40	8:44	8:48	8:51	8:54
	8:35	8:38	8:42	8:47	8:53	8:58	9:01	9:05	9:08	9:16	9:20	9:24	9:27	9:29	9:32	9:40	9:44	9:48	9:51	9:54
	9:35	9:38	9:42	9:47	9:53	9:58	10:01	10:05	10:08	10:16	10:20	10:24	10:27	10:29	10:32	10:40	10:44	10:48	10:51	10:54
	<i>and every 60 minutes until</i>									<i>and every 60 minutes until</i>										
	7:35	7:38	7:42	7:47	7:53	7:58	8:01	8:05	8:08	8:16	8:20	8:24	8:27	8:29	8:32	8:40	8:44	8:48	8:51	8:54
	8:35	8:38	8:42	8:47	8:53	8:58	9:01	9:05	9:08	9:16	9:20	9:24	9:27	9:29	9:32	9:40	9:44	9:48	9:51	9:54
	9:35	9:38	9:42	9:47	9:53	9:58	10:01	10:05	10:08	10:16	10:20	10:24	10:27	10:29	10:32	10:40	10:44	10:48	10:51	10:54
	10:35	10:38	10:42	10:47	10:53	10:58	11:01	11:05	11:08	11:16	11:20	11:24	11:27	11:29	11:32	11:40*	*Ends at Oakville GO			
Sunday / Holidays																				
	-	-	-	-	7:53	7:58	8:01	8:05	8:08	8:16	8:20	8:24	8:27	8:29	8:32	8:40	8:44	8:48	8:51	8:54
a.m.	8:35	8:38	8:42	8:47	8:53	8:58	9:01	9:05	9:08	9:16	9:20	9:24	9:27	9:29	9:32	9:40	9:44	9:48	9:51	9:54
	9:35	9:38	9:42	9:47	9:53	9:58	10:01	10:05	10:08	10:16	10:20	10:24	10:27	10:29	10:32	10:40	10:44	10:48	10:51	10:54
	10:35	10:38	10:42	10:47	10:53	10:58	11:01	11:05	11:08	11:16	11:20	11:24	11:27	11:29	11:32	11:40	11:44	11:48	11:51	11:54
	<i>and every 60 minutes until</i>									<i>and every 60 minutes until</i>										
	4:35	4:38	4:42	4:47	4:53	4:58	5:01	5:05	5:08	5:16	5:20	5:24	5:27	5:29	5:32	5:40	5:44	5:48	5:51	5:54
	5:35	5:38	5:42	5:47	5:53	5:58	6:01	6:05	6:08	6:16	6:20	6:24	6:27	6:29	6:32	6:40	6:44	6:48	6:51	6:54
	6:35	6:38	6:42	6:47	6:53	6:58	7:01	7:05	7:08	7:16	7:20	7:24	7:27	7:29	7:32	7:40	7:44	7:48	7:51	7:54
	7:35	7:38	7:42	7:47	7:51*	*Ends at Oakville GO														

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 Info Line 905-815-2020 care-A-van 905-337-9222

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Oakville Transit service schedules

Effective March 20, 2022 until further notice

5 5A Dundas (West)															
Timepoint	Route	Oakville GO (Depart)	White Oaks & Marlborough	Sheridan College	Trafalgar & Upper Middle	Uptown Core (Arrive)	Uptown Core (Depart)	Dundas & Sixth Line	Wheat Boom & Sixth Line	Dundas & Neyagawa	Hospital	Dundas & Bronte	Dundas & Appleby	Dundas / 407 GO Carpool (Ar.)	
Monday to Friday															
To Walkers Line (Dundas/407) – 5 via Dundas, 5A via Wheat Boom/Sixteen Mile															
a.m.	5A	--	--	--	--	--	6:20	--	6:25	6:30	6:35	6:40	6:45	6:50	
	5	6:14	6:22	6:25	6:28	6:34	6:37	6:41	--	6:44	6:49	6:54	6:59	7:05	
	5A	6:29	6:37	6:40	6:43	6:49	6:49	--	6:54	6:59	7:04	7:09	7:14	7:20	
	5	6:44	6:52	6:55	6:58	7:04	7:07	7:11	--	7:14	7:19	7:24	7:29	7:35	
	5A	6:59	7:07	7:10	7:13	7:19	7:19	--	7:24	7:29	7:34	7:39	7:44	7:50	
	5	7:14	7:22	7:25	7:28	7:34	7:37	7:41	--	7:44	7:49	7:54	7:59	8:05	
	5A	7:29	7:37	7:40	7:43	7:49	7:49	--	7:54	7:59	8:04	8:09	8:14	8:20	
	5	7:44	7:52	7:55	7:58	8:04	8:07	8:11	--	8:14	8:19	8:24	8:29	8:35	
	5A	7:59	8:07	8:10	8:13	8:19	8:19	--	8:24	8:29	8:34	8:39	8:44	8:50	
	5	8:14	8:22	8:25	8:28	8:34	8:37	8:41	--	8:44	8:49	8:54	8:59	9:05	
	5A	8:29	8:37	8:40	8:43	8:49	8:49	--	8:54	8:59	9:04	9:09	9:14	9:20	
	5	8:59	9:07	9:10	9:13	9:19	9:22	9:26	--	9:29	9:34	9:39	9:44	9:50	
	5A	9:29	9:37	9:40	9:43	9:49	9:49	--	9:54	9:59	10:04	10:09	10:14	10:20	
	5	9:59	10:07	10:10	10:13	10:19	10:22	10:26	--	10:29	10:34	10:39	10:44	10:50	
	5A	10:29	10:37	10:40	10:43	10:49	10:49	--	10:54	10:59	11:04	11:09	11:14	11:20	
	<i>and alternating – every 30 minutes</i>														
	p.m.	5	2:59	3:07	3:10	3:13	3:19	3:22	3:26	--	3:29	3:34	3:39	3:44	3:50
		5A	3:29	3:37	3:40	3:43	3:49	3:49	--	3:54	3:59	4:04	4:09	4:14	4:20
5		3:59	4:07	4:10	4:13	4:19	4:22	4:26	--	4:29	4:34	4:39	4:44	4:50	
5A		4:14	4:22	4:25	4:28	4:34	4:34	--	4:39	4:44	4:49	4:54	4:59	5:05	
5		4:29	4:37	4:40	4:43	4:49	4:52	4:56	--	4:59	5:04	5:09	5:14	5:20	
5A		4:44	4:52	4:55	4:58	5:04	5:04	--	5:09	5:14	5:19	5:24	5:29	5:35	
5		4:59	5:07	5:10	5:13	5:19	5:22	5:26	--	5:29	5:34	5:39	5:44	5:50	
5A		5:14	5:22	5:25	5:28	5:34	5:34	--	5:39	5:44	5:49	5:54	5:59	6:05	
5		5:29	5:37	5:40	5:43	5:49	5:52	5:56	--	5:59	6:04	6:09	6:14	6:20	
5A		5:44	5:52	5:55	5:58	6:04	6:04	--	6:09	6:14	6:19	6:24	6:29	6:35	
5		5:59	6:07	6:10	6:13	6:19	6:22	6:26	--	6:29	6:34	6:39	6:44	6:50	
5A		6:14	6:22	6:25	6:28	6:34	6:34	--	6:39	6:44	6:49	6:54	6:59	7:05	
5		6:29	6:37	6:40	6:43	6:49	6:52	6:56	--	6:59	7:04	7:09	7:14	7:20	
5A		6:44	6:52	6:55	6:58	7:04	7:04	--	7:09	7:14	7:19	7:24	7:29	7:35	
5		6:59	7:07	7:10	7:13	7:19	7:22	7:26	--	7:29	7:34	7:39	7:44	7:50	
5A		7:14	7:22	7:25	7:28	7:34	7:34	--	7:39	7:44	7:49	7:54	7:59	8:05	
5		7:40	7:48	7:51	7:54	8:00	8:00	8:04	--	8:07	8:12	8:17	8:22	8:28	
5		8:40	8:48	8:51	8:54	9:00	9:00	9:04	--	9:07	9:12	9:17	9:22	9:28	
5	9:40	9:48	9:51	9:54	10:00	10:00	10:04	--	10:07	10:12	10:17	10:22	10:28		
5	10:40	10:48	10:51	10:54	11:00	11:00	11:03	--	11:06	11:10	<i>Ends at hospital</i>				
5	11:40	11:48	11:51	11:54	12:00	--	--	--	--	--	<i>Ends at Uptown Core</i>				

For latest information, visit our website at oakvilletransit.ca or follow us on social media [f](https://www.facebook.com/oakvilletransit) [i](https://www.instagram.com/oakvilletransit) [@oakvilletransit](https://www.tiktok.com/@oakvilletransit)
 Info Line 905-815-2020 care-A-van 905-337-9222

While every effort will be made to operate our service to these timetables, all schedules including bus stop times and transfer times are based on normal traffic and weather conditions and as such are subject to change. Oakville Transit will not be responsible for any loss, damage or inconvenience that may result from any errors, omissions or service delays.

Oakville Transit service schedules

Effective March 20, 2022 until further notice

5 5A Dundas (East)															
Timepoint	Route	Dundas / 407 GO Carpool (Dp.)	Dundas & Appleby	Dundas & Bronte	Hospital	Dundas & Neyagawa	Sixteen Mile & Neyagawa	Sixteen Mile & Sixth Line	Dundas & Sixth Line	Uptown Core (Arrive)	Uptown Core (Depart)	Trafalgar & Upper Middle	Sheridan College	White Oaks & Marlborough	Oakville GO (Arrive)
Monday to Friday															
To Oakville GO – 5 via Dundas, 5A via Sixteen Mile/Wheat Boom															
a.m.	5A	--	--	--	--	--	5:58	6:03	--	6:09	6:09	6:15	6:18	6:21	6:29
	5	--	--	--	--	6:12	--	--	6:15	6:20	6:24	6:30	6:33	6:36	6:44
	5A	--	--	--	6:22	--	6:28	6:33	--	6:39	6:39	6:45	6:48	6:51	6:59
	5	6:20	6:26	6:31	6:37	6:42	--	--	6:45	6:50	6:54	7:00	7:03	7:06	7:14
	5A	6:35	6:41	6:46	6:52	--	6:58	7:03	--	7:09	7:09	7:15	7:18	7:21	7:29
	5	6:50	6:56	7:01	7:07	7:12	--	--	7:15	7:20	7:24	7:30	7:33	7:36	7:44
	5A	7:05	7:11	7:16	7:22	--	7:28	7:33	--	7:39	7:39	7:45	7:48	7:51	7:59
	5	7:20	7:26	7:31	7:37	7:42	--	--	7:45	7:50	7:54	8:00	8:03	8:06	8:14
	5A	7:35	7:41	7:46	7:52	--	7:58	8:03	--	8:09	8:09	8:15	8:18	8:21	8:29
	5	7:50	7:56	8:01	8:07	8:12	--	--	8:15	8:20	8:24	8:30	8:33	8:36	8:44
	5A	8:05	8:11	8:16	8:22	--	8:28	8:33	--	8:39	8:39	8:45	8:48	8:51	8:59
	5	8:20	8:26	8:31	8:37	8:42	--	--	8:45	8:50	8:54	9:00	9:03	9:06	9:14
5A	8:50	8:56	9:01	9:07	--	9:13	9:18	--	9:24	9:24	9:30	9:33	9:36	9:44	
5	9:20	9:26	9:31	9:37	9:42	--	--	9:45	9:50	9:54	10:00	10:03	10:06	10:14	
5A	9:50	9:56	10:01	10:07	--	10:13	10:18	--	10:24	10:24	10:30	10:33	10:36	10:44	
5	10:20	10:26	10:31	10:37	10:42	--	--	10:45	10:50	10:54	11:00	11:03	11:06	11:14	
<i>and alternating – every 30 minutes</i>						<i>every 60 minutes</i>				<i>every 30 minutes</i>					
p.m.	5A	2:50	2:56	3:01	3:07	--	3:13	3:18	--	3:24	3:24	3:30	3:33	3:36	3:44
	5	3:20	3:26	3:31	3:37	3:42	--	--	3:45	3:50	3:54	4:00	4:03	4:06	4:14
	5A	3:50	3:56	4:01	4:07	--	4:13	4:18	--	4:24	4:24	4:30	4:33	4:36	4:44
	5	4:20	4:26	4:31	4:37	4:42	--	--	4:45	4:50	4:54	5:00	5:03	5:06	5:14
	5A	4:35	4:41	4:46	4:52	--	4:58	5:03	--	5:09	5:09	5:15	5:18	5:21	5:29
	5	4:50	4:56	5:01	5:07	5:12	--	--	5:15	5:20	5:24	5:30	5:33	5:36	5:44
	5A	5:05	5:11	5:16	5:22	--	5:28	5:33	--	5:39	5:39	5:45	5:48	5:51	5:59
	5	5:20	5:26	5:31	5:37	5:42	--	--	5:45	5:50	5:54	6:00	6:03	6:06	6:14
	5A	5:35	5:41	5:46	5:52	--	5:58	6:03	--	6:09	6:09	6:15	6:18	6:21	6:29
	5	5:50	5:56	6:01	6:07	6:12	--	--	6:15	6:20	6:24	6:30	6:33	6:36	6:44
	5A	6:05	6:11	6:16	6:22	--	6:28	6:33	--	6:39	6:39	6:45	6:48	6:51	6:59
	5	6:20	6:26	6:31	6:37	6:42	--	--	6:45	6:50	6:54	7:00	7:03	7:06	7:14
5A	6:35	6:41	6:46	6:52	--	6:58	7:03	--	7:09	7:09	7:15	7:18	7:21	7:29	
5	6:50	6:56	7:01	7:07	7:12	--	--	7:15	7:20	7:24	7:30	7:33	7:36	7:44	
5A	7:05	7:11	7:16	7:22	--	7:28	7:33	--	7:39	7:39	7:45	7:48	7:51	7:59	
5	7:20	7:26	7:31	7:37	7:42	--	--	7:45	7:50	7:54	8:00	8:03	8:06	8:14	
5A	7:50	7:56	8:01	8:07	--	8:13	8:18	--	8:24	8:24	8:30	8:33	8:36	8:44	
5	8:30	8:36	8:41	8:46	8:51	--	--	8:54	8:59	8:59	9:05	9:08	9:11	9:19	
5	9:30	9:36	9:41	9:46	9:51	--	--	9:54	9:59	9:59	10:05	10:08	10:11	10:19	
5	10:30	10:36	10:41	10:46	10:51	--	--	10:54	10:59	10:59	11:05	11:08	11:11	11:19	
5	--	--	--	11:10	11:15	--	--	11:17	11:21	11:21	11:27	11:30	11:33	11:40	



Home to Hub is an on-demand service that conveniently picks you up/drops you off at the end of your driveway to get you to and from the closest transit hub where you can connect with regular fixed route transit service. Home to Hub is available in North Oakville and Southeast Oakville. Visit oakvilletransit.ca to learn more!

For latest information, visit our website at oakvilletransit.ca or follow us on social media [f](https://www.facebook.com/oakvilletransit) [i](https://www.instagram.com/oakvilletransit) [@oakvilletransit](https://www.tiktok.com/@oakvilletransit)
 Info Line 905-815-2020 care-A-van 905-337-9222

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Oakville Transit service schedules

Effective March 20, 2022 until further notice

5 5A Dundas (West)														
Timepoint	Route	Oakville GO (Depart)	White Oaks & Marlborough	Sheridan College	Trafalgar & Upper Middle	Uptown Core (Arrive)	Uptown Core (Depart)	Dundas & Sixth Line	Wheat Boom & Sixth Line	Dundas & Neyagawa	Hospital	Dundas & Bronte	Dundas & Appleby	Dundas / 407 GO Carpool (Ar.)
Saturday														
To Walkers Line (Dundas/407) – 5 via Dundas, 5A via Wheat Boom/Sixteen Mile														
a.m.	5A	--	--	--	--	--	6:49	--	6:54	6:59	7:04	7:09	7:14	7:20
	5	6:59	7:07	7:10	7:13	7:19	7:22	7:26	--	7:29	7:34	7:39	7:44	7:50
	5A	7:29	7:37	7:40	7:43	7:49	7:49	--	7:54	7:59	8:04	8:09	8:14	8:20
	5	7:59	8:07	8:10	8:13	8:19	8:22	8:26	--	8:29	8:34	8:39	8:44	8:50
	5A	8:29	8:37	8:40	8:43	8:49	8:49	--	8:54	8:59	9:04	9:09	9:14	9:20
	5	8:59	9:07	9:10	9:13	9:19	9:22	9:26	--	9:29	9:34	9:39	9:44	9:50
<i>and alternating – every 30 minutes</i>						<i>every 60 min.</i>			<i>every 30 minutes</i>					
p.m.	5A	5:29	5:37	5:40	5:43	5:49	5:49	--	5:54	5:59	6:04	6:09	6:14	6:20
	5	5:59	6:07	6:10	6:13	6:19	6:22	6:26	--	6:29	6:34	6:39	6:44	6:50
	5A	6:29	6:37	6:40	6:43	6:49	6:49	--	6:54	6:59	7:04	7:09	7:14	7:20
	5	6:59	7:07	7:10	7:13	7:19	7:22	7:26	--	7:29	7:34	7:39	7:44	7:50
	5A	7:29	7:37	7:40	7:43	7:49	7:49	--	7:54	7:59	8:04	8:09	8:14	8:20
	5	8:30	8:38	8:41	8:44	8:50	8:50	8:54	--	8:57	9:02	9:07	9:12	9:18
5	9:30	9:38	9:41	9:44	9:50	9:50	9:54	--	9:57	10:02	10:07	10:12	10:18	
5	10:30	10:38	10:41	10:44	10:50	10:50	10:54	--	10:57	11:02	<i>Ends at hospital</i>			
5	11:40	11:48	11:51	11:54	12:00	--	--	--	--	--	<i>Ends at Uptown Core</i>			
Sunday / Holidays														
a.m.	5A	--	--	--	--	--	7:49	--	7:54	7:59	8:04	8:09	8:14	8:20
	5	7:59	8:07	8:10	8:13	8:19	8:22	8:26	--	8:29	8:34	8:39	8:44	8:50
	5A	8:29	8:37	8:40	8:43	8:49	8:49	--	8:54	8:59	9:04	9:09	9:14	9:20
	5	8:59	9:07	9:10	9:13	9:19	9:22	9:26	--	9:29	9:34	9:39	9:44	9:50
	5A	9:29	9:37	9:40	9:43	9:49	9:49	--	9:54	9:59	10:04	10:09	10:14	10:20
	5	9:59	10:07	10:10	10:13	10:19	10:22	10:26	--	10:29	10:34	10:39	10:44	10:50
<i>and alternating – every 30 minutes</i>						<i>every 60 min.</i>			<i>every 30 minutes</i>					
p.m.	5A	5:29	5:37	5:40	5:43	5:49	5:49	--	5:54	5:59	6:04	6:09	6:14	6:20
	5	5:59	6:07	6:10	6:13	6:19	6:22	6:26	--	6:29	6:34	6:39	6:44	6:50
	5A	6:29	6:37	6:40	6:43	6:49	6:49	--	6:54	6:59	7:04	7:09	7:14	7:20
	5	6:59	7:07	7:10	7:13	7:19	7:22	7:26	--	7:29	7:34	7:39	7:44	7:50
	5A	7:29	7:37	7:40	7:43	7:49	7:49	--	7:54	7:59	8:04	8:09	8:14	8:20
	5	8:30	8:38	8:41	8:44	8:50	8:50	8:54	--	8:57	9:02	9:07	9:12	9:18

5 5A Dundas (East)															
Timepoint	Route	Dundas / 407 GO Carpool (Op.)	Dundas & Appleby	Dundas & Bronte	Hospital	Dundas & Neyagawa	Sixteen Mile & Neyagawa	Sixteen Mile & Sixth Line	Dundas & Sixth Line	Uptown Core (Arrive)	Uptown Core (Depart)	Trafalgar & Upper Middle	Sheridan College	White Oaks & Marlborough	Oakville GO (Arrive)
Saturday															
To Oakville GO – 5 via Dundas, 5A via Sixteen Mile/Wheat Boom															
a.m.	5A	--	--	--	--	--	6:43	6:48	--	6:54	6:54	7:00	7:03	7:06	7:14
	5	6:50	6:56	7:01	7:07	7:12	--	--	7:15	7:20	7:24	7:30	7:33	7:36	7:44
	5A	7:20	7:26	7:31	7:37	--	7:43	7:48	--	7:54	7:54	8:00	8:03	8:06	8:14
	5	7:50	7:56	8:01	8:07	8:12	--	--	8:15	8:20	8:24	8:30	8:33	8:36	8:44
	5A	8:20	8:26	8:31	8:37	--	8:43	8:48	--	8:54	8:54	9:00	9:03	9:06	9:14
	5	8:50	8:56	9:01	9:07	9:12	--	--	9:15	9:20	9:24	9:30	9:33	9:36	9:44
<i>and alternating – every 30 minutes</i>						<i>every 60 minutes</i>			<i>every 30 minutes</i>						
p.m.	5A	5:20	5:26	5:31	5:37	--	5:43	5:48	--	5:54	5:54	6:00	6:03	6:06	6:14
	5	5:50	5:56	6:01	6:07	6:12	--	--	6:15	6:20	6:24	6:30	6:33	6:36	6:44
	5A	6:20	6:26	6:31	6:37	--	6:43	6:48	--	6:54	6:54	7:00	7:03	7:06	7:14
	5	6:50	6:56	7:01	7:07	7:12	--	--	7:15	7:20	7:24	7:30	7:33	7:36	7:44
	5A	7:20	7:26	7:31	7:37	--	7:43	7:48	--	7:54	7:54	8:00	8:03	8:06	8:14
	5	8:25	8:31	8:36	8:41	8:46	--	--	8:49	8:54	8:54	9:00	9:03	9:06	9:14
5	9:25	9:31	9:36	9:41	9:46	--	--	9:49	9:54	9:54	10:00	10:03	10:06	10:14	
5	10:25	10:31	10:36	10:41	10:46	--	--	10:49	10:54	10:54	11:00	11:03	11:06	11:14	
5	--	--	--	11:10	11:15	--	--	11:17	11:21	11:21	11:27	11:30	11:33	11:40	
Sunday / Holidays															
a.m.	5A	7:50	7:56	8:01	8:07	--	8:13	8:18	--	8:24	8:24	8:30	8:33	8:36	8:44
	5	8:20	8:26	8:31	8:37	8:42	--	--	8:45	8:50	8:54	9:00	9:03	9:06	9:14
	5A	8:50	8:56	9:01	9:07	--	9:13	9:18	--	9:24	9:24	9:30	9:33	9:36	9:44
	5	9:20	9:26	9:31	9:37	9:42	--	--	9:45	9:50	9:54	10:00	10:03	10:06	10:14
	5A	9:50	9:56	10:01	10:07	--	10:13	10:18	--	10:24	10:24	10:30	10:33	10:36	10:44
	5	10:20	10:26	10:31	10:37	10:42	--	--	10:45	10:50	10:54	11:00	11:03	11:06	11:14
<i>and alternating – every 30 minutes</i>						<i>every 60 minutes</i>			<i>every 30 minutes</i>						
p.m.	5A	5:20	5:26	5:31	5:37	5:42	--	--	5:45	5:50	5:54	6:00	6:03	6:06	6:14
	5A	5:50	5:56	6:01	6:07	--	6:13	6:18	--	6:24	6:24	6:30	6:33	6:36	6:44
	5	6:20	6:26	6:31	6:37	6:42	--	--	6:45	6:50	6:54	7:00	7:03	7:06	7:14
	5A	6:50	6:56	7:01	7:07	--	7:13	7:18	--	7:24	7:24	7:30	7:33	7:36	7:44
5	7:20	7:26	7:31	7:37	7:42	--	--	7:45	7:50	7:54	8:00	8:03	8:06	8:14	

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 Info Line 905-815-2020 care-A-van 905-337-9222

While every effort will be made to operate our service to these timetables, all schedules including bus stop times and transfer times are based on normal traffic and weather conditions and as such are subject to change. Oakville Transit will not be responsible for any loss, damage or inconvenience that may result from any errors, omissions or service delays.

Oakville Transit service schedules

Effective March 20, 2022 until further notice

6 Upper Middle (East)										6 Upper Middle (West)											
Timepoint	Bronte GO (Depart)	Upper Middle & Bronte	Upper Middle & Third Line	Upper Middle & Dorval	Upper Middle & Trafalgar	Sheridan College	Trafalgar & Upper Middle	Upper Middle & Ford	Winston Pk. & Bristol Circle	Laird & Ridgeway (Ar.)	Laird & Ridgeway (Dp.)	Winston Pk. & Bristol Circle	Upper Middle & Ford	Upper Middle & Golden Briar	Sheridan College	Upper Middle & Trafalgar	Upper Middle & Dorval	Upper Middle & Third Line	Upper Middle & Bronte	Bronte GO (Arrive)	
Monday to Friday																					
Eastbound to Laird & Ridgeway											Westbound to Bronte GO										
a.m.	--	--	--	--	--	--	--	--	--	--	6:50	6:56	7:00	7:05	7:10	7:13	7:19	7:23	7:27	7:35	
	6:38	6:45	6:49	6:53	6:58	7:03	7:06	7:11	7:14	7:20	7:20	7:26	7:30	7:35	7:40	7:43	7:49	7:53	7:57	8:05	
	7:08	7:15	7:19	7:23	7:28	7:33	7:36	7:41	7:44	7:50	7:50	7:56	8:00	8:05	8:10	8:13	8:19	8:23	8:27	8:35	
	7:38	7:45	7:49	7:53	7:58	8:03	8:06	8:11	8:14	8:20	8:20	8:26	8:30	8:35	8:40	8:43	8:49	8:53	8:57	9:05	
	8:08	8:15	8:19	8:23	8:28	8:33	8:36	8:41	8:44	8:50	8:50	8:56	9:00	9:05	9:10	9:13	9:19	9:23	9:27	9:35	
	9:08	9:15	9:19	9:23	9:28	9:33	9:36	9:41	9:44	9:50	9:50	9:56	10:00	10:05	10:10	10:13	10:19	10:23	10:27	10:35	
<i>and every 60 minutes until</i>											<i>and every 60 minutes until</i>										
p.m.	2:08	2:15	2:19	2:23	2:28	2:33	2:36	2:41	2:44	2:50	2:50	2:56	3:00	3:05	3:10	3:13	3:19	3:23	3:27	3:35	
	3:08	3:15	3:19	3:23	3:28	3:33	3:36	3:41	3:44	3:50	3:50	3:56	4:00	4:05	4:10	4:13	4:19	4:23	4:27	4:35	
	--	--	--	--	--	4:03	4:06	4:11	4:14	4:20	4:20	4:26	4:30	4:35	4:40	4:43	4:49	4:53	4:57	5:05	
	4:08	4:15	4:19	4:23	4:28	4:33	4:36	4:41	4:44	4:50	4:50	4:56	5:00	5:05	5:10	5:13	5:19	5:23	5:27	5:35	
	4:38	4:45	4:49	4:53	4:58	5:03	5:06	5:11	5:14	5:20	5:20	5:26	5:30	5:35	5:40	5:43	5:49	5:53	5:57	6:05	
	5:08	5:15	5:19	5:23	5:28	5:33	5:36	5:41	5:44	5:50	5:50	5:56	6:00	6:05	6:10	6:13	6:19	6:23	6:27	6:35	
6:08	6:15	6:19	6:23	6:28	6:33	6:36	6:41	6:44	6:50	6:50	6:56	7:00	7:05	7:10	7:13	7:19	7:23	7:27	7:35		
7:08	7:15	7:19	7:23	7:28	7:33	7:36	7:41	7:44	7:50	--	--	--	--	--	--	--	--	--	--		
Saturday																					
a.m.	--	--	--	--	--	--	--	--	--	--	6:50	6:56	7:00	7:05	7:10	7:13	7:19	7:23	7:27	7:35	
	7:08	7:15	7:19	7:23	7:28	7:33	7:36	7:41	7:44	7:50	7:50	7:56	8:00	8:05	8:10	8:13	8:19	8:23	8:27	8:35	
	8:08	8:15	8:19	8:23	8:28	8:33	8:36	8:41	8:44	8:50	8:50	8:56	9:00	9:05	9:10	9:13	9:19	9:23	9:27	9:35	
<i>and every 60 minutes until</i>											<i>and every 60 minutes until</i>										
p.m.	5:08	5:15	5:19	5:23	5:28	5:33	5:36	5:41	5:44	5:50	5:50	5:56	6:00	6:05	6:10	6:13	6:19	6:23	6:27	6:35	
	6:08	6:15	6:19	6:23	6:28	6:33	6:36	6:41	6:44	6:50	6:50	6:56	7:00	7:05	7:10	7:13	7:19	7:23	7:27	7:35	
	7:08	7:15	7:19	7:23	7:28	7:33	7:36	7:41	7:44	7:50	--	--	--	--	--	--	--	--	--	--	
Sunday / Holidays																					
a.m.	--	--	--	--	--	--	--	--	--	--	7:50	7:56	8:00	8:05	8:10	8:13	8:19	8:23	8:27	8:35	
	8:08	8:15	8:19	8:23	8:28	8:33	8:36	8:41	8:44	8:50	8:50	8:56	9:00	9:05	9:10	9:13	9:19	9:23	9:27	9:35	
	9:08	9:15	9:19	9:23	9:28	9:33	9:36	9:41	9:44	9:50	9:50	9:56	10:00	10:05	10:10	10:13	10:19	10:23	10:27	10:35	
<i>and every 60 minutes until</i>											<i>and every 60 minutes until</i>										
p.m.	5:08	5:15	5:19	5:23	5:28	5:33	5:36	5:41	5:44	5:50	5:50	5:56	6:00	6:05	6:10	6:13	6:19	6:23	6:27	6:35	
	6:08	6:15	6:19	6:23	6:28	6:33	6:36	6:41	6:44	6:50	6:50	6:56	7:00	7:05	7:10	7:13	7:19	7:23	7:27	7:35	
	7:08	7:15	7:19	7:23	7:28	7:33	7:36	7:41	7:44	7:50	--	--	--	--	--	--	--	--	--	--	

10 West Industrial										
Timepoint	Oakville GO (Depart)	Wycroft at Oakville Transit	Wycroft & Fourth Line	Third Line & Speers	Bronte GO (Arrive)	Bronte GO (Depart)	North Service & Fourth Line	Wycroft at Oakville Transit	Oakville GO (Arrive)	
Monday to Friday (morning)										
a.m.	To Bronte GO					To Oakville GO				
	6:40	6:49	6:50	6:55	7:05	7:16	7:23	7:24	7:36	
	7:10	7:19	7:20	7:25	7:35	7:46	7:53	7:54	8:06	
	7:40	7:49	7:50	7:55	8:05	8:16	8:23	8:24	8:36	
	8:10	8:19	8:20	8:25	8:35	8:46	8:53	8:54	9:06	
	8:40	8:49	8:50	8:55	9:05	9:16	9:23	9:24	9:36	
9:10	9:19	9:20	9:25	9:35	9:46	9:53	9:54	10:06		
9:40	9:49	9:50	9:55	10:05	10:16	10:23	10:24	10:36		

10 West Industrial										
Timepoint	Oakville GO (Depart)	Wycroft at Oakville Transit	North Service & Fourth Line	Bronte GO (Arrive)	Bronte GO (Depart)	Third Line & Speers	Wycroft & Fourth Line	Wycroft at Oakville Transit	Oakville GO (Arrive)	
Monday to Friday (afternoon)										
p.m.	To Bronte GO					To Oakville GO				
	2:15	2:24	2:25	2:35	2:40	2:50	2:55	2:56	3:08	
	2:45	2:54	2:55	3:05	3:10	3:20	3:25	3:26	3:38	
	3:15	3:24	3:25	3:35	3:40	3:50	3:55	3:56	4:08	
	3:45	3:54	3:55	4:05	4:10	4:20	4:25	4:26	4:38	
	4:15	4:24	4:25	4:35	4:40	4:50	4:55	4:56	5:08	
4:45	4:54	4:55	5:05	5:10	5:20	5:25	5:26	5:38		
5:15	5:24	5:25	5:35	5:40	5:50	5:55	5:56	6:08		

11 Linbrook														
Timepoint	Oakville GO (Depart)	Reynolds & MacDonald	Devon & Morrison	Devon & Maple Grove	Devon & Lakeshore	Ford & Royal Windsor	Clarkson GO (Arrive)	Clarkson GO (Depart)	Ford & Royal Windsor	Devon & Lakeshore	Devon & Maple Grove	Devon & Morrison	Reynolds & MacDonald	Oakville GO (Arrive)
Monday to Friday														
a.m.	To Clarkson GO							To Oakville GO						
	5:52	5:57	6:01	6:04	6:08	6:12	6:20	6:23	6:29	6:33	6:37	6:39	6:44	6:51
	6:52	6:57	7:01	7:04	7:08	7:12	7:20	7:23	7:29	7:33	7:37	7:39	7:44	7:51
	7:52	7:57	8:01	8:04	8:08	8:12	8:20	8:23	8:29	8:33	8:37	8:39	8:44	8:51
	8:52	8:57	9:01	9:04	9:08	9:12	9:20	9:23	9:29	9:33	9:37	9:39	9:44	9:51
	<i>and every 60 minutes until</i>							<i>and every 60 minutes until</i>						
p.m.	5:52	5:57	6:01	6:04	6:08	6:12	6:20	6:23	6:29	6:33	6:37	6:39	6:44	6:51
	6:52	6:57	7:01	7:04	7:08	7:12	7:20	7:23	7:29	7:33	7:37	7:39	7:44	7:51
	7:52	7:57	8:01	8:04	8:08	8:12	8:20	8:23	8:29	8:33	8:37	8:39	8:44	8:51
	8:52	8:57	9:01	9:04	9:08	9:12	9:20	9:23	9:29	9:33	9:37	9:39	9:44	9:51

Oakville Transit service schedules

Effective March 20, 2022 until further notice

12 Winston Park													
Timepoint	Clarkson GO (Depart)	Royal Windsor & W. Churchill	Kingsway & Wynten	Kingsway & W. Churchill	Bristol Circle & Dover Gate	Bristol Circle & Buckingham	Laird & Ridgeway (At.)	Laird & Ridgeway (Dp.)	Bristol Circle & Dover Gate	Kingsway & W. Churchill	Kingsway & Wynten	Royal Windsor & W. Churchill	Clarkson GO (Arrive)
Monday to Friday													
	To Winston Park						To Clarkson GO						
a.m.	--	--	--	--	--	--	--	--	6:05	6:08	6:13	6:20	
	--	--	--	--	--	--	--	--	6:35	6:38	6:43	6:50	
	6:25	6:29	6:34	6:37	6:43	6:48	6:54	6:55	6:59	7:05	7:08	7:13	7:20
	6:55	6:59	7:04	7:07	7:13	7:18	7:24	7:25	7:29	7:35	7:38	7:43	7:50
	7:25	7:29	7:34	7:37	7:43	7:48	7:54	7:55	7:59	8:05	8:08	8:13	8:20
	7:55	7:59	8:04	8:07	8:13	8:18	8:24	8:25	8:29	8:35	8:38	8:43	8:50
	8:25	8:29	8:34	8:37	8:43	8:48	8:54	8:55	8:59	9:05	9:08	9:13	9:20
	8:55	8:59	9:04	9:07	9:13	9:18	9:24	9:25	9:29	9:35	9:38	9:43	9:50
p.m.	3:25	3:29	3:34	3:37	3:43	3:48	3:54	3:55	3:59	4:05	4:08	4:13	4:20
	3:55	3:59	4:04	4:07	4:13	4:18	4:24	4:25	4:29	4:35	4:38	4:43	4:50
	4:25	4:29	4:34	4:37	4:43	4:48	4:54	4:55	4:59	5:05	5:08	5:13	5:20
	4:55	4:59	5:04	5:07	5:13	5:18	5:24	5:25	5:29	5:35	5:38	5:43	5:50
	5:25	5:29	5:34	5:37	5:43	5:48	5:54	5:55	5:59	6:05	6:08	6:13	6:20
	5:55	5:59	6:04	6:07	6:13	6:18	6:24	6:25	6:29	6:35	6:38	6:43	6:50
	6:25	6:29	6:34	6:37	6:43	6:48	6:54	6:55	6:59	7:05	7:08	7:13	7:20
	6:55	6:59	7:04	7:07	7:13	7:18	7:24	7:25	7:29	7:35	7:38	7:43	7:50

13 Westoak Trails (West)								
Timepoint	Oakville GO (Depart)	Oakville Place	Upper Middle & Oxford	Westoak Trails & Up. Middle	Westoak Trails & Third Line	Westoak Trails & Bronte	Wycroft & Bronte	Bronte GO (Arrive)
Monday to Friday								
	To Bronte GO							
a.m.	6:10	6:17	6:24	6:27	6:32	6:36	6:41	6:45
	6:40	6:47	6:54	6:57	7:02	7:06	7:11	7:15
	7:10	7:17	7:24	7:27	7:32	7:36	7:41	7:45
	7:40	7:47	7:54	7:57	8:02	8:06	8:11	8:15
	8:10	8:17	8:24	8:27	8:32	8:36	8:41	8:45
	8:40	8:47	8:54	8:57	9:02	9:06	9:11	9:15
	9:10	9:17	9:24	9:27	9:32	9:36	9:41	9:45
		<i>and every 30 minutes until</i>						
p.m.	3:40	3:47	3:54	3:57	4:02	4:06	4:11	4:15
	4:10	4:17	4:24	4:27	4:32	4:36	4:41	4:45
	4:40	4:47	4:54	4:57	5:02	5:06	5:11	5:15
	5:13	5:20	5:27	5:30	5:35	5:39	5:44	5:48
	5:43	5:50	5:57	6:00	6:05	6:09	6:14	6:18
	6:13	6:20	6:27	6:30	6:35	6:39	6:44	6:48
	6:40	6:47	6:54	6:57	7:02	7:06	7:11	7:15
	7:10	7:17	7:24	7:27	7:32	7:36	7:41	7:45
	7:40	7:47	7:54	7:57	8:02	8:06	8:11	8:15
	8:40	8:47	8:54	8:57	9:02	9:06	9:11	9:15
9:40	9:47	9:54	9:57	10:02	10:06	10:11	10:15	
10:40	10:47	10:54	10:57	11:02	11:06	11:11	11:15	
Saturday								
a.m.	--	6:47	6:54	6:57	7:02	7:06	7:11	7:15
	7:40	7:47	7:54	7:57	8:02	8:06	8:11	8:15
	8:40	8:47	8:54	8:57	9:02	9:06	9:11	9:15
	<i>and every 60 minutes until</i>							
p.m.	7:40	7:47	7:54	7:57	8:02	8:06	8:11	8:15
	8:40	8:47	8:54	8:57	9:02	9:06	9:11	9:15
	9:40	9:47	9:54	9:57	10:02	10:06	10:11	10:15
Sunday / Holidays								
a.m.	--	7:47	7:54	7:57	8:02	8:06	8:11	8:15
	8:40	8:47	8:54	8:57	9:02	9:06	9:11	9:15
	9:40	9:47	9:54	9:57	10:02	10:06	10:11	10:15
	<i>and every 60 minutes until</i>							
p.m.	4:40	4:47	4:54	4:57	5:02	5:06	5:11	5:15
	5:40	5:47	5:54	5:57	6:02	6:06	6:11	6:15
	6:40	6:47	6:54	6:57	7:02	7:06	7:11	7:15

13 Westoak Trails (East)								
Timepoint	Bronte GO (Depart)	Wycroft & Bronte	Westoak Trails & Bronte	Westoak Trails & Third Line	Westoak Trails & Up. Middle	Upper Middle & Oxford	Oakville Place	Oakville GO (Arrive)
Monday to Friday								
	To Oakville GO							
a.m.	--	--	6:13	6:18	6:23	6:26	6:33	6:38
	6:35	6:38	6:43	6:48	6:53	6:56	7:03	7:08
	7:05	7:08	7:13	7:18	7:23	7:26	7:33	7:38
	7:35	7:38	7:43	7:48	7:53	7:56	8:03	8:08
	8:05	8:08	8:13	8:18	8:23	8:26	8:33	8:38
	8:35	8:38	8:43	8:48	8:53	8:56	9:03	9:08
	9:05	9:08	9:13	9:18	9:23	9:26	9:33	9:38
	9:35	9:38	9:43	9:48	9:53	9:56	10:03	10:08
	<i>and every 30 minutes until</i>							
p.m.	4:05	4:08	4:13	4:18	4:23	4:26	4:33	4:38
	4:35	4:38	4:43	4:48	4:53	4:56	5:03	5:08
	5:05	5:08	5:13	5:18	5:23	5:26	5:33	5:38
	5:35	5:38	5:43	5:48	5:53	5:56	6:03	6:08
	6:05	6:08	6:13	6:18	6:23	6:26	6:33	6:38
	6:35	6:38	6:43	6:48	6:53	6:56	7:03	7:08
	7:05	7:08	7:13	7:18	7:23	7:26	7:33	7:38
	7:35	7:38	7:43	7:48	7:53	7:56	8:03	8:08
	8:05	8:08	8:13	8:18	8:23	8:26	8:33	8:38
	9:05	9:08	9:13	9:18	9:23	9:26	9:33	9:38
10:05	10:08	10:13	10:18	10:23	10:26	10:33	10:38	
11:05	11:08	11:13	11:18	11:23	11:26	11:33	11:38	
Saturday								
a.m.	--	--	--	--	--	6:56	7:03	7:08
	7:35	7:38	7:43	7:48	7:53	7:56	8:03	8:08
	8:35	8:38	8:43	8:48	8:53	8:56	9:03	9:08
	<i>and every 60 minutes until</i>							
p.m.	7:35	7:38	7:43	7:48	7:53	7:56	8:03	8:08
	8:35	8:38	8:43	8:48	8:53	8:56	9:03	9:08
	9:35	9:38	9:43	9:48	9:53	9:56	10:03	10:08
Sunday / Holidays								
a.m.	--	--	--	--	--	7:56	8:03	8:08
	8:35	8:38	8:43	8:48	8:53	8:56	9:03	9:08
	9:35	9:38	9:43	9:48	9:53	9:56	10:03	10:08
	<i>and every 60 minutes until</i>							
p.m.	5:35	5:38	5:43	5:48	5:53	5:56	6:03	6:08
	6:35	6:38	6:43	6:48	6:53	6:56	7:03	7:08
	7:35	7:38	7:43	7:48	7:53	7:56	8:03	8:08

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 Info Line 905-815-2020 care-A-van 905-337-9222

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Oakville Transit service schedules

Effective March 20, 2022 until further notice

14 14A Lakeshore West														
Timepoint	Route	Oakville GO (Depart)	Speers & Kerr	Church & Dunn	Rebecca & Kerr	South Oakville Centre (Ar.)	South Oakville Centre (Dp.)	Lakeshore & Bronte	Lakeshore & Great Lakes	Great Lakes & Rebecca	Burloak & Rebecca	RioCan Centre	Harvester & Burloak	Appleby GO (Arrive)
Monday to Friday														
To Appleby GO – 14 via Great Lakes Blvd., 14A via Burloak Dr.														
a.m.	14A	6:05	6:08	6:17	6:20	6:28	6:37	6:44	6:47	--	6:51	--	6:55	7:04
	14	6:25	6:29	6:38	6:41	6:49	6:52	6:59	7:02	7:05	--	--	7:09	7:18
	14A	6:40	6:44	6:53	6:56	7:04	7:07	7:14	7:17	--	7:21	--	7:25	7:34
	14	6:55	6:59	7:08	7:11	7:19	7:22	7:29	7:32	7:35	--	--	7:39	7:48
	14A	7:10	7:14	7:23	7:26	7:34	7:37	7:44	7:47	--	7:51	7:56	7:58	8:07
	14	7:25	7:29	7:38	7:41	7:49	7:52	7:59	8:02	8:05	--	--	8:09	8:18
	14A	7:40	7:44	7:53	7:56	8:04	8:07	8:14	8:17	--	8:21	8:26	8:28	8:37
	14	7:55	7:59	8:08	8:11	8:19	8:22	8:29	8:32	8:35	--	--	8:39	8:48
	14A	8:10	8:14	8:23	8:26	8:34	8:37	8:44	8:47	--	8:51	8:56	8:58	9:07
	14	8:25	8:29	8:38	8:41	8:49	8:52	8:59	9:02	9:05	--	--	9:09	9:18
	14A	8:40	8:44	8:53	8:56	9:04	9:07	9:14	9:17	--	9:21	9:26	9:28	9:37
	14	9:10	9:14	9:23	9:26	9:34	9:37	9:44	9:47	9:50	--	--	9:54	10:03
	14A	9:40	9:44	9:53	9:56	10:04	10:07	10:14	10:17	--	10:21	10:26	10:28	10:37
	14	10:10	10:14	10:23	10:26	10:34	10:37	10:44	10:47	10:50	--	--	10:54	11:03
<i>and alternating – every 30 minutes</i>										<i>every 60 minutes</i>		<i>every 26/34 min.</i>		
14	3:10	3:14	3:23	3:26	3:34	3:37	3:44	3:47	3:50	--	--	3:54	4:03	
14A	3:40	3:44	3:53	3:56	4:04	4:07	4:14	4:17	--	4:21	4:26	4:28	4:37	
14	4:10	4:14	4:23	4:26	4:34	4:37	4:44	4:47	4:50	--	--	4:54	5:03	
14A	4:28	4:32	4:41	4:44	4:52	4:55	5:02	5:05	--	5:09	5:14	5:16	5:25	
14	4:40	4:44	4:53	4:56	5:04	5:07	5:14	5:17	5:20	--	--	5:24	5:33	
14A	4:58	5:02	5:11	5:14	5:22	5:25	5:32	5:35	--	5:39	5:44	5:46	5:55	
14	5:13	5:17	5:26	5:29	5:37	5:40	5:47	5:50	5:53	--	--	5:57	6:06	
14A	5:28	5:32	5:41	5:44	5:52	5:55	6:02	6:05	--	6:09	6:14	6:16	6:25	
14	5:43	5:47	5:56	5:59	6:07	6:10	6:17	6:20	6:23	--	--	6:27	6:36	
14A	5:58	6:02	6:11	6:14	6:22	6:25	6:32	6:35	--	6:39	6:44	6:46	6:55	
14	6:13	6:17	6:26	6:29	6:37	6:40	6:47	6:50	6:53	--	--	6:57	7:06	
14A	6:28	6:32	6:41	6:44	6:52	6:55	7:02	7:05	--	7:09	7:14	7:16	7:25	
14	6:40	6:44	6:53	6:56	7:04	7:07	7:14	7:17	7:20	--	--	7:24	7:33	
14A	7:10	7:14	7:23	7:26	7:34	7:37	7:44	7:47	--	7:51	7:56	7:58	8:07	
14	7:40	7:44	7:53	7:56	8:04	8:07	8:14	8:17	8:20	--	--	8:24	8:33	
14A	8:10	8:14	8:23	8:26	8:34	8:37	8:44	8:47	--	8:51	8:56	8:58	9:07	
14A	9:10	9:14	9:23	9:26	9:34	9:37	9:44	9:47	--	9:51	9:56	9:58	10:07	
14A	10:10	10:14	10:23	10:26	10:34	10:37	10:44	10:47	--	10:51	10:56	10:58	11:07	
14A	11:40	11:44	11:53	11:56	12:04	12:07	12:14	12:17	--	12:18	<i>Ends at Burloak/Rebecca</i>			
Saturday														
a.m.	14A	7:10	7:14	7:23	7:26	7:34	7:37	7:44	7:47	--	7:51	7:56	7:58	8:07
	14	7:40	7:44	7:53	7:56	8:04	8:07	8:14	8:17	8:20	--	--	8:24	8:33
	14A	8:10	8:14	8:23	8:26	8:34	8:37	8:44	8:47	--	8:51	8:56	8:58	9:07
	14	8:40	8:44	8:53	8:56	9:04	9:07	9:14	9:17	9:20	--	--	9:24	9:33
<i>and alternating – every 30 minutes</i>										<i>every 60 minutes</i>		<i>every 26/34 min.</i>		
14A	6:10	6:14	6:23	6:26	6:34	6:37	6:44	6:47	--	6:51	6:56	6:58	7:07	
14	6:40	6:44	6:53	6:56	7:04	7:07	7:14	7:17	7:20	--	--	7:24	7:33	
14A	7:10	7:14	7:23	7:26	7:34	7:37	7:44	7:47	--	7:51	7:56	7:58	8:07	
14	7:40	7:44	7:53	7:56	8:04	8:07	8:14	8:17	8:20	--	--	8:24	8:33	
p.m.	14A	8:10	8:14	8:23	8:26	8:34	8:37	8:44	8:47	--	8:51	8:56	8:58	9:07
	14A	9:10	9:14	9:23	9:26	9:34	9:37	9:44	9:47	--	9:51	9:56	9:58	10:07
	14A	10:10	10:14	10:23	10:26	10:34	10:37	10:44	10:47	--	10:51	10:56	10:58	11:07
	14A	11:40	11:44	11:53	11:56	12:04	12:07	12:14	12:17	--	12:18	<i>Ends at Burloak/Rebecca</i>		
	Sunday / Holidays													
	a.m.	14A	8:10	8:14	8:23	8:26	8:34	8:37	8:44	8:47	--	8:51	8:56	8:58
14		8:40	8:44	8:53	8:56	9:04	9:07	9:14	9:17	9:20	--	--	9:24	9:33
14A		9:10	9:14	9:23	9:26	9:34	9:37	9:44	9:47	--	9:51	9:56	9:58	10:07
14		9:40	9:44	9:53	9:56	10:04	10:07	10:14	10:17	10:20	--	--	10:24	10:33
<i>and alternating – every 30 minutes</i>										<i>every 60 minutes</i>		<i>every 26/34 min.</i>		
14	5:40	5:44	5:53	5:56	6:04	6:07	6:14	6:17	6:20	--	--	6:24	6:33	
p.m.	14A	6:10	6:14	6:23	6:26	6:34	6:37	6:44	6:47	--	6:51	6:56	6:58	7:07
	14	6:40	6:44	6:53	6:56	7:04	7:07	7:14	7:17	7:20	--	--	7:24	7:33
	14A	7:10	7:14	7:23	7:26	7:34	7:37	7:44	7:47	--	7:51	7:56	7:58	8:07

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 Info Line 905-815-2020 care-A-van 905-337-9222

While every effort will be made to operate our service to these timetables, all schedules including bus stop times and transfer times are based on normal traffic and weather conditions and as such are subject to change. Oakville Transit will not be responsible for any loss, damage or inconvenience that may result from any errors, omissions or service delays.

Oakville Transit service schedules

Effective March 20, 2022 until further notice

14 14A Oakville GO															
Timepoint	Route	Appley GO (Depart)	Harvester & Appley	Harvester & Burloak	RioCan Centre	Burloak & New	Great Lakes & Rebecca	Lakeshore & Great Lakes	Lakeshore & Bronte	South Oakville Centre (At.)	South Oakville Centre (Dp.)	Rebecca & Kerr	Church & Dunn	Bond & Kerr	Oakville GO (Arrive)
Monday to Friday															
To Oakville GO – 14 via Great Lakes Blvd., 14A via Burloak Dr.															
a.m.	14A	--	--	--	--	--	--	--	--	--	--	--	5:55	5:59	6:08
	14	--	--	--	--	--	--	--	--	--	6:12	6:19	6:25	6:29	6:38
	14A	<i>Begins at Burloak & Prince William at 6:06.</i>													
	14	6:13	6:17	6:20	--	--	6:24	6:27	6:30	6:37	6:42	6:49	6:55	6:59	7:08
	14A	6:28	6:32	6:35	--	6:38	--	6:42	6:45	6:52	6:57	7:04	7:10	7:14	7:23
	14	6:43	6:47	6:50	--	--	6:54	6:57	7:00	7:07	7:12	7:19	7:25	7:29	7:38
	14A	6:58	7:02	7:05	--	7:08	--	7:12	7:15	7:22	7:27	7:34	7:40	7:44	7:53
	14	7:13	7:17	7:20	--	--	7:24	7:27	7:30	7:37	7:42	7:49	7:55	7:59	8:08
	14A	7:28	7:32	7:35	--	7:38	--	7:42	7:45	7:52	7:57	8:04	8:10	8:14	8:23
	14	7:43	7:47	7:50	--	--	7:54	7:57	8:00	8:07	8:12	8:19	8:25	8:29	8:38
	14A	7:58	8:02	8:05	--	8:08	--	8:12	8:15	8:22	8:27	8:34	8:40	8:44	8:53
	14	8:13	8:17	8:20	--	--	8:24	8:27	8:30	8:37	8:42	8:49	8:55	8:59	9:08
14A	8:22	8:26	8:29	8:32	8:38	--	8:42	8:45	8:52	8:57	9:04	9:10	9:14	9:23	
14	8:43	8:47	8:50	--	--	8:54	8:57	9:00	9:07	9:12	9:19	9:25	9:29	9:38	
14A	9:07	9:11	9:14	9:17	9:23	--	9:27	9:30	9:37	9:42	9:49	9:55	9:59	10:08	
14	9:43	9:47	9:50	--	--	9:54	9:57	10:00	10:07	10:12	10:19	10:25	10:29	10:38	
		and alternating – every 24/36 minutes			every 60 minutes			every 30 minutes							
14A	3:07	3:11	3:14	3:17	3:23	--	3:27	3:30	3:37	3:42	3:49	3:55	3:59	4:08	
14	3:43	3:47	3:50	--	--	3:54	3:57	4:00	4:07	4:12	4:19	4:25	4:29	4:38	
14A	4:07	4:11	4:14	4:17	4:23	--	4:27	4:30	4:37	4:42	4:49	4:55	4:59	5:08	
14	4:43	4:47	4:50	--	--	4:54	4:57	5:00	5:07	5:12	5:19	5:25	5:29	5:38	
14A	4:55	4:59	5:02	5:05	5:11	--	5:15	5:18	5:25	5:27	5:34	5:40	5:44	5:53	
14	5:13	5:17	5:20	--	--	5:24	5:27	5:30	5:37	5:42	5:49	5:55	5:59	6:08	
14A	5:25	5:29	5:32	5:35	5:41	--	5:45	5:48	5:55	5:57	6:04	6:10	6:14	6:23	
14	5:43	5:47	5:50	--	--	5:54	5:57	6:00	6:07	6:12	6:19	6:25	6:29	6:38	
14A	5:55	5:59	6:02	6:05	6:11	--	6:15	6:18	6:25	6:27	6:34	6:40	6:44	6:53	
14	6:13	6:17	6:20	--	--	6:24	6:27	6:30	6:37	6:42	6:49	6:55	6:59	7:08	
14A	6:25	6:29	6:32	6:35	6:41	--	6:45	6:48	6:55	6:57	7:04	7:10	7:14	7:23	
14	6:43	6:47	6:50	--	--	6:54	6:57	7:00	7:07	7:12	7:19	7:25	7:29	7:38	
14A	7:07	7:11	7:14	7:17	7:23	--	7:27	7:30	7:37	7:42	7:49	7:55	7:59	8:08	
14	7:43	7:47	7:50	--	--	7:54	7:57	8:00	8:07	8:12	8:19	8:25	8:29	8:38	
14A	8:07	8:11	8:14	8:17	8:23	--	8:27	8:30	8:37	8:42	8:49	8:55	8:59	9:08	
14A	9:07	9:11	9:14	9:17	9:23	--	9:27	9:30	9:37	9:42	9:49	9:55	9:59	10:08	
14A	10:07	10:11	10:14	10:17	10:23	--	10:27	10:30	10:37	10:42	10:49	10:55	10:59	11:08	
14A	11:07	11:11	11:14	11:17	11:23	--	11:27	11:30	11:37	11:40	11:46	11:50	11:54	12:00	
Saturday															
a.m.	14A	--	--	--	--	--	--	--	--	--	--	--	6:55	6:59	7:08
	14	<i>This trip begins at Burloak & Prince William at 6:52 a.m.</i>					6:54	6:57	7:00	7:07	7:12	7:19	7:25	7:29	7:38
	14A	7:07	7:11	7:14	7:17	7:23	--	7:27	7:30	7:37	7:42	7:49	7:55	7:59	8:08
	14	7:43	7:47	7:50	--	--	7:54	7:57	8:00	8:07	8:12	8:19	8:25	8:29	8:38
	14A	8:07	8:11	8:14	8:17	8:23	--	8:27	8:30	8:37	8:42	8:49	8:55	8:59	9:08
p.m.	14	8:43	8:47	8:50	--	--	8:54	8:57	9:00	9:07	9:12	9:19	9:25	9:29	9:38
			and alternating – every 24/36 minutes			every 60 minutes			every 30 minutes						
	14A	6:07	6:11	6:14	6:17	6:23	--	6:27	6:30	6:37	6:42	6:49	6:55	6:59	7:08
	14	6:43	6:47	6:50	--	--	6:54	6:57	7:00	7:07	7:12	7:19	7:25	7:29	7:38
	14A	7:07	7:11	7:14	7:17	7:23	--	7:27	7:30	7:37	7:42	7:49	7:55	7:59	8:08
14	7:43	7:47	7:50	--	--	7:54	7:57	8:00	8:07	8:12	8:19	8:25	8:29	8:38	
14A	8:07	8:11	8:14	8:17	8:23	--	8:27	8:30	8:37	8:42	8:49	8:55	8:59	9:08	
14A	9:07	9:11	9:14	9:17	9:23	--	9:27	9:30	9:37	9:42	9:49	9:55	9:59	10:08	
14A	10:07	10:11	10:14	10:17	10:23	--	10:27	10:30	10:37	10:42	10:49	10:55	10:59	11:08	
14A	11:07	11:11	11:14	11:17	11:23	--	11:27	11:30	11:37	11:40	11:46	11:50	11:54	12:00	
Sunday / Holidays															
a.m.	14A	--	--	--	--	--	--	--	--	--	--	--	7:55	7:59	8:08
	14	<i>This trip begins at Burloak & Prince William at 7:52 a.m.</i>					7:54	7:57	8:00	8:07	8:12	8:19	8:25	8:29	8:38
	14A	8:07	8:11	8:14	8:17	8:23	--	8:27	8:30	8:37	8:42	8:49	8:55	8:59	9:08
	14	8:43	8:47	8:50	--	--	8:54	8:57	9:00	9:07	9:12	9:19	9:25	9:29	9:38
	14A	9:07	9:11	9:14	9:17	9:23	--	9:27	9:30	9:37	9:42	9:49	9:55	9:59	10:08
p.m.	14	9:43	9:47	9:50	--	--	9:54	9:57	10:00	10:07	10:12	10:19	10:25	10:29	10:38
			and alternating – every 24/36 minutes			every 60 minutes			every 30 minutes						
	14A	6:07	6:11	6:14	6:17	6:23	--	6:27	6:30	6:37	6:42	6:49	6:55	6:59	7:08
	14	6:43	6:47	6:50	--	--	6:54	6:57	7:00	7:07	7:12	7:19	7:25	7:29	7:38
	14A	7:07	7:11	7:14	7:17	7:23	--	7:27	7:30	7:37	7:42	7:49	7:55	7:59	8:08

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Info Line 905-815-2020 care-A-van 905-337-9222

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Oakville Transit service schedules

Effective March 20, 2022 until further notice

15 Bridge

See next page for Route 15.

18 Glen Abbey South							28 Oakville GO							
Timepoint	Oakville GO (Depart)	Kerr & Speers	North Service & Dorval	Nottingham & Old Abbey	Abbeywood & Third Line	Bronte GO (Arrive)	Bronte GO (Depart)	Third Line & Abbeywood	Heritage Way & Stonecutter	Glen Abbey & Third Line	Monastery & Nottingham	Dorval & North Service	Speers & Kerr	Oakville GO (Arrive)
Monday to Friday							Monday to Friday							
To Bronte GO							To Oakville GO							
a.m.	--	--	--	--	--	--	6:07	6:12	6:16	6:20	6:23	6:27	6:33	6:38
	6:10	6:14	6:18	6:22	6:27	6:30	6:37	6:42	6:46	6:50	6:53	6:57	7:03	7:08
	6:40	6:44	6:48	6:52	6:57	7:00	7:07	7:12	7:16	7:20	7:23	7:27	7:33	7:38
	7:10	7:14	7:18	7:22	7:27	7:30	7:37	7:42	7:46	7:50	7:53	7:57	8:03	8:08
<i>and every 30 minutes until</i>							<i>and every 30 minutes until</i>							
p.m.	4:10	4:14	4:18	4:22	4:27	4:30	4:37	4:42	4:46	4:50	4:53	4:57	5:03	5:08
	4:40	4:44	4:48	4:52	4:57	5:00	5:07	5:12	5:16	5:20	5:23	5:27	5:33	5:38
	5:13	5:17	5:21	5:25	5:30	5:33	5:37	5:42	5:46	5:50	5:53	5:57	6:03	6:08
	5:43	5:47	5:51	5:55	6:00	6:03	6:07	6:12	6:16	6:20	6:23	6:27	6:33	6:38
	6:13	6:17	6:21	6:25	6:30	6:33	6:37	6:42	6:46	6:50	6:53	6:57	7:03	7:08
	6:40	6:44	6:48	6:52	6:57	7:00	7:07	7:12	7:16	7:20	7:23	7:27	7:33	7:38
	7:10	7:14	7:18	7:22	7:27	7:30	7:37	7:42	7:46	7:50	7:53	7:57	8:03	8:08
	8:10	8:14	8:18	8:22	8:27	8:30	8:37	8:42	8:46	8:50	8:53	8:57	9:03	9:08
9:10	9:14	9:18	9:22	9:27	9:30	--	--	--	--	--	--	--	--	--
Saturday							Saturday							
a.m.	--	--	--	--	--	--	--	6:42	6:46	6:50	6:53	6:57	7:03	7:08
	7:10	7:14	7:18	7:22	7:27	7:30	7:37	7:42	7:46	7:50	7:53	7:57	8:03	8:08
	8:10	8:14	8:18	8:22	8:27	8:30	8:37	8:42	8:46	8:50	8:53	8:57	9:03	9:08
<i>and every 60 minutes until</i>							<i>and every 60 minutes until</i>							
p.m.	5:10	5:14	5:18	5:22	5:27	5:30	5:37	5:42	5:46	5:50	5:53	5:57	6:03	6:08
	6:10	6:14	6:18	6:22	6:27	6:30	6:37	6:42	6:46	6:50	6:53	6:57	7:03	7:08
	7:10	7:14	7:18	7:22	7:27	7:30	7:37	7:42	7:46	7:50	7:53	7:57	8:03	8:08
	8:10	8:14	8:18	8:22	8:27	8:30	8:37	8:42	8:46	8:50	8:53	8:57	9:03	9:08
Sunday / Holidays							Sunday / Holidays							
a.m.	--	--	--	--	--	--	--	7:42	7:46	7:50	7:53	7:57	8:03	8:08
	8:10	8:14	8:18	8:22	8:27	8:30	8:37	8:42	8:46	8:50	8:53	8:57	9:03	9:08
	9:10	9:14	9:18	9:22	9:27	9:30	9:37	9:42	9:46	9:50	9:53	9:57	10:03	10:08
<i>and every 60 minutes until</i>							<i>and every 60 minutes until</i>							
p.m.	5:10	5:14	5:18	5:22	5:27	5:30	5:37	5:42	5:46	5:50	5:53	5:57	6:03	6:08
	6:10	6:14	6:18	6:22	6:27	6:30	6:37	6:42	6:46	6:50	6:53	6:57	7:03	7:08
	7:10	7:14	7:18	7:22	7:27	7:30	7:37	7:42	7:46	7:50	7:53	7:57	8:03	8:08
	8:10	8:14	8:18	8:22	8:27	8:30	8:37	8:42	8:46	8:50	8:53	8:57	9:03	9:08

28 Glen Abbey North								18 Oakville GO						
Timepoint	Oakville GO (Depart)	Kerr & Speers	Dorval & North Service	Monastery & Nottingham	Glen Abbey & Third Line	Heritage Way & Stonecutter	Third Line & Kings College	Bronte GO (Arrive)	Bronte GO (Depart)	Third Line & Abbeywood	Nottingham & North Service	North Service & Dorval	Speers & Kerr	Oakville GO (Arrive)
Monday to Friday								Monday to Friday						
To Bronte GO								To Oakville GO						
a.m.	--	--	--	--	--	--	--	--	6:15	6:20	6:25	6:28	6:33	6:38
	6:10	6:14	6:20	6:24	6:28	6:31	6:36	6:39	6:45	6:50	6:55	6:58	7:03	7:08
	6:40	6:44	6:50	6:54	6:58	7:01	7:06	7:09	7:15	7:20	7:25	7:28	7:33	7:38
	7:10	7:14	7:20	7:24	7:28	7:31	7:36	7:39	7:45	7:50	7:55	7:58	8:03	8:08
<i>and every 30 minutes until</i>								<i>and every 30 minutes until</i>						
p.m.	4:10	4:14	4:20	4:24	4:28	4:31	4:36	4:39	4:45	4:50	4:55	4:58	5:03	5:08
	4:40	4:44	4:50	4:54	4:58	5:01	5:06	5:09	5:15	5:20	5:25	5:28	5:33	5:38
	5:13	5:17	5:23	5:27	5:31	5:34	5:39	5:42	5:45	5:50	5:55	5:58	6:03	6:08
	5:43	5:47	5:53	5:57	6:01	6:04	6:09	6:12	6:15	6:20	6:25	6:28	6:33	6:38
	6:13	6:17	6:23	6:27	6:31	6:34	6:39	6:42	6:45	6:50	6:55	6:58	7:03	7:08
	6:40	6:44	6:50	6:54	6:58	7:01	7:06	7:09	7:15	7:20	7:25	7:28	7:33	7:38
	7:10	7:14	7:20	7:24	7:28	7:31	7:36	7:39	7:45	7:50	7:55	7:58	8:03	8:08
	7:40	7:44	7:50	7:54	7:58	8:01	8:06	8:09	8:15	8:20	8:25	8:28	8:33	8:38
8:40	8:44	8:50	8:54	8:58	9:01	9:06	9:09	9:15	9:20	9:25	9:28	9:33	9:38	
Saturday								Saturday						
a.m.	6:40	6:44	6:50	6:54	6:58	7:01	7:06	7:09	7:15	7:20	7:25	7:28	7:33	7:38
	7:40	7:44	7:50	7:54	7:58	8:01	8:06	8:09	8:15	8:20	8:25	8:28	8:33	8:38
	8:40	8:44	8:50	8:54	8:58	9:01	9:06	9:09	9:15	9:20	9:25	9:28	9:33	9:38
<i>and every 60 minutes until</i>								<i>and every 60 minutes until</i>						
p.m.	5:40	5:44	5:50	5:54	5:58	6:01	6:06	6:09	6:15	6:20	6:25	6:28	6:33	6:38
	6:40	6:44	6:50	6:54	6:58	7:01	7:06	7:09	7:15	7:20	7:25	7:28	7:33	7:38
	7:40	7:44	7:50	7:54	7:58	8:01	8:06	8:09	--	--	--	--	--	--
	8:40	8:44	8:50	8:54	8:58	9:01	9:06	9:09	--	--	--	--	--	--
Sunday / Holidays								Sunday / Holidays						
a.m.	--	--	7:50	7:54	7:58	8:01	8:06	8:09	8:15	8:20	8:25	8:28	8:33	8:38
	8:40	8:44	8:50	8:54	8:58	9:01	9:06	9:09	9:15	9:20	9:25	9:28	9:33	9:38
	9:40	9:44	9:50	9:54	9:58	10:01	10:06	10:09	10:15	10:20	10:25	10:28	10:33	10:38
<i>and every 60 minutes until</i>								<i>and every 60 minutes until</i>						
p.m.	5:40	5:44	5:50	5:54	5:58	6:01	6:06	6:09	6:15	6:20	6:25	6:28	6:33	6:38
	6:40	6:44	6:50	6:54	6:58	7:01	7:06	7:09	7:15	7:20	7:25	7:28	7:33	7:38
	7:40	7:44	7:50	7:54	7:58	8:01	8:06	8:09	--	--	--	--	--	--
	8:40	8:44	8:50	8:54	8:58	9:01	9:06	9:09	--	--	--	--	--	--

While every effort will be made to operate our service to these timetables, all schedules including bus stop times and transfer times are based on normal traffic and weather conditions and as such are subject to change. Oakville Transit will not be responsible for any loss, damage or inconvenience that may result from any errors, omissions or service delays.

Oakville Transit service schedules

Effective March 20, 2022 until further notice

15 Bridge												
Timepoint	Oakville GO (Depart)	Stewart & Kerr	Bridge & Fourth Line	Bridge & Third Line	Bronte & Rebecca	South Oakville Centre (Ar.)	South Oakville Centre (Dp.)	Bronte & Rebecca	Bridge & Third Line	Bridge & Fourth Line	Stewart & Kerr	Oakville GO (Arrive)
Monday to Friday												
To South Oakville Centre						To Oakville GO						
a.m.	--	--	--	--	--	6:08	6:12	6:18	6:23	6:29	6:38	
	6:10	6:17	6:23	6:27	6:32	6:37	6:38	6:42	6:48	6:53	6:59	7:08
	6:40	6:47	6:53	6:57	7:02	7:07	7:08	7:12	7:18	7:23	7:29	7:38
	7:10	7:17	7:23	7:27	7:32	7:37	7:38	7:42	7:48	7:53	7:59	8:08
	7:40	7:47	7:53	7:57	8:02	8:07	8:08	8:12	8:18	8:23	8:29	8:38
and every 30 minutes until												
p.m.	3:40	3:47	3:53	3:57	4:02	4:07	4:08	4:12	4:18	4:23	4:29	4:38
	4:10	4:17	4:23	4:27	4:32	4:37	4:38	4:42	4:48	4:53	4:59	5:08
	4:40	4:47	4:53	4:57	5:02	5:07	5:08	5:12	5:18	5:23	5:29	5:38
	5:13	5:20	5:26	5:30	5:35	5:40	5:40	5:44	5:50	5:55	6:01	6:10
	5:43	5:50	5:56	6:00	6:05	6:10	6:10	6:14	6:20	6:25	6:31	6:40
	6:13	6:20	6:26	6:30	6:35	6:40	6:40	6:44	6:50	6:55	7:01	7:10
	6:40	6:47	6:53	6:57	7:02	7:07	7:08	7:12	7:18	7:23	7:29	7:38
	7:10	7:17	7:23	7:27	7:32	7:37	7:38	7:42	7:48	7:53	7:59	8:08
	8:10	8:17	8:23	8:27	8:32	8:37	8:38	8:42	8:48	8:53	8:59	9:08

15 Bridge												
Timepoint	Oakville GO (Depart)	Stewart & Kerr	Bridge & Fourth Line	Bridge & Third Line	Bronte & Rebecca	South Oakville Centre (Ar.)	South Oakville Centre (Dp.)	Bronte & Rebecca	Bridge & Third Line	Bridge & Fourth Line	Stewart & Kerr	Oakville GO (Arrive)
Saturday												
To South Oakville Centre						To Oakville GO						
a.m.	--	--	--	--	--	7:08	7:12	7:18	7:23	7:29	7:38	
	7:40	7:47	7:53	7:57	8:02	8:07	8:08	8:12	8:18	8:23	8:29	8:38
	8:40	8:47	8:53	8:57	9:02	9:07	9:08	9:12	9:18	9:23	9:29	9:38
	9:40	9:47	9:53	9:57	10:02	10:07	10:08	10:12	10:18	10:23	10:29	10:38
and every 60 minutes until												
p.m.	5:40	5:47	5:53	5:57	6:02	6:07	6:08	6:12	6:18	6:23	6:29	6:38
	6:40	6:47	6:53	6:57	7:02	7:07	7:08	7:12	7:18	7:23	7:29	7:38
	7:40	7:47	7:53	7:57	8:02	8:07	8:08	8:12	8:18	8:23	8:29	8:38
Sunday / Holidays												
a.m.	--	--	--	--	--	8:08	8:12	8:18	8:23	8:29	8:38	
	8:40	8:47	8:53	8:57	9:02	9:07	9:08	9:12	9:18	9:23	9:29	9:38
	9:40	9:47	9:53	9:57	10:02	10:07	10:08	10:12	10:18	10:23	10:29	10:38
	10:40	10:47	10:53	10:57	11:02	11:07	11:08	11:12	11:18	11:23	11:29	11:38
	and every 60 minutes until											
p.m.	4:40	4:47	4:53	4:57	5:02	5:07	5:08	5:12	5:18	5:23	5:29	5:38
	5:40	5:47	5:53	5:57	6:02	6:07	6:08	6:12	6:18	6:23	6:29	6:38
	6:40	6:47	6:53	6:57	7:02	7:07	7:08	7:12	7:18	7:23	7:29	7:38
	7:40	7:47	7:53	7:57	8:02	8:07	--	--	--	--	--	--

19 River Oaks						20 Oakville GO						
Timepoint	Oakville GO (Depart)	McCraney & Montclair	River Oaks & Oakmead	Towne & Mowat	River Glen & Sixth Line	Uptown Core (Arrive)	Uptown Core (Depart)	Dundas & Postridge	Northridge & Eighth Line	Glenashton & Northridge	Eighth Line & Grand	Oakville GO (Arrive)
Monday to Friday						Monday to Friday						
To Uptown Core						To Oakville GO						
a.m.	--	--	--	--	--	6:13	6:18	6:20	6:24	6:29	6:38	
	6:10	6:18	6:23	6:28	6:33	6:42	6:43	6:48	6:50	6:54	6:59	7:08
	6:40	6:48	6:53	6:58	7:03	7:12	7:13	7:18	7:20	7:24	7:29	7:38
	7:10	7:18	7:23	7:28	7:33	7:42	7:43	7:48	7:50	7:54	7:59	8:08
	7:40	7:48	7:53	7:58	8:03	8:12	8:13	8:18	8:20	8:24	8:29	8:38
and every 30 minutes until												
p.m.	3:40	3:48	3:53	3:58	4:03	4:12	4:13	4:18	4:20	4:24	4:29	4:38
	4:10	4:18	4:23	4:28	4:33	4:42	4:43	4:48	4:50	4:54	4:59	5:08
	4:40	4:48	4:53	4:58	5:03	5:12	5:13	5:18	5:20	5:24	5:29	5:38
	5:13	5:21	5:26	5:31	5:36	5:45	5:45	5:50	5:52	5:56	6:01	6:10
	5:43	5:51	5:56	6:01	6:06	6:15	6:15	6:20	6:22	6:26	6:31	6:40
	6:13	6:21	6:26	6:31	6:36	6:45	6:45	6:50	6:52	6:56	7:01	7:10
	6:40	6:48	6:53	6:58	7:03	7:12	7:13	7:18	7:20	7:24	7:29	7:38
	7:10	7:18	7:23	7:28	7:33	7:42	7:43	7:48	7:50	7:54	7:59	8:08
	7:40	7:48	7:53	7:58	8:03	8:12	8:13	8:18	8:20	8:24	8:29	8:38
	8:40	8:48	8:53	8:58	9:03	9:12	9:13	9:18	9:20	9:24	9:29	9:38
Saturday						Saturday						
To Uptown Core						To Oakville GO						
a.m.	--	--	--	--	--	7:15	7:20	7:21	7:24	7:29	7:38	
	7:40	7:48	7:53	7:58	8:03	8:12	8:15	8:20	8:21	8:24	8:29	8:38
	8:40	8:48	8:53	8:58	9:03	9:12	9:15	9:20	9:21	9:24	9:29	9:38
	9:40	9:48	9:53	9:58	10:03	10:12	10:15	10:20	10:21	10:24	10:29	10:38
	and every 60 minutes until											
p.m.	5:40	5:48	5:53	5:58	6:03	6:12	6:15	6:20	6:21	6:24	6:29	6:38
	6:40	6:48	6:53	6:58	7:03	7:12	7:15	7:20	7:21	7:24	7:29	7:38
	7:40	7:48	7:53	7:58	8:03	8:12	8:15	8:20	8:21	8:24	8:29	8:38
	and every 60 minutes until											
Sunday / Holidays						Sunday / Holidays						
To Uptown Core						To Oakville GO						
a.m.	--	--	--	--	--	8:15	8:20	8:21	8:24	8:29	8:38	
	8:40	8:48	8:53	8:58	9:03	9:12	9:15	9:20	9:21	9:24	9:29	9:38
	9:40	9:48	9:53	9:58	10:03	10:12	10:15	10:20	10:21	10:24	10:29	10:38
	10:40	10:48	10:53	10:58	11:03	11:12	11:15	11:20	11:21	11:24	11:29	11:38
	and every 60 minutes until											
p.m.	4:40	4:48	4:53	4:58	5:03	5:12	5:15	5:20	5:21	5:24	5:29	5:38
	5:40	5:48	5:53	5:58	6:03	6:12	6:15	6:20	6:21	6:24	6:29	6:38
	6:40	6:48	6:53	6:58	7:03	7:12	7:15	7:20	7:21	7:24	7:29	7:38
	7:40	7:48	7:53	7:58	8:03	8:12	--	--	--	--	--	--

20 Northridge						19 Oakville GO					
Timepoint	Oakville GO (Depart)	Eighth Line & Grand	Glenashton & Northridge	Northridge & Eighth Line	Uptown Core (Arrive)	Uptown Core (Depart)	River Glen & Sixth Line	Mowat & Levanna	River Oaks & Oakmead	McCraney & Montclair	Oakville GO (Arrive)
Monday to Friday						Monday to Friday					
To Uptown Core						To Oakville GO					
a.m.	--	--	--	--	--	6:05	6:12	6:16	6:22	6:27	6:35
	6:10	6:18	6:23	6:27	6:32	6:35	6:42	6:46	6:52	6:57	7:05
	6:40	6:48	6:53	6:57	7:02	7:05	7:12	7:16	7:22	7:27	7:35
	7:10	7:18	7:23	7:27	7:32	7:35	7:42	7:46	7:52	7:57	8:05
	7:40	7:48	7:53	7:57	8:02	8:05	8:12	8:16	8:22	8:27	8:35
and every 30 minutes until											
p.m.	3:40	3:48	3:53	3:57	4:02	4:05	4:12	4:16	4:22	4:27	4:35
	4:10	4:18	4:23	4:27	4:32	4:35	4:42	4:46	4:52	4:57	5:05
	4:40	4:48	4:53	4:57	5:02	5:05	5:12	5:16	5:22	5:27	5:35
	5:13	5:21	5:26	5:30	5:35	5:35	5:42	5:46	5:52	5:57	6:05
	5:43	5:51	5:56	6:00	6:05	6:05	6:12	6:16	6:22	6:27	6:35
	6:13	6:21	6:26	6:30	6:35	6:35	6:42	6:46	6:52	6:57	7:05
	6:40	6:48	6:53	6:57	7:02	7:05	7:12	7:16	7:22	7:27	7:35
	7:10	7:18	7:23	7:27	7:32	7:35	7:42	7:46	7:52	7:57	8:05
	7:40	7:48	7:53	7:57	8:02	8:05	8:12	8:16	8:22	8:27	8:35
	8:40	8:48	8:53	8:57	9:02	9:05	9:12	9:16	9:22	9:27	9:35
Saturday						Saturday					
To Uptown Core						To Oakville GO					
a.m.	--	--	--	--	--	7:05	7:12	7:16	7:22	7:27	7:35
	7:40	7:48	7:53	7:57	8:02	8:05	8:12	8:16	8:22	8:27	8:35
	8:40	8:48	8:53	8:57	9:02	9:05	9:12	9:16	9:22	9:27	9:35
	9:40	9:48	9:53	9:57	10:02	10:05	10:12	10:16	10:22	10:27	10:35
	and every 60 minutes until										
p.m.	5:40	5:48	5:53	5:57	6:02	6:05	6:12	6:16	6:22	6:27	6:35
	6:40	6:48	6:53	6:57	7:02	7:05	7:12	7:16	7:22	7:27	7:35
	7:40	7:48	7:53	7:57	8:02	8:05	8:12	8:16	8:22	8:27	8:35
	and every 60 minutes until										
Sunday / Holidays						Sunday / Holidays					
To Uptown Core						To Oakville GO					
a.m.	--	--	--	--	--	8:05	8:12	8:16	8:22	8:27	8:35
	8:40	8:48	8:53	8:57	9:02	9:05	9:12	9:16	9:22	9:27	9:35
	9:40	9:48	9:53	9:57	10:02	10:05	10:12	10:16	10:22	10:27	10:35
	10:40	10:48	10:53	10:57	11:02	11:05	11:12	11:16	11:22	11:27	11:35
	and every 60 minutes until										
p.m.	4:40	4:48	4:53	4:57	5:02	5:05	5:12	5:16	5:22	5:27	5:35
	5:40	5:48	5:53	5:57	6:02	6:05	6:12	6:16	6:22	6:27	6:35
	6:40	6:48	6:53	6:57	7:02	7:05	7:12	7:16	7:22	7:27	7:35
	7:40	7:48	7:53	7:57	8:02	--	--	--	--	--	--

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 Info Line 905-815-2020 care-A-van 905-337-9222

While every effort will be made to operate our service to these timetables, all schedules including bus stop times and transfer times are based on normal traffic and weather conditions and as such are subject to change. Oakville Transit will not be responsible for any loss, damage or inconvenience that may result from any errors, omissions or service delays.

Oakville Transit service schedules

Effective March 20, 2022 until further notice

24 South Common														
Timepoint	Oakville GO (Depart)	Sheridan College	Trafalgar & Upper Middle	Uptown Core	Dundas & Eighth Line	Dundas & Hampshire	South Common (Arrive)	South Common (Depart)	Dundas & Hampshire	Dundas & Eighth Line	Uptown Core	Trafalgar & Upper Middle	Sheridan College	Oakville GO (Arrive)
Monday to Friday														
	To South Common							To Oakville GO						
	--	--	--	--	--	--	--	6:15	6:23	6:27	6:33	6:39	6:42	6:50
	--	--	--	--	--	--	--	6:39	6:49	6:56	7:02	7:08	7:11	7:20
	6:10	6:19	6:22	6:30	6:35	6:42	6:51	6:54	7:04	7:11	7:17	7:23	7:26	7:35
	6:25	6:34	6:37	6:45	6:50	6:57	7:06	7:09	7:19	7:26	7:32	7:38	7:41	7:50
	6:40	6:49	6:52	7:00	7:05	7:12	7:21	7:24	7:34	7:41	7:47	7:53	7:56	8:05
	6:55	7:04	7:07	7:15	7:20	7:27	7:36	7:39	7:49	7:56	8:02	8:08	8:11	8:20
	7:10	7:19	7:22	7:30	7:35	7:42	7:51	7:54	8:04	8:11	8:17	8:23	8:26	8:35
	7:25	7:34	7:37	7:45	7:50	7:57	8:06	8:09	8:19	8:26	8:32	8:38	8:41	8:50
	7:40	7:49	7:52	8:00	8:05	8:12	8:21	8:24	8:34	8:41	8:47	8:53	8:56	9:05
	7:55	8:04	8:07	8:15	8:20	8:27	8:36	8:39	8:49	8:56	9:02	9:08	9:11	9:20
	8:10	8:19	8:22	8:30	8:35	8:42	8:51	8:54	9:04	9:11	9:17	9:23	9:26	9:35
	8:25	8:34	8:37	8:45	8:50	8:57	9:06	9:09	9:19	9:26	9:32	9:38	9:41	9:50
	8:40	8:49	8:52	9:00	9:05	9:12	9:21	9:24	9:34	9:41	9:47	9:53	9:56	10:05
	9:10	9:19	9:22	9:30	9:35	9:42	9:51	9:54	10:04	10:11	10:17	10:23	10:26	10:35
	9:40	9:49	9:52	10:00	10:05	10:12	10:21	10:24	10:34	10:41	10:47	10:53	10:56	11:05
	<i>and every 30 minutes until</i>							<i>and every 30 minutes until</i>						
	3:10	3:19	3:22	3:30	3:35	3:42	3:51	3:54	4:04	4:11	4:17	4:23	4:26	4:35
	3:40	3:49	3:52	4:00	4:05	4:12	4:21	4:24	4:34	4:41	4:47	4:53	4:56	5:05
	3:58	4:07	4:10	4:16	4:21	4:28	4:37	4:39	4:49	4:56	5:02	5:08	5:11	5:20
	4:10	4:19	4:22	4:30	4:35	4:42	4:51	4:54	5:04	5:11	5:17	5:23	5:26	5:35
	4:28	4:37	4:40	4:46	4:51	4:58	5:07	5:09	5:19	5:26	5:32	5:38	5:41	5:50
	4:40	4:49	4:52	5:00	5:05	5:12	5:21	5:24	5:34	5:41	5:47	5:53	5:56	6:05
	4:58	5:07	5:10	5:16	5:21	5:28	5:37	5:39	5:49	5:56	6:02	6:08	6:11	6:20
	5:13	5:22	5:25	5:31	5:36	5:43	5:52	5:54	6:04	6:11	6:17	6:23	6:26	6:35
	5:28	5:37	5:40	5:46	5:51	5:58	6:07	6:09	6:19	6:26	6:32	6:38	6:41	6:50
	5:43	5:52	5:55	6:01	6:06	6:13	6:22	6:24	6:34	6:41	6:47	6:53	6:56	7:05
	5:58	6:07	6:10	6:16	6:21	6:28	6:37	6:39	6:49	6:56	7:02	7:08	7:11	7:20
	6:13	6:22	6:25	6:31	6:36	6:43	6:52	6:54	7:04	7:11	7:17	7:23	7:26	7:35
	6:28	6:37	6:40	6:46	6:51	6:58	7:07	7:09	7:19	7:26	7:32	7:38	7:41	7:50
	6:40	6:49	6:52	7:00	7:05	7:12	7:21	7:24	7:34	7:41	7:47	7:53	7:56	8:05
	7:10	7:19	7:22	7:30	7:35	7:42	7:51	7:55	8:05	8:12	8:18	8:24	8:27	8:35
	8:10	8:19	8:22	8:30	8:35	8:42	8:51	8:55	9:05	9:12	9:18	9:24	9:27	9:35
	9:10	9:19	9:22	9:30	9:35	9:42	9:51	9:55	10:05	10:12	10:18	10:24	10:27	10:35
	10:10	10:19	10:22	10:30	10:35	10:42	10:51	10:55	11:05	11:12	11:18	11:24	11:27	11:35
	11:10	11:18	11:21	11:28	11:32	11:36	11:45	11:45	11:54	11:58	12:03	12:08	12:11	12:19

24 South Common														
Timepoint	Oakville GO (Depart)	Sheridan College	Trafalgar & Upper Middle	Uptown Core	Dundas & Eighth Line	Dundas & Hampshire	South Common (Arrive)	South Common (Depart)	Dundas & Hampshire	Dundas & Eighth Line	Uptown Core	Trafalgar & Upper Middle	Sheridan College	Oakville GO (Arrive)
Saturday														
	To South Common							To Oakville GO						
	7:10	7:19	7:22	7:30	7:35	7:42	7:51	7:54	8:04	8:11	8:17	8:23	8:26	8:35
	7:40	7:49	7:52	8:00	8:05	8:12	8:21	8:24	8:34	8:41	8:47	8:53	8:56	9:05
	8:10	8:19	8:22	8:30	8:35	8:42	8:51	8:54	9:04	9:11	9:17	9:23	9:26	9:35
	<i>and every 30 minutes until</i>							<i>and every 30 minutes until</i>						
	6:10	6:19	6:22	6:30	6:35	6:42	6:51	6:54	7:04	7:11	7:17	7:23	7:26	7:35
	6:40	6:49	6:52	7:00	7:05	7:12	7:21	7:24	7:34	7:41	7:47	7:53	7:56	8:05
	7:10	7:19	7:22	7:30	7:35	7:42	7:51	7:55	8:05	8:12	8:18	8:24	8:27	8:35
	8:10	8:19	8:22	8:30	8:35	8:42	8:51	8:55	9:05	9:12	9:18	9:24	9:27	9:35
	9:10	9:19	9:22	9:30	9:35	9:42	9:51	9:55	10:05	10:12	10:18	10:24	10:27	10:35
	10:10	10:19	10:22	10:30	10:35	10:42	10:51	10:55	11:05	11:12	11:18	11:24	11:27	11:35
	11:10	11:18	11:21	11:28	11:32	11:36	11:45	11:45	11:54	11:58	12:03	12:08	12:11	12:19
Sunday / Holidays														
	--	--	--	--	--	--	--	8:25	8:35	8:42	8:48	8:54	8:57	9:05
	8:10	8:19	8:22	8:30	8:35	8:42	8:51	8:55	9:05	9:12	9:18	9:24	9:27	9:35
	8:40	8:49	8:52	9:00	9:05	9:12	9:21	9:25	9:35	9:42	9:48	9:54	9:57	10:05
	9:10	9:19	9:22	9:30	9:35	9:42	9:51	9:55	10:05	10:12	10:18	10:24	10:27	10:35
	<i>and every 30 minutes until</i>							<i>and every 30 minutes until</i>						
	5:40	5:49	5:52	6:00	6:05	6:12	6:21	6:25	6:35	6:42	6:48	6:54	6:57	7:05
	6:10	6:19	6:22	6:30	6:35	6:42	6:51	6:55	7:05	7:12	7:18	7:24	7:27	7:35
	6:40	6:49	6:52	7:00	7:05	7:12	7:21	7:25	7:35	7:42	7:48	7:54	7:57	8:05

For latest information, visit our website at oakvilletransit.ca or follow us on social media [f](https://www.facebook.com/oakvilletransit) [i](https://www.instagram.com/oakvilletransit) [@oakvilletransit](https://www.tiktok.com/@oakvilletransit)

Info Line 905-815-2020 care-A-van 905-337-9222

While every effort will be made to operate our service to these timetables, all schedules including bus stop times and transfer times are based on normal traffic and weather conditions and as such are subject to change. Oakville Transit will not be responsible for any loss, damage or inconvenience that may result from any errors, omissions or service delays.

Oakville Transit service schedules

Effective March 20, 2022 until further notice

33 Palermo

Routes 33 and 34 have been combined as noted in the map below.

34 Pine Glen

Timepoint	Bronte GO (Depart)	Wycroft & Bronte	Bronte & Upper Middle	Colonel William & Dundas	Pine Glen & Postmaster	Pine Glen & Proudfoot	Westoak & Postmaster	Upper Middle & Bronte	Wycroft & Bronte	Bronte GO (Arrive)
Monday to Friday										
	To Pine Glen					To Bronte GO				
	--	--	6:02	6:07	6:12	6:17	6:21	6:27	6:31	6:35
	--	--	6:32	6:37	6:42	6:47	6:51	6:57	7:01	7:05
a.m.	6:55	6:58	7:02	7:07	7:12	7:17	7:21	7:27	7:31	7:35
	7:25	7:28	7:32	7:37	7:42	7:47	7:51	7:57	8:01	8:05
	7:55	7:58	8:02	8:07	8:12	8:17	8:21	8:27	8:31	8:35
	8:25	8:28	8:32	8:37	8:42	8:47	8:51	8:57	9:01	9:05
p.m.	4:35	4:38	4:42	4:47	4:52	4:57	5:01	5:07	5:11	5:15
	5:05	5:08	5:12	5:17	5:22	5:27	5:31	5:37	5:41	5:45
	5:35	5:38	5:42	5:47	5:52	5:57	6:01	6:07	6:11	6:15
	6:05	6:08	6:12	6:17	6:22	6:27	6:31	6:37	6:41	6:45
	6:35	6:38	6:42	6:47	6:52	6:57	7:01	7:07	7:11	7:15
	7:05	7:08	7:12	7:17	7:22	7:27	7:31	7:37	7:41	7:45
	7:35	7:38	7:42	7:47	7:52	7:57	8:01	8:07	8:11	8:15

26 Falgarwood

Timepoint	Oakville GO (Depart)	Lancaster & Grosvenor	Oakville GO (Arrive)
Monday to Friday (morning)			
Falgarwood–Oakville GO			
	6:10	6:22	6:35
	6:40	6:52	7:05
a.m.	7:10	7:22	7:35
	7:40	7:52	8:05
	8:10	8:22	8:35
	8:40	8:52	9:05
Monday to Friday (afternoon)			
Falgarwood–Oakville GO			
	3:10	3:22	3:35
	3:40	3:52	4:05
	4:10	4:22	4:35
p.m.	4:40	4:52	5:05
	5:13	5:25	5:35
	5:43	5:55	6:05
	6:13	6:22	6:35
	6:40	6:52	7:05
	7:10	7:22	7:35

120 East Industrial

Timepoint	Oakville GO (Depart)	N. Service & Eighth Line	Joshua Ck. & Up. Middle	Winston Pk. & Bristol Circle	Laird & Ridgeway	Winston Pk. & Bristol Circle	Joshua Ck. & Up. Middle	N. Service & Eighth Line	Oakville GO (Arrive)
Monday to Friday									
	To Winston Park				To Oakville GO				
	6:40	6:47	6:53	6:58	7:05	7:10	7:15	7:21	7:31
	7:10	7:17	7:23	7:28	7:35	7:40	7:45	7:51	8:01
a.m.	7:40	7:47	7:53	7:58	8:05	8:10	8:15	8:21	8:31
	8:10	8:17	8:23	8:28	8:35	8:40	8:45	8:51	9:01
	8:40	8:47	8:53	8:58	9:05	9:10	9:15	9:21	9:31
	9:10	9:17	9:23	9:28	9:35	9:40	9:45	9:51	10:01
p.m.	3:18	3:25	3:31	3:36	3:43	3:48	3:53	3:59	4:09
	3:48	3:55	4:01	4:06	4:13	4:18	4:23	4:29	4:39
	4:18	4:25	4:31	4:36	4:43	4:48	4:53	4:59	5:09
	4:48	4:55	5:01	5:06	5:13	5:18	5:23	5:29	5:39
	5:18	5:25	5:31	5:36	5:43	5:48	5:53	5:59	6:09
	5:48	5:55	6:01	6:06	6:13	6:18	6:23	6:29	6:39
	6:18	6:25	6:31	6:36	6:43	6:48	6:53	6:59	7:09

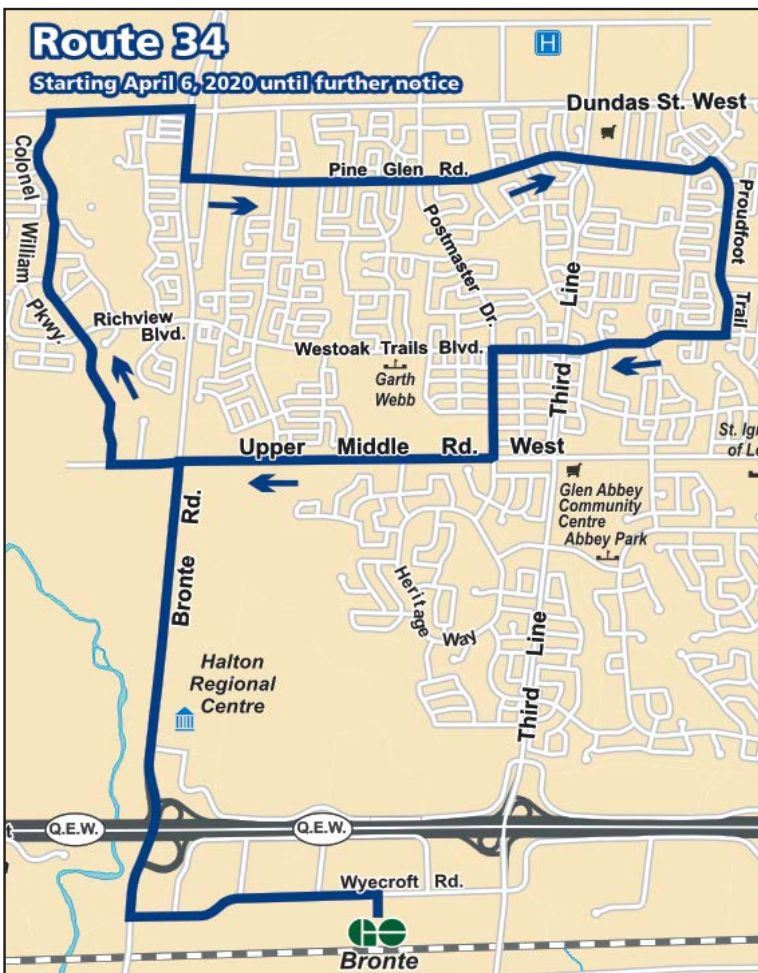
121 Southeast Industrial

Route 121 customers will be provided On Demand service Monday to Friday from 7 to 9 a.m. and 4 to 6 p.m.

Please contact us at transit@oakville.ca to register and for more information.

190 River Oaks Express

Temporarily suspended.



For latest information, visit our website at oakvilletransit.ca or follow us on social media [f](https://www.facebook.com/oakvilletransit) [@oakvilletransit](https://www.instagram.com/oakvilletransit)

Info Line 905-815-2020 care-A-van 905-337-9222

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83

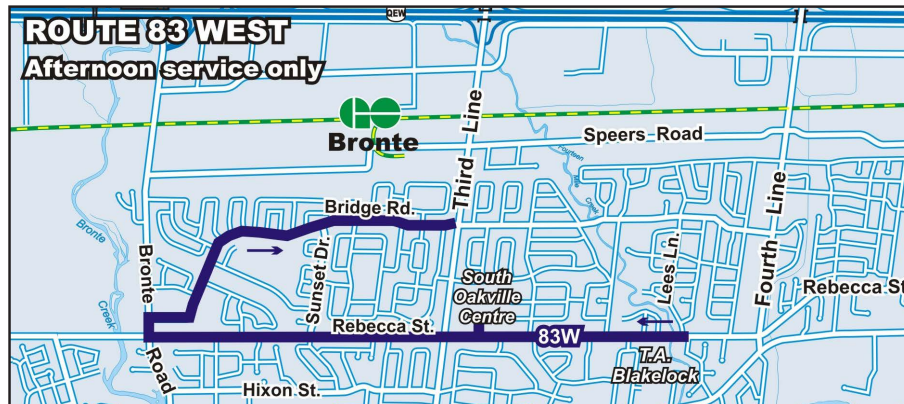
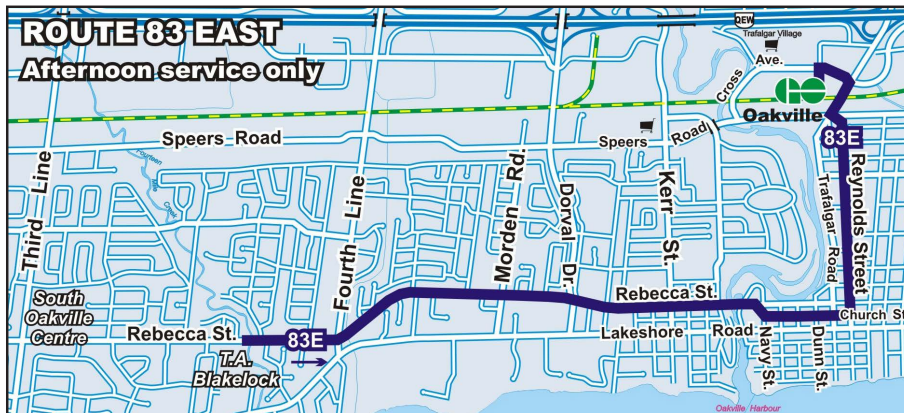
T.A. BLAKELOCK SPECIAL

Monday to Friday, effective September 5, 2021



83 Blakelock East		
Timepoint	T.A. Blakelock (Depart)	Oakville GO (Arrive)
	Church & Dunn	
Monday to Friday (afternoon)		
To Oakville GO		
	2:50	3:10

83 Blakelock West		
Timepoint	Rebecca & Lees Lane (Depart)	Bridge & Third Line
	South Oakville Centre	
Monday to Friday (afternoon)		
To Bridge & Third Line		
	2:50	3:10



Real-time bus tracking
Track your bus at oakvilletransit.ca or download the Oakville Transit mobile app.

Download on the App Store

GET IT ON Google play



Oakville Transit
430 Wyecroft Road
8:30 a.m. - 4:30 p.m.
Monday - Friday

Mailing Address
Oakville Transit
1225 Trafalgar Road
Oakville, ON L6H 0H3

oakvilletransit.ca
 @oakvilletransit

Info Line 905-815-2020
care-A-van 905-337-9222

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OAKVILLE TRANSIT

Weekday Route Map

Solid line indicates regular service route.

Dashed line indicates rush hour or limited service route, or change in routing pattern.

Not all routes operate on Saturday, Sunday/Holidays.

Saturday Routes:

3 4 5 5A 6 13 14 14A 15 18
19 20 24 28

Sunday/Holidays Routes:

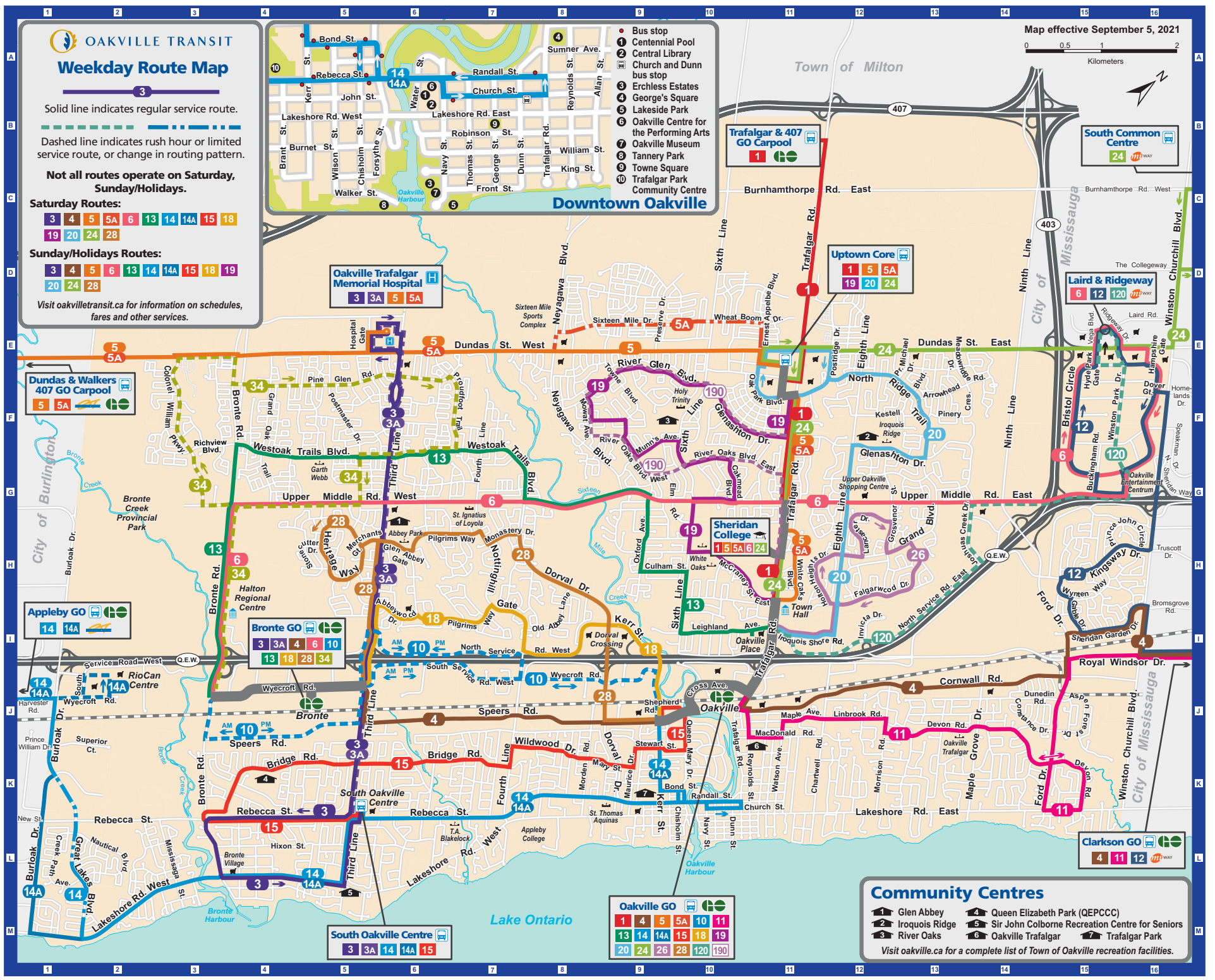
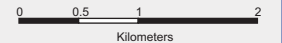
3 4 5 6 13 14 14A 15 18 19
20 24 28

Visit oakvilletransit.ca for information on schedules, fares and other services.

Downtown Oakville

- 1 Bus stop
- 2 Centennial Pool
- 3 Central Library
- 4 Church and Dunn bus stop
- 5 Erchless Estates
- 6 George's Square
- 7 Lakeside Park
- 8 Oakville Centre for the Performing Arts
- 9 Oakville Museum
- 10 Tannery Park
- 11 Towne Square
- 12 Trafalgar Park Community Centre

Map effective September 5, 2021



Dundas & Walkers 407 GO Carpool

5 5A

Appleby GO

14 14A

Bronte GO

3 3A 4 6 10
13 18 28 34

South Oakville Centre

3 3A 14 14A 15

Oakville GO

1 4 5 5A 10 11
13 14 14A 15 18 19
20 24 26 28 120 190

Community Centres

- 1 Glen Abbey
- 2 Iroquois Ridge
- 3 River Oaks
- 4 Queen Elizabeth Park (QEPCCC)
- 5 Sir John Colborne Recreation Centre for Seniors
- 6 Oakville Trafalgar
- 7 Trafalgar Park

Visit oakville.ca for a complete list of Town of Oakville recreation facilities.

01 - 18

Route numbers / Numéros des trajets **Lakeshore West**



CONTACT US

1-888-438-6646
416-869-3200
TTY/ATS:
1-800-387-3652

gotransit.com/schedules

@GOtransitLW

See Something?
Say Something.
24/7 Transit Safety Dispatch:
1-877-297-0642

prestocard.ca

Sign-up for email or text alerts/ Inscrivez-vous pour recevoir des alertes par courriel ou message texte.
gotransit.com/OnTheGO

Face coverings are mandatory on GO Transit. Let's keep each other safe.

Le port d'un masque est obligatoire lors de vos trajets sur GO Transit. Protégeons notre santé les uns les autres.

Lakeshore West



GO Train and Bus Schedule/
Horaire des trains et des autobus GO



LW 18



Daily / Quotidiennement

Includes GO Bus route 18 /
Inclut le trajet 18 d'autobus GO

Effective / À partir de:
2 APRIL / AVRIL 2022



How to read our schedules

Step 1

Find the station or terminal you are departing from. Stops are listed across the top in the order they are served.

Step 2

The upper left corner tells you what day the schedule is for and the direction of travel.

Step 3

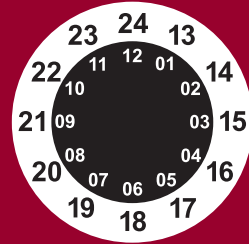
Look across the rows for available departure times.

Step 4

Not all trains or buses stop at every station. If you see → the train or bus will not stop at that station.

Schedule times shown in 24-hour clock

Midnight to noon
00 01 - 12 00
Noon to midnight
12 01 - 24 00




Legend


 Train trips

 Bus trips


→ Trip does not serve this location.

↓ Check below for connecting trips.

 GO Train service is accessible to passengers using mobility devices at this location.

 GO Bus service is accessible to passengers using mobility devices at this location.

 GO Train & GO Bus service is accessible to passengers using mobility devices at this location.

 Parking available.

For the latest schedule information and updates, please visit gotransit.com/schedules.

2

Notes

h Trip holds for connection from bus.

Bicycles

1. Bicycles are not allowed in Union Station or on-board trains during morning rush hour (6:30-9:30) and evening rush hour (15:30-18:30), Monday to Friday.

2. Foldable bicycles are allowed on-board trains at all times.

Comment lire nos horaires

Étape 1

Trouvez votre gare ou terminus de départ. La liste des arrêts est donnée en haut dans l'ordre dans lequel ils sont desservis.

Étape 2

Le coin supérieur gauche vous indique le jour pour lequel l'horaire est donné et la direction de circulation.

Étape 3

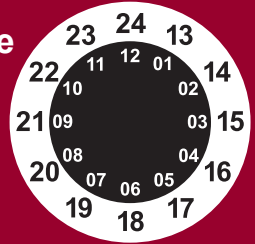
Regardez dans les rangées pour obtenir les heures de départ offertes.

Étape 4


Les trains ou les autobus ne s'arrêtent pas tous à chaque gare. Si vous voyez le symbole → le train ou l'autobus ne s'arrêtera pas à cette gare.

Indications selon un système horaire de 24 heures

De minuit à midi:
00 01 - 12 00
De midi à minuit:
12 01 - 24 00




Légende


 Horaire des trains


 Horaire des autobus


→ Trajet ne sert pas cette station.

↓ Vérifiez les trajets de correspondance ci-dessous.

 Service de trains GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

 Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

 Les services de trains et d'autobus GO sont accessibles aux utilisateurs d'un appareil d'aide à la mobilité à cet endroit.

 Stationnement disponible.

Pour consulter les horaires les plus récents et les mises à jour, veuillez visiter gotransit.com/schedules.

3

Notes

h Attentes des trajets pour les connexions d'autobus.

Vélos

1. Les vélos ne sont pas autorisés dans la gare Union ou à bord des trains du lundi au vendredi, pendant l'heure de pointe (6:30-9:30) et pendant l'heure de pointe du soir (15:30-18:30).

2. Les vélos pliables sont permis à bord des trains en tout temps.

Monday to Friday (except holidays) Du lundi au vendredi (sauf les jours fériés)																								
EASTBOUND / EN DIRECTION EST																								
Route Number Numéro du trajet	Zone→	Niagara Falls 84 Niagara Falls GO	Dp St. Catharines 83 Brock University	Dp St. Catharines 83 St. Catharines GO	Beamsville 82 Ontario St. @ QEW	Grimsby 81 Casablanca Blvd. @ QEW	Centennial Pkwy. N. @ QEW Hamilton 18	Dp West Harbour GO	Hamilton 18 Hamilton GO Centre	Dp Hamilton 18 King St. W. @ Dundurn St. N.	Burlington 17 Aldershot GO	Transfer - Correspondances Burlington 17	Dp Aldershot GO	Burlington 16 Burlington GO	Burlington 15 Appleby GO	Oakville 14 Bronte GO	Oakville 13 Oakville GO	Mississauga 12 Clarkson GO	Mississauga 10 Port Credit GO	Etobicoke 9 Long Branch GO	Etobicoke 79 Mimico GO	Toronto 2 Exhibition GO	Toronto 2 Union Station	At
18G	18020								04 15	04 19	04 30	→	04 30	04 40	→	→	04 55↓	05 05	05 15	→	→	→	→	05 25
18H	18040								04 25	04 29	04 40	→	04 30	04 40	→	→	04 55↓	05 05	05 15	→	→	→	→	05 40
	1704							05 13	→	→	05 25	→	05 25	05 31	05 37	05 42	05 48	05 55	06 01	06 07	06 14	06 21	06 30	
18	18090								05 25	05 29	05 40	→	05 25	05 31	05 37	05 42	05 48	05 55	06 01	06 07	06 14	06 21	06 30	
	1706							06 13	→	→	06 25	→	06 25	06 31	06 37	06 42	06 48	06 55	07 01	07 07	07 14	07 21	07 30	
18	18170								06 25	06 29	06 40	→	06 25	06 31	06 37	06 42	06 48	06 55	07 01	07 07	07 14	07 21	07 30	
	1808								06 55	→	07 10	→	07 10	07 16	07 22	07 27	07 33	07 40	07 46	07 52	07 59	08 06	08 15	
	1908	05 57	→	06 20	→	→	→	07 13	→	→	07 25	→	07 25	07 31	07 37	07 42	07 48	07 55	08 01	08 07	08 14	08 21	08 30	
	1810								07 25	→	07 40	→	07 40	07 46	07 52	07 57	08 03	08 10	08 16	08 22	08 29	08 36	08 45	
18	18250								07 23	07 30	07 40	→	07 23	07 30	07 37	07 42	07 48	07 55	08 01	08 07	08 14	08 21	08 30	
18	18290								07 53	08 00	08 10↓	→	07 53	08 00	08 07	08 12	08 18	08 25	08 31	08 37	08 44	08 51	09 00	
	1710							08 13	→	→	08 25	→	08 25	08 31	08 37	08 42	08 48	08 55	09 01	09 07	09 14	09 21	09 30	
18	18340								08 23	08 30	08 40	→	08 23	08 30	08 37	08 42	08 48	08 55	09 01	09 07	09 14	09 21	09 30	
18	18370								08 55	09 02	09 10↓	→	08 55	09 01	09 07	09 12	09 18	09 25	09 31	09 37	09 44	09 51	10 00	
	1712							09 13	→	→	09 25	→	09 25	09 31	09 37	09 42	09 48	09 55	10 01	10 07	10 14	10 21	10 30	
18	18400								09 25	09 32	09 40	→	09 25	09 31	09 37	09 42	09 48	09 55	10 01	10 07	10 14	10 21	10 30	
18	18420								09 55	10 02	10 10↓	→	09 55	10 01	10 07	10 12	10 18	10 25	10 31	10 37	10 44	10 51	11 00	
	1714							10 13	→	→	10 25	→	10 25	10 31	10 37	10 42	10 48	10 55	11 01	11 07	11 14	11 21	11 30	
18K	18440		08 45	08 59	09 21	09 34	09 50	10 08	10 20	10 27	10 40	→	10 25	10 31	10 37	10 42	10 48	10 55	11 01	11 07	11 14	11 21	11 30	
	1716							11 13	→	→	11 25	→	11 25	11 31	11 37	11 42	11 48	11 55	12 01	12 07	12 14	12 21	12 30	
18K	18490		09 50	10 04	10 26	10 39	10 55	11 13	11 23	11 30	11 40	→	11 13	11 19	11 25	11 30	11 36	11 42	11 48	11 54	12 00	12 06	12 12	
	1718							12 13	→	→	12 25	→	12 25	12 31	12 37	12 42	12 48	12 55	13 01	13 07	13 14	13 21	13 30	
18	18530								12 25	12 32	12 40	→	12 25	12 31	12 37	12 42	12 48	12 55	13 01	13 07	13 14	13 21	13 30	
	1720								13 13	→	→	→	13 13	13 19	13 25	13 30	13 36	13 42	13 48	13 54	14 00	14 06	14 12	
18K	18570		11 45	11 59	12 21	12 34	12 50	13 08	13 20	13 27	13 40	→	13 13	13 19	13 25	13 30	13 36	13 42	13 48	13 54	14 00	14 06	14 12	
	1722							14 13	→	→	14 25	→	14 13	14 19	14 25	14 30	14 36	14 42	14 48	14 54	15 00	15 06	15 12	

Monday to Friday (except holidays) Du lundi au vendredi (sauf les jours fériés)																								
EASTBOUND / EN DIRECTION EST																								
Route Number Numéro du trajet	Zone→	Niagara Falls 84 Niagara Falls GO	Dp St. Catharines 83 Brock University	Dp St. Catharines 83 St. Catharines GO	Beamsville 82 Ontario St. @ QEW	Grimsby 81 Casablanca Blvd. @ QEW	Centennial Pkwy. N. @ QEW Hamilton 18	Dp West Harbour GO	Hamilton 18 Hamilton GO Centre	Dp Hamilton 18 King St. W. @ Dundurn St. N.	Burlington 17 Aldershot GO	Transfer - Correspondances Burlington 17	Dp Aldershot GO	Burlington 16 Burlington GO	Burlington 15 Appleby GO	Oakville 14 Bronte GO	Oakville 13 Oakville GO	Mississauga 12 Clarkson GO	Mississauga 10 Port Credit GO	Etobicoke 9 Long Branch GO	Etobicoke 79 Mimico GO	Toronto 2 Exhibition GO	Toronto 2 Union Station	At
18	18610								14 23	14 26	14 40	→	14 23	14 26	14 40	→	→	14 55	15 01	15 07	15 12	15 18	15 25	
	1724								15 13	→	→	→	15 13	15 16	15 20	15 24	15 28	15 35	15 41	15 46	15 51	15 56	16 01	
18K	18650		13 45	13 59	14 21	14 34	14 50	15 08	15 20	15 27	15 40	→	15 13	15 16	15 20	15 24	15 28	15 35	15 41	15 46	15 51	15 56	16 01	
	1726							16 13	→	→	→	→	16 13	16 16	16 20	16 24	16 28	16 35	16 41	16 46	16 51	16 56	17 01	
18	18690								16 23	16 33	16 40	→	16 23	16 26	16 30	16 34	16 38	16 45	16 51	16 56	17 01	17 06	17 11	
	1728							17 13	→	→	→	→	17 13	17 16	17 20	17 24	17 28	17 35	17 41	17 46	17 51	17 56	18 01	
18K	18730		15 45	15 59	16 21	16 34	16 50	17 08	17 20	17 27	17 40	→	17 13	17 16	17 20	17 24	17 28	17 35	17 41	17 46	17 51	17 56	18 01	
	1730							18 13	→	→	→	→	18 13	18 16	18 20	18 24	18 28	18 35	18 41	18 46	18 51	18 56	19 01	
18K	18770		16 45	16 59	17 21	17 34	17 50	18 08	18 20	18 27	18 40	→	18 13	18 16	18 20	18 24	18 28	18 35	18 41	18 46	18 51	18 56	19 01	
18	18790								18 55	19 02	19 10↓	→	18 55	19 02	19 10	→	→	19 15	19 21	19 26	19 31	19 36	19 41	
	1732							19 13	→	→	→	→	19 13	19 16	19 20	19 24	19 28	19 35	19 41	19 46	19 51	19 56	20 01	
	1034								19 55	20 01	20 07	→	19 55	20 01	20 07	20 12	20 18	20 25	20 31	20 36	20 41	20 46	20 51	
18K	18830		18 20	18 34	18 56	19 09	19 25	19 43	19 53	20 00	20 10↓	→	19 43	19 46	19 50	19 54	19 58	20 05	20 11	20 16	20 21	20 26	20 31	
	1734							20 13	→	→	→	→	20 13	20 16	20 20	20 24	20 28	20 35	20 41	20 46	20 51	20 56	21 01	
18	18860								20 55	21 02	21 10↓	→	20 55	21 02	21 10	→	→	21 05	21 11	21 16	21 21	21 26	21 31	
	1036											→	20 55	21 01	21 07	21 12	21 18	21 25	21 31	21 36	21 41	21 46	21 51	
	1736							21 13	→	→	→	→	21 13	21 16	21 20	21 24	21 28	21 35	21 41	21 46	21 51	21 56	22 01	
	1038											→	21 13	21 19	21 24	21 29	21 34	21 41	21 47	21 52	21 57	22 02	22 07	
18K	18880		20 25	20 38	21 00	21 11	21 25	21 43	21 53	22 00	22 10↓	→	21 43	21 46	21 50	21 54	21 58	22 05	22 11	22 16	22 21	22 26	22 31	
	1738							22 13	→	→	→	→	22 13	22 16	22 20	22 24	22 28	22 35	22 41	22 46	22 51	22 56	23 01	
	1040											→	22 13	22 19	22 24	22 29	22 34	22 41	22 47	22 52	22 57	23 02	23 07	
18	18920								22 55	23 02	23 10↓	→	22 55	23 01	23 07	23 12	23 18	23 25	23 31	23 36	23 41	23 46	23 51	
	1740							23 13	→	→	→	→	23 13	23 16	23 20	23 24	23 28	23 35	23 41	23 46	23 51	23 56	24 01	

**Saturday and Sunday
Samedi et dimanche**

WESTBOUND / EN DIRECTION OUEST

Route Number Numéro du trajet	Trip Number Numéro du parcours	Toronto 2 Union Station	Toronto 2 Exhibition GO	Toronto 79 Mimico GO	Toronto 59 Long Branch GO	Mississauga 10 Port Credit GO	Mississauga 12 Clarkson GO	Oakville 13 Oakville GO	Oakville 14 Bronte GO	Burlington 15 Appleby GO	Burlington 16 Burlington GO	Burlington 17 Aldershot GO	Ar	Transfer - Correspondances	Trip Number - Numéro du parcours	Burlington 17 Aldershot GO	Dp	Hamilton 18 Main St. W. @ Longwood Rd. S.	Hamilton 18 Hamilton GO Centre	Ar	Hamilton 18 West Harbour GO	Ar
18	1705	06 45	06 52	07 00	07 06	07 11	07 18	07 25	07 31	07 37	07 43	07 50	→		18081	08 00h	08 07	08 15	→	→	08 03	
	1007	07 15	07 22	07 30	07 36	07 41	07 48	07 55	08 01	08 07	08 13	08 20	→		18131	08 50↓	→	→	→	→	09 03	
	1707	07 45	07 52	08 00	08 06	08 11	08 18	08 25	08 31	08 37	08 43	08 50	→		18171	09 00h	09 07	09 15	→	→	10 03	
18	1009	08 15	08 22	08 30	08 36	08 41	08 48	08 55	09 01	09 07	09 13	09 20	→		18171	09 50↓	→	→	→	→	10 03	
	1709	08 45	08 52	09 00	09 06	09 11	09 18	09 25	09 31	09 37	09 43	09 50	→		18201	10 00h	10 07	10 15	→	→	11 03	
18	1011	09 15	09 22	09 30	09 36	09 41	09 48	09 55	10 01	10 07	10 13	10 20	→		18201	10 50↓	→	→	→	→	11 03	
	1711	09 45	09 52	10 00	10 06	10 11	10 18	10 25	10 31	10 37	10 43	10 50	→		18241	11 00h	11 07	11 15	→	→	12 03	
18	1013	10 15	10 22	10 30	10 36	10 41	10 48	10 55	11 01	11 07	11 13	11 20	→		18241	11 50↓	→	→	→	→	12 03	
	1713	10 45	10 52	11 00	11 06	11 11	11 18	11 25	11 31	11 37	11 43	11 50	→		18281	12 00h	12 07	12 17	→	→	13 03	
18	1015	11 15	11 22	11 30	11 36	11 41	11 48	11 55	12 01	12 07	12 13	12 20	→		18281	12 50↓	→	→	→	→	13 03	
	1715	11 45	11 52	12 00	12 06	12 11	12 18	12 25	12 31	12 37	12 43	12 50	→		18331	13 00h	13 07	13 17	→	→	14 03	
18	1017	12 15	12 22	12 30	12 36	12 41	12 48	12 55	13 01	13 07	13 13	13 20	→		18331	13 50↓	→	→	→	→	14 03	
	1717	12 45	12 52	13 00	13 06	13 11	13 18	13 25	13 31	13 37	13 43	13 50	→		18411	14 00h	14 07	14 17	→	→	15 03	
18	1019	13 15	13 22	13 30	13 36	13 41	13 48	13 55	14 01	14 07	14 13	14 20	→		18411	14 50↓	→	→	→	→	15 03	
	1719	13 45	13 52	14 00	14 06	14 11	14 18	14 25	14 31	14 37	14 43	14 50	→		18491	15 00h	15 07	15 17	→	→	16 03	
18	1021	14 15	14 22	14 30	14 36	14 41	14 48	14 55	15 01	15 07	15 13	15 20	→		18491	15 50↓	→	→	→	→	16 03	
	1721	14 45	14 52	15 00	15 06	15 11	15 18	15 25	15 31	15 37	15 43	15 50	→		18541	16 00h	16 07	16 17	→	→	17 03	
18	1023	15 15	15 22	15 30	15 36	15 41	15 48	15 55	16 01	16 07	16 13	16 20	→		18541	16 50↓	→	→	→	→	17 03	
	1723	15 45	15 52	16 00	16 06	16 11	16 18	16 25	16 31	16 37	16 43	16 50	→			17 00h	17 07	17 17	→	→	18 03	
18	1025	16 15	16 22	16 30	16 36	16 41	16 48	16 55	17 01	17 07	17 13	17 20	→			17 50↓	→	→	→	→	18 03	
	1725	16 45	16 52	17 00	17 06	17 11	17 18	17 25	17 31	17 37	17 43	17 50	→									

**Saturday and Sunday
Samedi et dimanche**

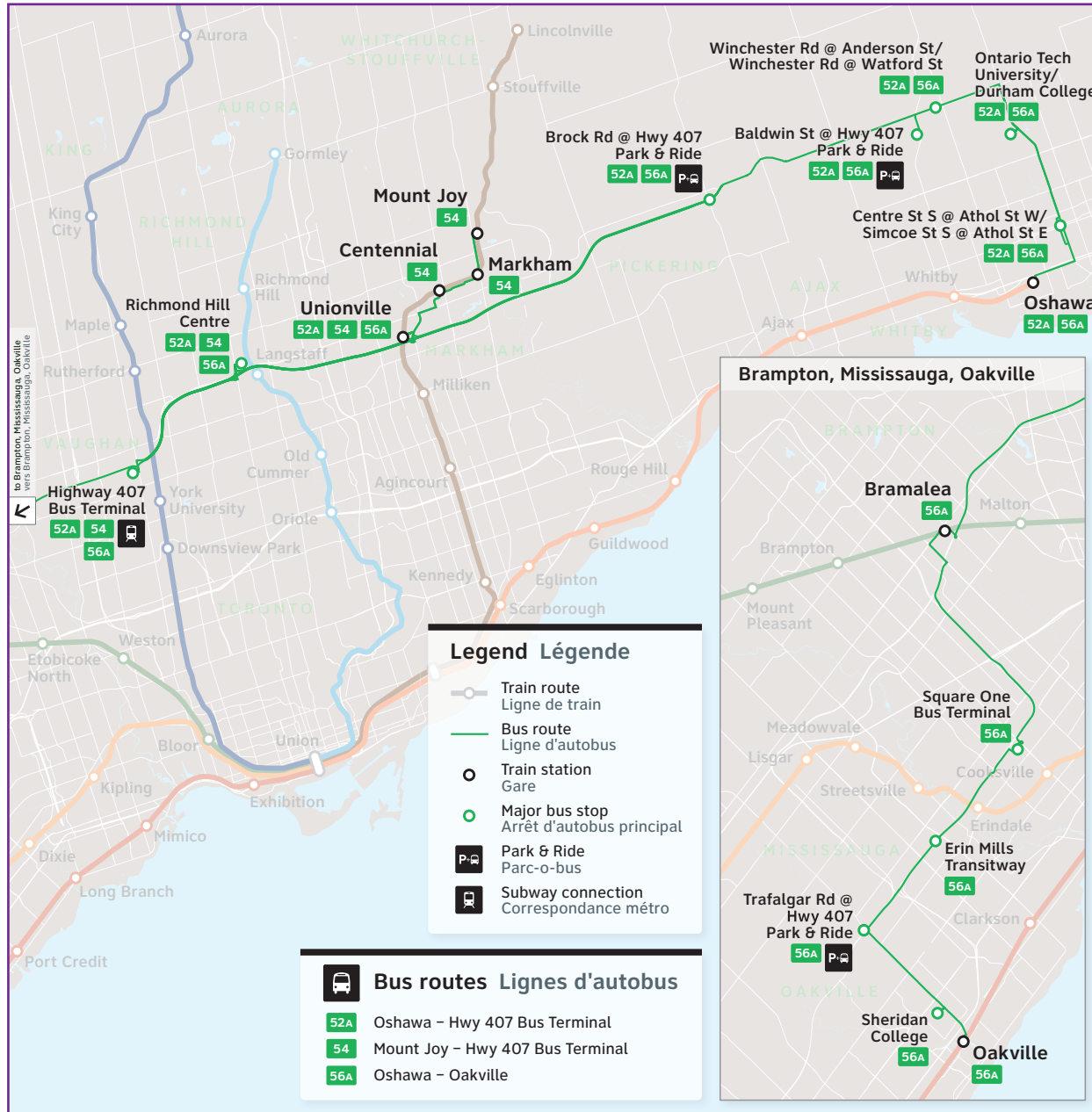
WESTBOUND / EN DIRECTION OUEST

Route Number Numéro du trajet	Trip Number Numéro du parcours	Toronto 2 Union Station	Toronto 2 Exhibition GO	Toronto 79 Mimico GO	Toronto 59 Long Branch GO	Mississauga 10 Port Credit GO	Mississauga 12 Clarkson GO	Oakville 13 Oakville GO	Oakville 14 Bronte GO	Burlington 15 Appleby GO	Burlington 16 Burlington GO	Burlington 17 Aldershot GO	Ar	Transfer - Correspondances	Trip Number - Numéro du parcours	Burlington 17 Aldershot GO	Dp	Hamilton 18 Main St. W. @ Longwood Rd. S.	Hamilton 18 Hamilton GO Centre	Ar	Hamilton 18 West Harbour GO	Ar
18															18641	18 00h	18 07	18 17				
	1027	17 15	17 22	17 30	17 36	17 41	17 48	17 55	18 01	18 07	18 13	18 20	→		18721	18 50↓	→	→	→	→	19 03	
	1727	17 45	17 52	18 00	18 06	18 11	18 18	18 25	18 31	18 37	18 43	18 50	→		18781	19 00h	19 07	19 17				
18	1029	18 15	18 22	18 30	18 36	18 41	18 48	18 55	19 01	19 07	19 13	19 20	→		18781	19 50↓	→	→	→	→	20 03	
	1729	18 45	18 52	19 00	19 06	19 11	19 18	19 25	19 31	19 37	19 43	19 50	→		18841	20 00h	20 07	20 17				
18	1031	19 15	19 22	19 30	19 36	19 41	19 48	19 55	20 01	20 07	20 13	20 20	→		18841	20 50↓	→	→	→	→	21 03	
	1731	19 45	19 52	20 00	20 06	20 11	20 18	20 25	20 31	20 37	20 43	20 50	→		18871	21 00h	21 07	21 15				
18	1033	20 15	20 22	20 30	20 36	20 41	20 48	20 55	21 01	21 07	21 13	21 20	→		18871	21 50↓	→	→	→	→	22 03	
	1733	20 45	20 52	21 00	21 06	21 11	21 18	21 25	21 31	21 37	21 43	21 50	→		18901	22 00h	22 07	22 15				
18	1035	21 15	21 22	21 30	21 36	21 41	21 48	21 55	22 01	22 07	22 13	22 20	→		18901	22 50↓	→	→	→	→	23 03	
	1735	21 45	21 52	22 00	22 06	22 11	22 18	22 25	22 31	22 37	22 43	22 50	→		18931	23 00h	23 07	23 15				
18	1037	22 15	22 22	22 30	22 36	22 41	22 48	22 55	23 01	23 07	23 13	23 20	→		18931	23 50↓	→	→	→	→	00 03	
	1737	22 45	22 52	23 00	23 06	23 11	23 18	23 25	23 31	23 37	23 43	23 50	→		18961	00 00h	00 07	00 15				
18	1039	23 15	23 22	23 30	23 36	23 41	23 48	23 55	00 01	00 07	00 13	00 20	→		18961	00 50↓	→	→	→	→	01 03	
	1739	23 45	23 52	00 01	00 06	00 11	00 18	00 25	00 31	00 37	00 43	00 50	→		18981	01 00h	01 07	01 15				
18	1041	00 15	00 22	00 30	00 36	00 41	00 48	00 55	01 01	01 07	01 13	01 20	→		18981	01 50↓	→	→	→	→	02 03	
	1741	00 45	00 52	01 00	01 06	01 11	01 18	01 25	01 31	01 37	01 43	01 50	→			02 00h	02 07	02 15				
18C	18991	01 30	→	→	→	01 48	01 58	02 07	02 15	02 25	02 33	02 43	→			02 43	D02 50	D03 00				
18C	18999	02 30	→	→	→	02 48	02 58	03 07	03 15	03 25	03 33	03 43	→			03 43	D03 50	D04 00				

52-54-56

Oshawa/Oakville

Route number
Numéro du trajet



CONTACT US

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gotransit.com/schedules

@GOtransitBus

See Something?
Say Something.
24/7 Transit Safety Dispatch:
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prestocard.ca

Sign-up for email or
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alertes par courriel ou
message texte.
gotransit.com/OnTheGO

*Face coverings are mandatory on
GO Transit. Let's keep each other safe.*

*Le port d'un masque est obligatoire lors de
vos trajets sur GO Transit. Protégeons notre
santé les uns les autres.*

Oshawa/ Oakville



GO Bus Schedule/
Horaire des autobus GO



52 54 56

- Oshawa
- Whitby
- Pickering
- Markham
- Richmond Hill
- Hwy. 407 Bus Terminal
- Brampton
- Mississauga
- Oakville

Daily / Quotidiennement

Includes GO Bus routes 52, 54,
56 / Inclut les trajets 52, 54, 56
d'autobus GO

Effective / À partir de:
2 APRIL
AVRIL **2022**



How to read our schedules

Step 1

Find the station or terminal you are departing from. Stops are listed across the top in the order they are served.

Step 2

The upper left corner tells you what day the schedule is for and the direction of travel.

Step 3

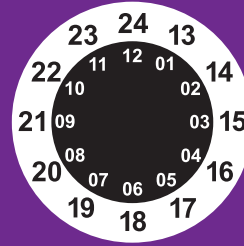
Look across the rows for available departure times.

Step 4





Not all trains or buses stop at every station. If you see → the train or bus will not stop at that station.

Schedule times shown in 24-hour clock

Midnight to noon
00 01 - 12 00
Noon to midnight
12 01 - 24 00



Legend

-  Bus trips
-  Trip does not serve this location.
-  GO Bus service is accessible to passengers using mobility devices at this location.
-  Parking available.

For the latest schedule information and updates, please visit gotransit.com/schedules.

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Notes

Bicycles

1. Bicycles are not allowed in Union Station or on-board trains during morning rush hour (6:30-9:30) and evening rush hour (15:30-18:30), Monday to Friday.
2. Foldable bicycles are allowed on-board trains at all times.

Comment lire nos horaires

Étape 1

Trouvez votre gare ou terminus de départ. La liste des arrêts est donnée en haut dans l'ordre dans lequel ils sont desservis.

Étape 2

Le coin supérieur gauche vous indique le jour pour lequel l'horaire est donné et la direction de circulation.

Étape 3

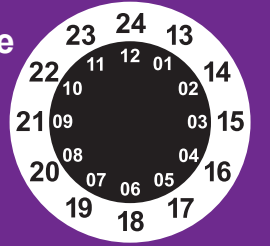
Regardez dans les rangées pour obtenir les heures de départ offertes.

Étape 4





Les trains ou les autobus ne s'arrêtent pas tous à chaque gare. Si vous voyez le symbole → le train ou l'autobus ne s'arrêtera pas à cette gare.

Indications selon un système horaire de 24 heures

De minuit à midi:
00 01 - 12 00
De midi à minuit:
12 01 - 24 00



Légende

-  Horaire des autobus
-  Trajet ne sert pas cette station.
-  Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.
-  Stationnement disponible.

Pour consulter les horaires les plus récents et les mises à jour, veuillez visiter gotransit.com/schedules.

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Notes

Vélos

1. Les vélos ne sont pas autorisés dans la gare Union ou à bord des trains du lundi au vendredi, pendant l'heure de pointe (6:30-9:30) et pendant l'heure de pointe du soir (15:30-18:30).
2. Les vélos pliables sont permis à bord des trains en tout temps.

Monday to Friday (except holidays)														
Du lundi au vendredi (sauf les jours fériés)														
WESTBOUND / EN DIRECTION OUEST														
Route Number	Zone	Oshawa 94	Oshawa 94	Oshawa 88	Whitby 51	Whitby 51	Pickering 87	Pickering 86	Markham 73	Markham 72	Markham 72	Markham 71	Richmond Hill 60	Ar
Número du trajet	Número du parcours	Oshawa GO	Simcoe St. S. @ Athol St. E.	Ontario Tech University/Durham College	Winchester Rd. @ Watford St.	Baldwin St. @ Hwy. 407	Winchester Rd. W. @ Lake Ridge Rd.	Brock Rd. @ Hwy. 407	Mount Joy GO	Main St. N. @ Station St. - Markham GO	Bullock Dr. @ McCowan Rd. - Centennial GO	Unionville GO	Richmond Hill Centre	Hwy. 407 Bus Terminal
56A	56000	03 45	03 55	04 07	04 14	04 19	04 25	04 33	→	→	→	04 50	05 02	05 15
56A	56010	04 35	04 45	04 57	05 04	05 09	05 15	05 23	→	→	→	05 40	05 52	06 05
54	54050							05 40	05 44	05 48	05 55	06 07	06 20	
56A	56030	05 05	05 15	05 27	05 34	05 39	05 45	05 53	→	→	→	06 10	06 22	06 35
54	54080							06 10	06 14	06 18	06 25	06 37	06 50	
56A	56050	05 35	05 45	05 57	06 04	06 09	06 15	06 23	→	→	→	06 40	06 52	07 05
54	54130							07 00	07 05	07 12	07 25	07 37	07 50	
56A	56100	06 30	06 40	06 53	07 00	07 05	07 11	07 20	→	→	→	07 40	07 52	08 05
54	54180							07 55	08 00	08 09	08 25	08 37	08 50	
56A	56120	07 05	07 15	07 28	07 37	07 42	07 49	07 58	→	→	→	08 20	08 32	08 45
56A	56160	07 30	07 40	07 53	08 02	08 07	08 14	08 23	→	→	→	08 45	08 57	09 10
54	54240							08 55	09 00	09 07	09 20	09 32	09 45	
56A	56180	08 00	08 10	08 23	08 30	08 35	08 41	08 50	→	→	→	09 10	09 22	09 35
54	54280							10 00	10 05	10 12	10 25	10 37	10 50	
56A	56230	09 00	09 10	09 23	09 30	09 35	09 41	09 50	→	→	→	10 10	10 22	10 35
54	54320							11 05	11 10	11 15	11 25	11 37	11 50	
56A	56270	10 00	10 10	10 23	10 30	10 35	10 41	10 50	→	→	→	11 10	11 22	11 35
54	54360							12 05	12 10	12 15	12 25	12 37	12 50	
56A	56310	11 00	11 10	11 23	11 30	11 35	11 41	11 50	→	→	→	12 10	12 22	12 35
54	54400							13 05	13 10	13 15	13 25	13 37	13 50	
56A	56350	12 00	12 10	12 23	12 30	12 35	12 41	12 50	→	→	→	13 10	13 22	13 35
54	54440							14 05	14 10	14 15	14 25	14 37	14 50	
56A	56390	12 55	13 05	13 18	13 25	13 30	13 36	13 45	→	→	→	14 05	14 17	14 30
54	54480							15 00	15 05	15 10	15 20	15 32	15 45	
56A	56430	14 00	14 10	14 23	14 30	14 35	14 41	14 50	→	→	→	15 10	15 22	15 35
54	54540							16 00	16 05	16 10	16 20	16 32	16 45	
56A	56470	14 55	15 05	15 23	15 30	15 35	15 41	15 50	→	→	→	16 10	16 22	16 35
56A	56530	16 00	16 10	16 28	16 35	16 40	16 46	16 55	→	→	→	17 15	17 27	17 40
54	54600							17 05	17 10	17 15	17 25	17 37	17 50	
56A	56590	16 55	17 05	17 23	17 30	17 35	17 41	17 50	→	→	→	18 10	18 22	18 35
54	54660							18 05	18 10	18 15	18 25	18 37	18 50	
56A	56650	17 55	18 05	18 23	18 30	18 35	18 41	18 50	→	→	→	19 10	19 22	19 35
56A	56680	18 35	18 45	18 58	19 05	19 10	19 16	19 25	→	→	→	19 45	19 57	20 10
54	54700							19 05	19 10	19 15	19 25	19 37	19 50	
54	54740							20 05	20 10	20 15	20 25	20 37	20 50	
56A	56720	19 35	19 45	19 57	20 04	20 09	20 15	20 23	→	→	→	20 40	20 52	21 05
54	54780							21 10	21 14	21 18	21 25	21 37	21 50	
56A	56760	20 35	20 45	20 57	21 04	21 09	21 15	21 23	→	→	→	21 40	21 52	22 05
54	54820							22 10	22 14	22 18	22 25	22 37	22 50	
56A	56800	21 35	21 45	21 57	22 04	22 09	22 15	22 23	→	→	→	22 40	22 52	23 05
56A	56830	22 35	22 45	22 57	23 04	23 09	23 15	23 23	→	→	→	23 40	23 52	00 05

Monday to Friday (except holidays)														
Du lundi au vendredi (sauf les jours fériés)														
EASTBOUND / EN DIRECTION EST														
Route Number	Zone	Oakville 13	Oakville 13	Oakville 13	Mississauga 21	Mississauga 20	Brampton 32	Vaughan 19	Ar	Vaughan 19	Richmond Hill 60	Markham 71	Markham 72	Ar
Número du trajet	Número du parcours	Oakville GO	Sheridan College	Trafalgar Rd. @ Hwy. 407	Erin Mills Transitway Station	Square One	Bramalea GO	Hwy. 407 Bus Terminal	Hwy. 407 Bus Terminal	Richmond Hill Centre	Unionville GO	Bullock Dr. @ McCowan Rd. - Centennial GO	Main St. N. @ Ramona Blvd. - Markham GO	Mount Joy GO
56A	56041	05 15	05 20	05 29	05 37	05 50	06 07	06 25	06 30	06 40	06 55	→	→	→
54	54111								06 40	06 50	07 05	07 12	07 18	07 25
54	54141								07 10	07 20	07 35	07 42	07 48	07 55
56A	56081	06 15	06 23	06 34	06 42	07 00	07 17	07 35	07 40	07 50	08 05	→	→	→
54	54201								08 10	08 20	08 35	08 42	08 48	08 55
56A	56131	07 10	07 18	07 29	07 37	07 55	08 15	08 35	08 40	08 50	09 05	→	→	→
54	54241								09 10	09 20	09 35	09 42	09 48	09 55
56A	56201	08 10	08 18	08 32	08 40	08 55	09 15	09 35	09 40	09 50	10 05	→	→	→
54	54281								10 10	10 20	10 35	10 42	10 48	10 55
56A	56251	09 15	09 23	09 37	09 45	10 00	10 17	10 35	10 40	10 50	11 05	→	→	→
54	54321								11 10	11 20	11 35	11 42	11 48	11 55
56A	56291	10 15	10 23	10 37	10 45	11 00	11 17	11 35	11 40	11 50	12 05	→	→	→
54	54361								12 10	12 20	12 35	12 42	12 48	12 55
56A	56331	11 15	11 23	11 37	11 45	12 00	12 17	12 35	12 40	12 50	13 05	→	→	→
54	54401								13 10	13 20	13 35	13 42	13 48	13 55
56A	56371	12 15	12 23	12 37	12 45	13 00	13 17	13 35	13 40	13 50	14 05	→	→	→
54	54441								14 10	14 20	14 35	14 42	14 48	14 55
56A	56411	13 15	13 23	13 37	13 45	14 00	14 17	14 35	14 40	14 50	15 05	→	→	→
54	54491								15 10	15 20	15 35	15 43	15 50	16 00
54	54551								16 05	16 15	16 30	16 38	16 45	16 55
56A	56441	14 15	14 23	14 37	14 45	15 00	15 17	15 35	15 40	15 50	16 05	→	→	→
54	54611								17 05	17 15	17 30	17 38	17 45	17 55
56A	56481	15 10	15 18	15 32	15 40	15 55	16 15	16 35	16 40	16 50	17 05	→	→	→
56A	56541	16 10	16 18	16 32	16 40	16 55	17 15	17 35	17 40	17 50	18 05	→	→	→
54	54661								18 10	18 20	18 35	18 43	18 50	19 00
56A	56601	17 10	17 21	17 35	17 45	18 00	18 20	18 40	18 45	18 55	19 10	→	→	→
54	54701								19 10	19 20	19 35	19 42	19 48	19 55
56A	56671	18 10	18 21	18 35	18 45	19 00	19 17	19 35	19 40	19 50	20 05	→	→	→
56A	56691	18 45	18 53	19 07	19 15	19 30	19 47	20 05	20 10	20 20	20 35	→	→	→
54	54741								20 10	20 20	20 35	20 42	20 48	20 55
56A	56731	19 50	19 56	20 07	20 15	20 30	20 47	21 05	21 10	21 20	21 35	→	→	→
54	54781								21 10	21 20	21 35	21 42	21 48	21 55
56A	56771	20 50	20 56	21 07	21 15	21 30	21 47	22 05	22 10	22 20	22 35	→	→	→
54	54821								22 10	22 20	22 35	22 42	22 48	22 55
56A	56811	21 50	21 56	22 07	22 15	22 30	22 47	23 05	23 10	23 20	23 35	→	→	→
54	54851								23 10	23 20	23 35	23 42	23 48	23 55
56A	56841	22 50	22 56	23 07	23 15	23 30	23 47	00 05	00 10	00 20	00 35	→	→	→

**Saturday and Sunday
Samedi et dimanche**

WESTBOUND / EN DIRECTION OUEST

Route Number Numéro du trajet	Trip Number Numéro du parcours	Zone →		Oshawa 94 Dp	Oshawa 94	Oshawa 88	Whitby 51	Whitby 51	Pickering 87	Pickering 86	Markham 71	Richmond Hill 60	Vaughan 19	Ar	
		Oshawa 94	Dp												
				Oshawa GO	Simcoe St. S. @ Athol St. E.	Ontario Tech University/Durham College	Winchester Rd. @ Watford St.	Baldwin St. @ Hwy. 407	Winchester Rd. W. @ Lake Ridge Rd.						
52A	52210	06 35	06 45	06 57	07 04	07 09	07 15	07 23	07 40	07 52	08 05				
52A	52360	08 35	08 45	08 57	09 04	09 09	09 15	09 23	09 40	09 52	10 05				
52A	52490	10 30	10 40	10 53	11 00	11 05	11 11	11 20	11 40	11 52	12 05				
52A	52560	12 30	12 40	12 53	13 00	13 05	13 11	13 20	13 40	13 52	14 05				
52A	52670	14 30	14 40	14 53	15 00	15 05	15 11	15 20	15 40	15 52	16 05				
52A	52790	16 30	16 40	16 53	17 00	17 05	17 11	17 20	17 40	17 52	18 05				
52A	52840	18 30	18 40	18 53	19 00	19 05	19 11	19 20	19 40	19 52	20 05				
52A	52880	20 35	20 45	20 57	21 04	21 09	21 15	21 23	21 40	21 52	22 05				
52A	52900	21 35	21 45	21 57	22 04	22 09	22 15	22 23	22 40	22 52	23 05				

**Saturday and Sunday
Samedi et dimanche**

EASTBOUND / EN DIRECTION EST

Route Number Numéro du trajet	Trip Number Numéro du parcours	Zone →		Vaughan 19 Dp	Richmond Hill 60	Markham 71	Pickering 86	Pickering 87	Whitby 51	Whitby 51	Oshawa 88	Oshawa 94	Oshawa 94	Ar
		Vaughan 19	Dp											
				Hwy. 407 Bus Terminal	Richmond Hill Centre			Winchester Rd. W. @ Lake Ridge Rd.	Baldwin St. @ Hwy. 407	Winchester Rd. @ Anderson St.				
52A	52151	08 25	08 35	08 50	09 05	09 12	09 18	09 22	09 32	09 42	09 55			
52A	52281	10 25	10 35	10 50	11 05	11 12	11 18	01 22	11 35	11 45	12 00			
52A	52351	12 25	12 35	12 50	13 05	13 12	13 18	13 22	13 35	13 45	14 00			
52A	52431	14 25	14 35	14 50	15 05	15 12	15 18	15 22	15 35	15 45	16 00			
52A	52621	16 25	16 35	16 50	17 05	17 12	17 18	17 22	17 35	17 45	18 00			
52A	52801	18 25	18 35	18 50	19 05	19 12	19 18	19 22	19 35	19 45	20 00			
52A	52861	20 25	20 35	20 50	21 05	21 12	21 18	21 22	21 32	21 42	21 55			
52A	52921	22 25	22 35	22 50	23 05	23 12	23 18	23 22	23 32	23 42	23 55			
52A	52951	23 25	23 35	23 50	00 05	00 12	00 18	00 22	00 32	00 42	00 55			

APPENDIX E

Traffic Data

DRAFT



Turning Movement Count (1 . TRAFALGAR RD & NORTH SERVICE RD / QEW WB ON-OFF RAMPS)

Start Time	N Approach TRAFALGAR RD						E Approach QEW WB ON RAMPS				S Approach TRAFALGAR RD					W Approach NORTH SERVICE RD E					SW Approach QEW WB ON RAMPS				NE Approach QEW WB OFF RAMPS					Int. Total (15 min)	Int. Total (1 hr)		
	Right N:W	Bear Right N:SW	Thru N:S	UTurn N:N	Peds N:	Approach Total	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Hard Right W:SW	Right W:S	Left W:N	UTurn W:W	Peds W:	Approach Total	UTurn SW:SW	Peds SW:	Approach Total	Hard Right NE:N	Bear Right NE:W	Thru NE:SW	Bear Left NE:S	UTurn NE:NE			Peds NE:	Approach Total
06:00:00	0	48	85	0	0	133	0	0	0	13	78	0	0	0	91	2	5	0	0	0	7	0	0	0	26	2	0	15	0	0	43	274	
06:15:00	1	66	71	0	0	138	0	0	0	13	100	0	0	0	113	3	2	1	0	1	6	0	3	0	29	0	0	32	0	0	61	318	
06:30:00	0	77	145	0	0	222	0	0	0	27	100	0	0	0	127	3	8	1	0	3	12	0	3	0	46	0	0	44	0	1	90	451	
06:45:00	0	76	141	0	0	217	0	1	0	30	153	0	0	0	183	5	11	0	0	1	16	0	1	0	51	3	0	66	0	2	120	536	1579
07:00:00	0	101	178	0	0	279	0	0	0	30	134	0	0	0	164	9	12	0	0	2	21	0	1	0	36	1	0	58	0	0	95	559	1864
07:15:00	1	124	226	0	0	351	0	1	0	39	177	0	0	0	216	9	15	1	0	1	25	0	2	0	74	3	0	58	0	1	135	727	2273
07:30:00	0	153	262	0	0	415	0	2	0	48	228	0	0	0	276	10	18	0	0	3	28	0	3	0	48	3	0	81	0	2	132	851	2673
07:45:00	0	173	319	0	0	492	0	1	0	41	297	0	0	0	338	13	14	1	0	0	28	0	0	0	80	8	1	81	0	1	170	1028	3165
08:00:00	0	209	335	0	0	544	0	0	0	51	278	0	0	0	329	13	27	1	0	2	41	0	2	0	68	10	1	92	0	0	171	1085	3691
08:15:00	2	216	319	0	0	537	0	2	0	85	383	0	0	0	468	8	18	1	0	1	27	0	1	0	48	7	0	87	0	2	142	1174	4138
08:30:00	0	199	263	0	0	462	0	0	0	83	324	0	0	0	407	8	32	2	0	0	42	0	1	0	49	3	0	81	0	0	133	1044	4331
08:45:00	3	249	332	0	0	584	0	0	0	92	295	0	0	0	387	11	22	2	0	1	35	0	2	0	60	6	0	109	0	0	175	1181	4484
09:00:00	0	154	225	0	0	379	0	3	0	64	318	0	0	0	382	7	12	1	0	1	20	0	1	0	62	8	0	113	0	3	183	964	4363
09:15:00	2	156	217	0	0	375	0	0	0	76	287	0	0	0	363	2	19	0	0	1	21	0	2	0	50	14	1	104	0	0	169	928	4117
09:30:00	0	172	214	0	1	386	0	2	0	59	251	0	0	0	310	8	18	0	0	0	26	0	0	0	48	13	0	108	0	2	169	891	3964
09:45:00	0	132	229	0	0	361	0	0	0	64	265	0	0	0	329	14	18	1	0	2	33	0	1	0	62	12	0	143	0	0	217	940	3723
BREAK																																	
15:00:00	2	244	334	0	0	580	0	2	0	109	446	0	0	0	555	26	28	3	0	1	57	0	1	0	51	11	1	80	0	2	143	1335	
15:15:00	2	186	254	0	0	442	0	0	0	107	449	0	0	0	556	16	37	3	0	4	56	0	3	0	55	11	1	93	0	1	160	1214	
15:30:00	4	205	261	0	0	470	0	1	0	82	465	0	0	0	547	17	25	2	0	6	44	0	5	0	59	28	3	82	0	2	172	1233	
15:45:00	2	200	301	0	0	503	0	4	0	110	402	0	0	0	512	20	41	5	0	4	66	0	9	0	67	23	0	89	0	4	179	1260	5042
16:00:00	3	209	275	0	0	487	0	3	0	85	494	0	0	0	579	15	36	4	0	2	55	0	6	0	72	15	1	59	0	3	147	1268	4975
16:15:00	4	196	242	0	0	442	0	1	0	97	452	0	0	0	549	16	14	2	0	5	32	0	5	0	72	28	2	79	0	1	181	1204	4965
16:30:00	2	220	273	0	0	495	0	3	0	111	532	0	0	0	643	18	32	1	0	2	51	0	2	0	48	25	2	73	0	3	148	1337	5069
16:45:00	1	184	286	0	0	471	0	2	0	98	452	0	0	0	550	15	27	3	0	0	45	0	2	0	64	28	0	74	0	2	166	1232	5041
17:00:00	4	201	293	0	0	498	0	3	0	94	533	0	0	0	627	23	41	5	0	3	69	0	5	0	71	20	1	70	0	3	162	1356	5129
17:15:00	4	181	245	0	0	430	0	0	0	95	550	0	0	0	645	27	27	4	0	1	58	0	1	0	60	25	4	108	0	0	197	1330	5255
17:30:00	6	181	270	0	0	457	0	0	0	111	480	0	0	0	591	10	27	5	0	1	42	0	3	0	75	27	0	81	0	1	183	1273	5191
17:45:00	2	158	258	0	0	418	0	0	0	84	483	0	0	0	567	19	36	2	0	0	57	0	2	0	81	25	3	111	0	1	220	1262	5221
18:00:00	2	195	239	0	0	436	0	1	0	82	466	1	0	0	549	21	28	3	0	2	52	0	3	0	58	18	0	84	0	0	160	1197	5062
18:15:00	6	127	225	0	0	358	0	1	0	79	416	0	0	0	495	26	28	7	0	1	61	0	3	0	80	24	0	92	0	1	196	1110	4842
18:30:00	3	182	208	0	0	393	0	1	0	73	398	0	0	0	471	21	20	2	0	5	43	0	6	0	52	17	1	71	0	1	141	1048	4617
18:45:00	3	154	205	0	0	362	0	0	0	64	317	0	0	0	381	21	17	4	0	0	42	0	0	0	63	22	0	87	0	1	172	957	4312
Grand Total	59	5328	7730	0	1	13117	0	34	0	2296	11003	1	0	0	13300	436	715	67	0	56	1218	0	79	0	1865	440	22	2605	0	40	4932	32567	-
Approach%	0.4%	40.6%	58.9%	0%		-	0%	-		17.3%	82.7%	0%	0%		-	35.8%	58.7%	5.5%	0%		-	0%	-		37.8%	8.9%	0.4%	52.8%	0%		-	-	-
Totals %	0.2%	16.4%	23.7%	0%		40.3%	0%	0%		7.1%	33.8%	0%	0%		40.8%	1.3%	2.2%	0.2%	0%		3.7%	0%	0%		5.7%	1.4%	0.1%	8%	0%		15.1%	-	-
Heavy	2	148	263	0		-	0	-		65	349	0	0		-	6	12	1	0		-	0	-		53	4	0	80	0		-	-	-
Heavy %	3.4%	2.8%	3.4%	0%		-	0%	-		2.8%	3.2%	0%	0%		-	1.4%	1.7%	1.5%	0%		-	0%	-		2.8%	0.9%	0%	3.1%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-		-	-	-	-		-	-	-	-	-		-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-		-	-	-	-		-	-	-	-	-		-	-	-		-	-	-	-	-		-	-	-



Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (9.31 °C)

Start Time	N Approach TRAFALGAR RD						E Approach QEW WB ON RAMPS			S Approach TRAFALGAR RD						W Approach NORTH SERVICE RD E						SW Approach QEW WB ON RAMPS						NE Approach QEW WB OFF RAMPS						Int. Total (15 min)
	Right	Bear Right	Thru	UTurn	Peds	Approach Total	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Hard Right	Right	Left	UTurn	Peds	Approach Total	UTurn	Peds	Approach Total	Hard Right	Bear Right	Thru	Bear Left	UTurn	Peds	Approach Total			
08:00:00	0	209	335	0	0	544	0	0	0	51	278	0	0	0	329	13	27	1	0	2	41	0	2	0	68	10	1	92	0	0	171	1085		
08:15:00	2	216	319	0	0	537	0	2	0	85	383	0	0	0	468	8	18	1	0	1	27	0	1	0	48	7	0	87	0	2	142	1174		
08:30:00	0	199	263	0	0	462	0	0	0	83	324	0	0	0	407	8	32	2	0	0	42	0	1	0	49	3	0	81	0	0	133	1044		
08:45:00	3	249	332	0	0	584	0	0	0	92	295	0	0	0	387	11	22	2	0	1	35	0	2	0	60	6	0	109	0	0	175	1181		
Grand Total	5	873	1249	0	0	2127	0	2	0	311	1280	0	0	0	1591	40	99	6	0	4	145	0	6	0	225	26	1	369	0	2	621	4484		
Approach%	0.2%	41%	58.7%	0%	-	-	0%	-	-	19.5%	80.5%	0%	0%	-	-	27.6%	68.3%	4.1%	0%	-	-	0%	-	-	36.2%	4.2%	0.2%	59.4%	0%	-	-	-		
Totals %	0.1%	19.5%	27.9%	0%	-	47.4%	0%	0%	0%	6.9%	28.5%	0%	0%	-	35.5%	0.9%	2.2%	0.1%	0%	-	3.2%	0%	0%	0%	5%	0.6%	0%	8.2%	0%	-	13.8%	-		
PHF	0.42	0.88	0.93	0	-	0.91	0	-	-	0.85	0.84	0	0	-	0.85	0.77	0.77	0.75	0	-	0.86	0	-	-	0.83	0.65	0.25	0.85	0	-	0.89	-		
Heavy	0	29	53	0	-	82	0	-	-	16	60	0	0	-	76	0	1	0	0	-	1	0	-	-	8	1	0	16	0	-	25	-		
Heavy %	0%	3.3%	4.2%	0%	-	3.9%	0%	-	-	5.1%	4.7%	0%	0%	-	4.8%	0%	1%	0%	0%	-	0.7%	0%	-	-	3.6%	3.8%	0%	4.3%	0%	-	4%	-		
Lights	5	844	1196	0	-	2045	0	-	-	295	1220	0	0	-	1515	40	98	6	0	-	144	0	-	-	217	25	1	353	0	-	596	-		
Lights %	100%	96.7%	95.8%	0%	-	96.1%	0%	-	-	94.9%	95.3%	0%	0%	-	95.2%	100%	99%	100%	0%	-	99.3%	0%	-	-	96.4%	96.2%	100%	95.7%	0%	-	96%	-		
Single-Unit Trucks	0	13	14	0	-	27	0	-	-	3	19	0	0	-	22	0	0	0	0	-	0	0	-	-	6	1	0	11	0	-	18	-		
Single-Unit Trucks %	0%	1.5%	1.1%	0%	-	1.3%	0%	-	-	1%	1.5%	0%	0%	-	1.4%	0%	0%	0%	0%	-	0%	0%	-	-	2.7%	3.8%	0%	3%	0%	-	2.9%	-		
Buses	0	6	37	0	-	43	0	-	-	10	38	0	0	-	48	0	1	0	0	-	1	0	-	-	0	0	0	2	0	-	2	-		
Buses %	0%	0.7%	3%	0%	-	2%	0%	-	-	3.2%	3%	0%	0%	-	3%	0%	1%	0%	0%	-	0.7%	0%	-	-	0%	0%	0%	0.5%	0%	-	0.3%	-		
Articulated Trucks	0	10	2	0	-	12	0	-	-	3	3	0	0	-	6	0	0	0	0	-	0	0	-	-	2	0	0	3	0	-	5	-		
Articulated Trucks %	0%	1.1%	0.2%	0%	-	0.6%	0%	-	-	1%	0.2%	0%	0%	-	0.4%	0%	0%	0%	0%	-	0%	0%	-	-	0.9%	0%	0%	0.8%	0%	-	0.8%	-		
Pedestrians	-	-	-	-	0	-	-	1	-	-	-	-	-	0	-	-	-	-	-	3	-	-	5	-	-	-	-	-	-	1	-	-		
Pedestrians%	-	-	-	-	0%	-	-	7.1%	-	-	-	-	-	0%	-	-	-	-	-	21.4%	-	-	35.7%	-	-	-	-	-	-	7.1%	-	-		
Bicycles on Crosswalk	-	-	-	-	0	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	1	-	-		
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	7.1%	-	-	-	-	-	0%	-	-	-	-	-	7.1%	-	-	7.1%	-	-	-	-	-	-	7.1%	-	-		



Peak Hour: 04:30 PM - 05:30 PM Weather: Overcast Clouds (19.92 °C)

Start Time	N Approach TRAFALGAR RD						E Approach QEW WB ON RAMPS			S Approach TRAFALGAR RD						W Approach NORTH SERVICE RD E						SW Approach QEW WB ON RAMPS						NE Approach QEW WB OFF RAMPS						Int. Total (15 min)
	Right	Bear Right	Thru	UTurn	Peds	Approach Total	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Hard Right	Right	Left	UTurn	Peds	Approach Total	UTurn	Peds	Approach Total	Hard Right	Bear Right	Thru	Bear Left	UTurn	Peds	Approach Total			
16:30:00	2	220	273	0	0	495	0	3	0	111	532	0	0	0	643	18	32	1	0	2	51	0	2	0	48	25	2	73	0	3	148	1337		
16:45:00	1	184	286	0	0	471	0	2	0	98	452	0	0	0	550	15	27	3	0	0	45	0	2	0	64	28	0	74	0	2	166	1232		
17:00:00	4	201	293	0	0	498	0	3	0	94	533	0	0	0	627	23	41	5	0	3	69	0	5	0	71	20	1	70	0	3	162	1356		
17:15:00	4	181	245	0	0	430	0	0	0	95	550	0	0	0	645	27	27	4	0	1	58	0	1	0	60	25	4	108	0	0	197	1330		
Grand Total	11	786	1097	0	0	1894	0	8	0	398	2067	0	0	0	2465	83	127	13	0	6	223	0	10	0	243	98	7	325	0	8	673	5255		
Approach%	0.6%	41.5%	57.9%	0%	-	-	0%	-	-	16.1%	83.9%	0%	0%	-	-	37.2%	57%	5.8%	0%	-	-	0%	-	-	36.1%	14.6%	1%	48.3%	0%	-	-			
Totals %	0.2%	15%	20.9%	0%	-	36%	0%	0%	0%	7.6%	39.3%	0%	0%	-	46.9%	1.6%	2.4%	0.2%	0%	-	4.2%	0%	0%	0%	4.6%	1.9%	0.1%	6.2%	0%	-	12.8%			
PHF	0.69	0.89	0.94	0	0	0.95	0	0	0	0.9	0.94	0	0	0	0.96	0.77	0.77	0.65	0	0	0.81	0	0	0	0.86	0.88	0.44	0.75	0	0	0.85			
Heavy	0	15	24	0	0	39	0	0	0	6	37	0	0	0	43	1	2	0	0	0	3	0	0	0	6	1	0	4	0	0	11			
Heavy %	0%	1.9%	2.2%	0%	0%	2.1%	0%	0%	0%	1.5%	1.8%	0%	0%	0%	1.7%	1.2%	1.6%	0%	0%	0%	1.3%	0%	0%	0%	2.5%	1%	0%	1.2%	0%	0%	1.6%			
Lights	11	771	1073	0	0	1855	0	0	0	392	2030	0	0	0	2422	82	125	13	0	0	220	0	0	0	237	97	7	321	0	0	662			
Lights %	100%	98.1%	97.8%	0%	0%	97.9%	0%	0%	0%	98.5%	98.2%	0%	0%	0%	98.3%	98.8%	98.4%	100%	0%	0%	98.7%	0%	0%	0%	97.5%	99%	100%	98.8%	0%	0%	98.4%			
Single-Unit Trucks	0	10	5	0	0	15	0	0	0	3	12	0	0	0	15	0	2	0	0	0	2	0	0	0	4	1	0	3	0	0	8			
Single-Unit Trucks %	0%	1.3%	0.5%	0%	0%	0.8%	0%	0%	0%	0.8%	0.6%	0%	0%	0%	0.6%	0%	1.6%	0%	0%	0%	0.9%	0%	0%	0%	1.6%	1%	0%	0.9%	0%	0%	1.2%			
Buses	0	3	19	0	0	22	0	0	0	1	24	0	0	0	25	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0			
Buses %	0%	0.4%	1.7%	0%	0%	1.2%	0%	0%	0%	0.3%	1.2%	0%	0%	0%	1%	1.2%	0%	0%	0%	0%	0.4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Articulated Trucks	0	2	0	0	0	2	0	0	0	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	3			
Articulated Trucks %	0%	0.3%	0%	0%	0%	0.1%	0%	0%	0%	0.5%	0%	0%	0%	0%	0.1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.8%	0%	0%	0.3%	0%	0%	0.4%			
Pedestrians	-	-	-	-	0	-	-	4	-	-	-	-	-	0	-	-	-	-	-	5	-	-	7	-	-	-	-	-	4	-	-			
Pedestrians%	-	-	-	-	0%	-	-	12.5%	-	-	-	-	-	0%	-	-	-	-	-	15.6%	-	-	21.9%	-	-	-	-	-	12.5%	-	-			
Bicycles on Crosswalk	-	-	-	-	0	-	-	4	-	-	-	-	-	0	-	-	-	-	-	1	-	-	3	-	-	-	-	-	4	-	-			
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	12.5%	-	-	-	-	-	0%	-	-	-	-	-	3.1%	-	-	9.4%	-	-	-	-	-	12.5%	-	-			

Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (9.31 °C)



Peak Hour: 04:30 PM - 05:30 PM Weather: Overcast Clouds (19.92 °C)





Turning Movement Count (2 . TRAFALGAR RD & QEW EB ON-OFF RAMPS)

Start Time	N Approach TRAFALGAR RD					E Approach QEW EB ON RAMPS				S Approach TRAFALGAR RD				W Approach QEW EB OFF RAMPS					NW Approach QEW EB ON RAMPS			Int. Total (15 min)	Int. Total (1 hr)
	Hard Right N:NW	Thru N:S	UTurn N:N	Peds N:	Approach Total	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	UTurn S:S	Peds S:	Approach Total	Right W:S	Left W:N	UTurn W:W	Peds W:	Approach Total	UTurn NW:NW	Peds NW:	Approach Total		
06:00:00	29	70	0	0	99	0	0	0	27	34	0	0	61	31	56	0	0	87	0	0	0	247	
06:15:00	43	64	0	0	107	0	2	0	43	45	0	0	88	34	67	0	2	101	0	2	0	296	
06:30:00	46	150	0	0	196	0	0	0	48	50	0	0	98	59	79	0	3	138	0	3	0	432	
06:45:00	58	163	0	0	221	0	1	0	64	89	0	0	153	71	93	0	1	164	0	1	0	538	1513
07:00:00	53	197	0	0	250	0	0	0	71	81	1	0	153	67	85	0	1	152	0	1	0	555	1821
07:15:00	69	225	0	0	294	0	1	0	73	114	0	0	187	66	110	0	1	176	0	1	0	657	2182
07:30:00	76	287	0	0	363	0	1	0	68	147	0	1	215	87	119	0	4	206	0	4	0	784	2534
07:45:00	91	295	0	0	386	0	0	0	93	162	0	1	255	123	185	0	0	308	0	0	0	949	2945
08:00:00	103	380	0	0	483	0	1	0	95	173	0	0	268	110	169	0	2	279	0	2	0	1030	3420
08:15:00	83	324	0	0	407	0	1	0	89	267	0	0	356	145	202	0	1	347	0	2	0	1110	3873
08:30:00	84	302	0	0	386	0	0	0	115	269	0	0	384	134	160	0	1	294	0	1	0	1064	4153
08:45:00	72	390	0	0	462	0	0	0	75	207	0	0	282	138	154	0	3	292	0	3	0	1036	4240
09:00:00	47	288	0	0	335	0	3	0	80	220	0	0	300	124	174	0	1	298	0	1	0	933	4143
09:15:00	55	302	0	0	357	0	2	0	91	227	0	0	318	104	129	0	2	233	0	2	0	908	3941
09:30:00	63	266	0	0	329	0	0	0	80	164	0	0	244	106	145	0	0	251	0	0	0	824	3701
09:45:00	67	337	0	0	404	0	0	0	98	200	0	0	298	106	140	0	2	246	0	2	0	948	3613
***BREAK**																							
15:00:00	95	330	0	0	425	0	2	0	132	349	0	0	481	104	193	0	4	297	0	4	0	1203	
15:15:00	85	307	0	0	392	0	0	0	116	373	0	0	489	95	180	0	4	275	0	4	0	1156	
15:30:00	76	307	0	0	383	0	2	0	104	374	0	1	478	84	185	0	4	269	0	3	0	1130	
15:45:00	74	348	0	0	422	0	4	0	98	349	0	0	447	86	156	0	9	242	0	9	0	1111	4600
16:00:00	65	305	0	0	370	0	3	0	126	397	0	1	523	66	203	0	6	269	0	6	0	1162	4559
16:15:00	56	283	0	0	339	0	1	0	99	354	0	0	453	84	194	0	4	278	0	4	0	1070	4473
16:30:00	76	309	0	0	385	0	3	0	109	425	0	0	534	68	217	0	3	285	0	3	0	1204	4547
16:45:00	78	297	0	0	375	0	2	0	100	329	0	0	429	85	207	0	2	292	0	2	0	1096	4532
17:00:00	75	335	0	0	410	0	2	0	109	441	0	1	550	73	206	0	4	279	0	5	0	1239	4609
17:15:00	52	296	0	0	348	0	0	0	136	386	0	0	522	58	245	0	2	303	0	1	0	1173	4712
17:30:00	51	359	0	0	410	0	0	0	116	381	0	0	497	87	202	0	3	289	0	3	0	1196	4704
17:45:00	44	331	0	0	375	0	0	0	85	361	0	1	446	92	226	0	2	318	0	2	0	1139	4747
18:00:00	58	332	0	0	390	0	0	0	121	369	0	1	490	88	182	0	3	270	0	3	0	1150	4658
18:15:00	57	281	0	0	338	0	1	0	94	309	0	0	403	90	172	0	4	262	0	4	0	1003	4488
18:30:00	61	223	0	0	284	0	1	0	92	298	0	0	390	70	181	0	5	251	0	5	0	925	4217
18:45:00	56	265	0	0	321	0	0	0	79	248	0	0	327	75	128	0	1	203	0	1	0	851	3929
Grand Total	2098	8948	0	0	11046	0	33	0	2926	8192	1	7	11119	2810	5144	0	84	7954	0	84	0	30119	-
Approach%	19%	81%	0%	-	-	0%	-	-	26.3%	73.7%	0%	-	-	35.3%	64.7%	0%	-	-	0%	-	-	-	-
Totals %	7%	29.7%	0%	-	36.7%	0%	0%	0%	9.7%	27.2%	0%	-	36.9%	9.3%	17.1%	0%	-	26.4%	0%	0%	0%	-	-
Heavy	60	295	0	-	-	0	-	-	78	287	0	-	-	82	123	0	-	-	0	-	-	-	-
Heavy %	2.9%	3.3%	0%	-	-	0%	-	-	2.7%	3.5%	0%	-	-	2.9%	2.4%	0%	-	-	0%	-	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (9.31 °C)

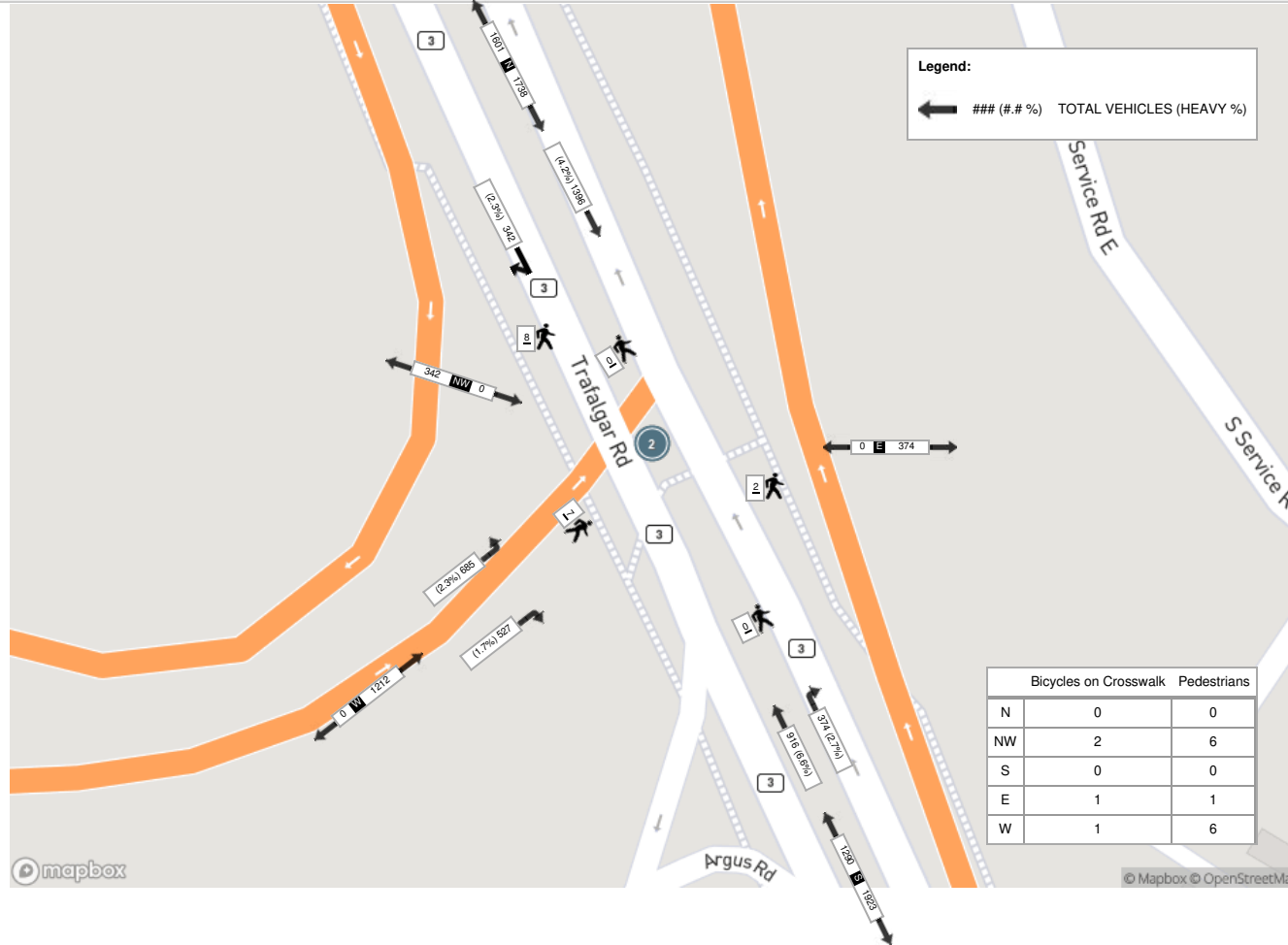
Start Time	N Approach TRAFALGAR RD					E Approach QEW EB ON RAMPS				S Approach TRAFALGAR RD					W Approach QEW EB OFF RAMPS					NW Approach QEW EB ON RAMPS			Int. Total (15 min)
	Hard Right	Thru	UTurn	Peds	Approach Total	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	UTurn	Peds	Approach Total		
08:00:00	103	380	0	0	483	0	1	0	95	173	0	0	268	110	169	0	2	279	0	2	0	1030	
08:15:00	83	324	0	0	407	0	1	0	89	267	0	0	356	145	202	0	1	347	0	2	0	1110	
08:30:00	84	302	0	0	386	0	0	0	115	269	0	0	384	134	160	0	1	294	0	1	0	1064	
08:45:00	72	390	0	0	462	0	0	0	75	207	0	0	282	138	154	0	3	292	0	3	0	1036	
Grand Total	342	1396	0	0	1738	0	2	0	374	916	0	0	1290	527	685	0	7	1212	0	8	0	4240	
Approach%	19.7%	80.3%	0%	-	-	0%	-	-	29%	71%	0%	-	-	43.5%	56.5%	0%	-	-	0%	-	-	-	
Totals %	8.1%	32.9%	0%	-	41%	0%	-	0%	8.8%	21.6%	0%	-	30.4%	12.4%	16.2%	0%	-	28.6%	0%	-	0%	-	
PHF	0.83	0.89	0	-	0.9	0	-	0	0.81	0.85	0	-	0.84	0.91	0.85	0	-	0.87	0	-	0	-	
Heavy	8	58	0	-	66	0	-	0	10	60	0	-	70	9	16	0	-	25	0	-	0	-	
Heavy %	2.3%	4.2%	0%	-	3.8%	0%	-	0%	2.7%	6.6%	0%	-	5.4%	1.7%	2.3%	0%	-	2.1%	0%	-	0%	-	
Lights	334	1338	0	-	1672	0	-	0	364	856	0	-	1220	518	669	0	-	1187	0	-	0	-	
Lights %	97.7%	95.8%	0%	-	96.2%	0%	-	0%	97.3%	93.4%	0%	-	94.6%	98.3%	97.7%	0%	-	97.9%	0%	-	0%	-	
Single-Unit Trucks	3	20	0	-	23	0	-	0	8	13	0	-	21	4	9	0	-	13	0	-	0	-	
Single-Unit Trucks %	0.9%	1.4%	0%	-	1.3%	0%	-	0%	2.1%	1.4%	0%	-	1.6%	0.8%	1.3%	0%	-	1.1%	0%	-	0%	-	
Buses	4	34	0	-	38	0	-	0	1	44	0	-	45	5	4	0	-	9	0	-	0	-	
Buses %	1.2%	2.4%	0%	-	2.2%	0%	-	0%	0.3%	4.8%	0%	-	3.5%	0.9%	0.6%	0%	-	0.7%	0%	-	0%	-	
Articulated Trucks	1	4	0	-	5	0	-	0	1	3	0	-	4	0	3	0	-	3	0	-	0	-	
Articulated Trucks %	0.3%	0.3%	0%	-	0.3%	0%	-	0%	0.3%	0.3%	0%	-	0.3%	0%	0.4%	0%	-	0.2%	0%	-	0%	-	
Pedestrians	-	-	-	0	-	-	1	-	-	-	-	0	-	-	-	-	6	-	-	6	-	-	
Pedestrians%	-	-	-	0%	-	-	5.9%	-	-	-	-	0%	-	-	-	-	35.3%	-	-	35.3%	-	-	
Bicycles on Crosswalk	-	-	-	0	-	-	1	-	-	-	-	0	-	-	-	-	1	-	-	2	-	-	
Bicycles on Crosswalk%	-	-	-	0%	-	-	5.9%	-	-	-	-	0%	-	-	-	-	5.9%	-	-	11.8%	-	-	



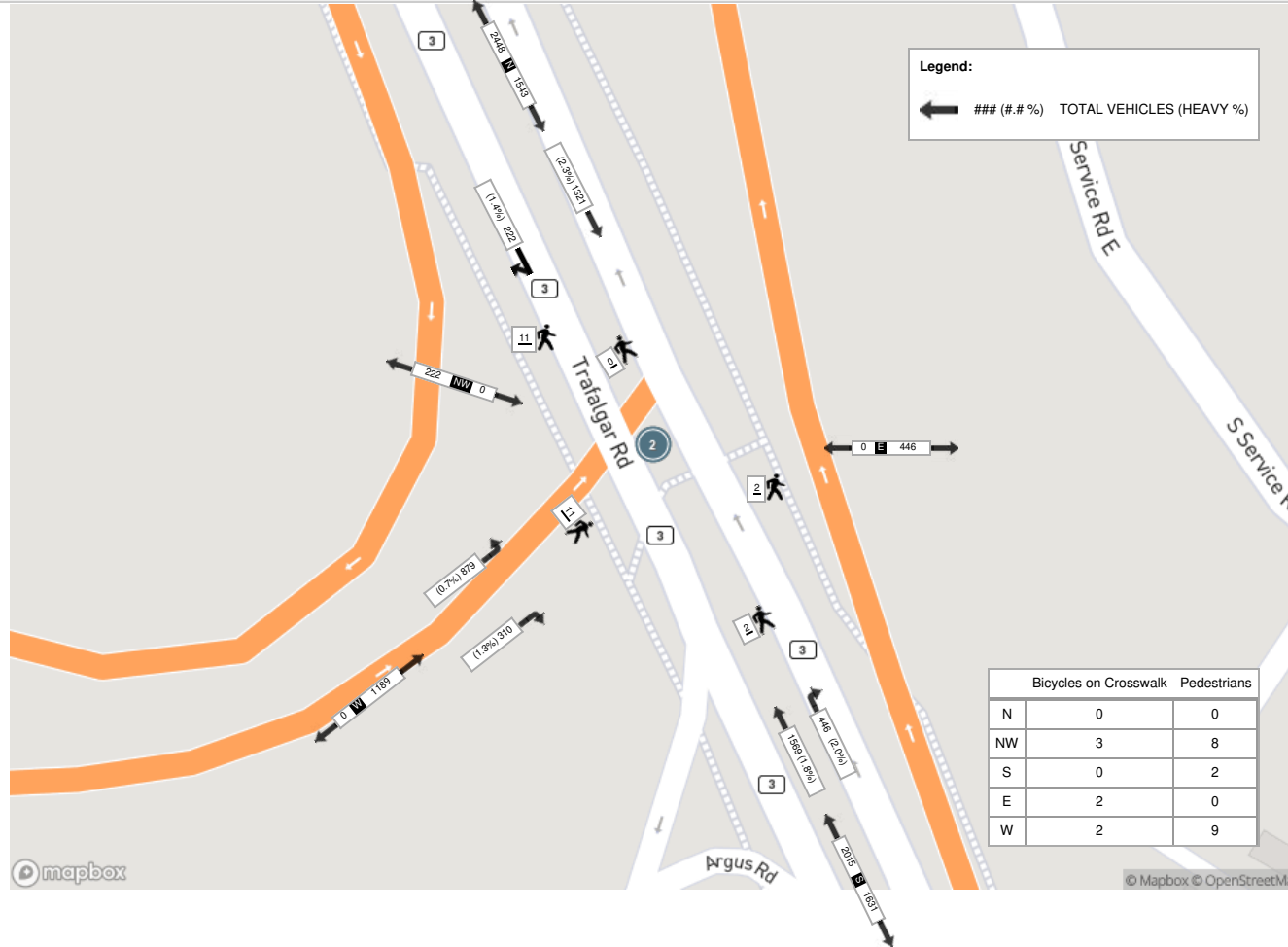
Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (19.92 °C)

Start Time	N Approach TRAFALGAR RD					E Approach QEW EB ON RAMPS				S Approach TRAFALGAR RD					W Approach QEW EB OFF RAMPS					NW Approach QEW EB ON RAMPS			Int. Total (15 min)
	Hard Right	Thru	UTurn	Peds	Approach Total	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	UTurn	Peds	Approach Total		
17:00:00	75	335	0	0	410	0	2	0	109	441	0	1	550	73	206	0	4	279	0	5	0	1239	
17:15:00	52	296	0	0	348	0	0	0	136	386	0	0	522	58	245	0	2	303	0	1	0	1173	
17:30:00	51	359	0	0	410	0	0	0	116	381	0	0	497	87	202	0	3	289	0	3	0	1196	
17:45:00	44	331	0	0	375	0	0	0	85	361	0	1	446	92	226	0	2	318	0	2	0	1139	
Grand Total	222	1321	0	0	1543	0	2	0	446	1569	0	2	2015	310	879	0	11	1189	0	11	0	4747	
Approach%	14.4%	85.6%	0%	-	-	0%	-	-	22.1%	77.9%	0%	-	-	26.1%	73.9%	0%	-	-	0%	-	-	-	
Totals %	4.7%	27.8%	0%	-	32.5%	0%	0%	0%	9.4%	33.1%	0%	-	42.4%	6.5%	18.5%	0%	-	25%	0%	0%	0%	-	
PHF	0.74	0.92	0	-	0.94	0	-	0	0.82	0.89	0	-	0.92	0.84	0.9	0	-	0.93	0	-	0	-	
Heavy	3	30	0	-	33	0	-	0	9	29	0	-	38	4	6	0	-	10	0	-	0	-	
Heavy %	1.4%	2.3%	0%	-	2.1%	0%	0%	0%	2%	1.8%	0%	-	1.9%	1.3%	0.7%	0%	-	0.8%	0%	0%	0%	-	
Lights	219	1291	0	-	1510	0	-	0	437	1540	0	-	1977	306	873	0	-	1179	0	-	0	-	
Lights %	98.6%	97.7%	0%	-	97.9%	0%	0%	0%	98%	98.2%	0%	-	98.1%	98.7%	99.3%	0%	-	99.2%	0%	0%	0%	-	
Single-Unit Trucks	2	8	0	-	10	0	-	0	8	5	0	-	13	0	3	0	-	3	0	-	0	-	
Single-Unit Trucks %	0.9%	0.6%	0%	-	0.6%	0%	0%	0%	1.8%	0.3%	0%	-	0.6%	0%	0.3%	0%	-	0.3%	0%	0%	0%	-	
Buses	0	21	0	-	21	0	-	0	0	22	0	-	22	3	0	0	-	3	0	-	0	-	
Buses %	0%	1.6%	0%	-	1.4%	0%	0%	0%	0%	1.4%	0%	-	1.1%	1%	0%	0%	-	0.3%	0%	0%	0%	-	
Articulated Trucks	1	1	0	-	2	0	-	0	1	2	0	-	3	1	3	0	-	4	0	-	0	-	
Articulated Trucks %	0.5%	0.1%	0%	-	0.1%	0%	0%	0%	0.2%	0.1%	0%	-	0.1%	0.3%	0.3%	0%	-	0.3%	0%	0%	0%	-	
Pedestrians	-	-	-	0	-	-	0	-	-	-	-	2	-	-	-	-	9	-	-	8	-	-	
Pedestrians%	-	-	-	0%	-	-	0%	-	-	-	7.7%	-	-	-	-	34.6%	-	-	30.8%	-	-	-	
Bicycles on Crosswalk	-	-	-	0	-	-	2	-	-	-	0	-	-	-	-	2	-	-	3	-	-	-	
Bicycles on Crosswalk%	-	-	-	0%	-	-	7.7%	-	-	-	0%	-	-	-	-	7.7%	-	-	11.5%	-	-	-	

Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (9.31 °C)



Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (19.92 °C)





Turning Movement Count (3 - TRAFALGAR RD & SOUTH SERVICE RD E / CROSS AVENUE)

Start Time	N Approach TRAFALGAR RD						E Approach SOUTH SERVICE RD E						S Approach TRAFALGAR RD						W Approach CROSS AVE						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	32	53	8	0	0	93	6	0	2	0	0	8	3	35	2	0	0	40	5	1	23	0	0	29	170	
06:15:00	22	48	9	0	0	79	3	0	1	0	2	4	4	61	2	0	0	67	4	6	17	0	1	27	177	
06:30:00	53	99	10	0	0	162	5	3	3	0	0	11	3	78	3	0	1	84	5	2	22	0	3	29	286	
06:45:00	29	155	22	1	1	207	9	4	2	0	1	15	4	103	5	0	2	112	11	5	26	0	1	42	376	1009
07:00:00	72	111	10	1	0	194	22	2	1	0	0	25	3	97	11	0	2	111	11	6	43	0	1	60	390	1229
07:15:00	69	159	18	4	0	250	7	4	2	0	3	13	3	131	8	0	1	142	10	5	41	0	2	56	461	1513
07:30:00	75	208	14	1	0	298	7	4	11	0	0	22	4	154	15	0	0	173	12	7	52	0	1	71	564	1791
07:45:00	71	249	32	0	0	352	16	6	2	0	0	24	7	181	11	0	1	199	15	10	72	0	2	97	672	2087
08:00:00	65	308	31	0	0	404	12	9	12	0	0	33	10	200	12	0	1	222	16	8	44	0	2	68	727	2424
08:15:00	48	313	35	0	0	396	19	9	4	0	1	32	0	268	23	0	1	291	22	8	70	0	0	100	819	2782
08:30:00	56	286	36	2	0	380	23	5	13	0	0	41	7	293	20	0	3	320	12	7	58	0	1	77	818	3036
08:45:00	42	336	34	2	0	414	18	9	5	0	2	32	6	202	18	0	2	226	19	7	52	0	1	78	750	3114
09:00:00	56	264	43	4	0	367	25	6	12	0	1	43	9	206	13	2	1	230	20	4	68	0	1	92	732	3119
09:15:00	51	270	31	0	0	352	23	4	5	0	2	32	11	224	19	0	2	254	23	5	61	0	2	89	727	3027
09:30:00	42	224	27	2	0	295	21	12	8	0	0	41	6	157	18	0	1	181	21	8	69	0	1	98	615	2824
09:45:00	49	305	28	0	0	382	9	8	15	0	0	32	10	198	25	0	1	233	27	9	75	0	2	111	758	2832
BREAK																										
15:00:00	37	269	33	0	0	339	39	14	12	0	1	65	8	330	24	0	0	362	22	16	110	0	3	148	914	
15:15:00	44	304	16	2	0	366	34	17	13	0	1	64	9	352	40	0	7	401	29	7	87	0	1	123	954	
15:30:00	51	265	23	1	0	340	37	12	11	0	2	60	9	357	10	0	2	376	23	12	89	0	5	124	900	
15:45:00	51	293	16	2	0	362	35	20	14	0	1	69	7	305	23	1	2	336	22	6	94	0	2	122	889	3657
16:00:00	43	256	19	4	0	322	43	10	18	0	4	71	10	373	30	0	3	413	29	8	96	0	4	133	939	3682
16:15:00	47	232	16	4	0	299	36	18	14	0	2	68	3	295	28	0	2	326	24	8	116	0	3	148	841	3569
16:30:00	47	283	15	3	0	348	44	12	11	0	3	67	11	356	28	1	1	396	31	8	103	0	2	142	953	3622
16:45:00	42	244	12	2	0	300	28	15	13	0	1	56	3	312	16	0	6	331	27	10	96	0	2	133	820	3553
17:00:00	48	295	23	4	0	370	51	16	18	0	3	85	14	346	21	0	4	381	32	8	127	0	3	167	1003	3617
17:15:00	41	265	20	0	0	326	47	19	22	0	0	88	6	329	15	0	1	350	21	9	147	0	2	177	941	3717
17:30:00	71	286	15	4	0	376	35	7	16	0	2	58	6	336	24	0	3	366	21	8	106	0	3	135	935	3699
17:45:00	46	311	10	3	0	370	27	11	8	0	0	46	5	272	28	2	0	307	29	9	149	0	0	187	910	3789
18:00:00	61	301	26	3	0	391	39	7	8	0	0	54	14	324	21	0	1	359	27	6	112	0	1	145	949	3735
18:15:00	47	262	17	5	0	331	31	4	8	0	2	43	5	253	14	1	2	273	25	8	118	0	1	151	798	3592
18:30:00	41	213	7	2	0	263	10	8	4	0	1	22	6	290	18	0	1	314	14	4	100	0	1	118	717	3374
18:45:00	63	234	7	4	0	308	10	7	4	0	0	21	6	211	10	0	2	227	21	3	66	0	3	90	646	3110
Grand Total	1612	7701	663	60	1	10036	771	282	292	0	35	1345	212	7629	555	7	56	8403	630	228	2509	0	57	3367	23151	-
Approach%	16.1%	76.7%	6.8%	0.6%		-	57.3%	21%	21.7%	0%		-	2.5%	90.8%	6.6%	0.1%		-	18.7%	6.8%	74.5%	0%		-	-	-
Totals %	7%	33.3%	2.9%	0.3%		43.4%	3.3%	1.2%	1.3%	0%		5.8%	0.9%	33%	2.4%	0%		36.3%	2.7%	1%	10.8%	0%		14.5%	-	-
Heavy	109	143	17	0		-	31	5	10	0		-	6	154	31	0		-	35	8	179	0		-	-	-
Heavy %	6.8%	1.9%	2.6%	0%		-	4%	1.8%	3.4%	0%		-	2.8%	2%	5.6%	0%		-	5.6%	3.5%	7.1%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-



Peak Hour: 08:15 AM - 09:15 AM Weather: Overcast Clouds (9.31 °C)

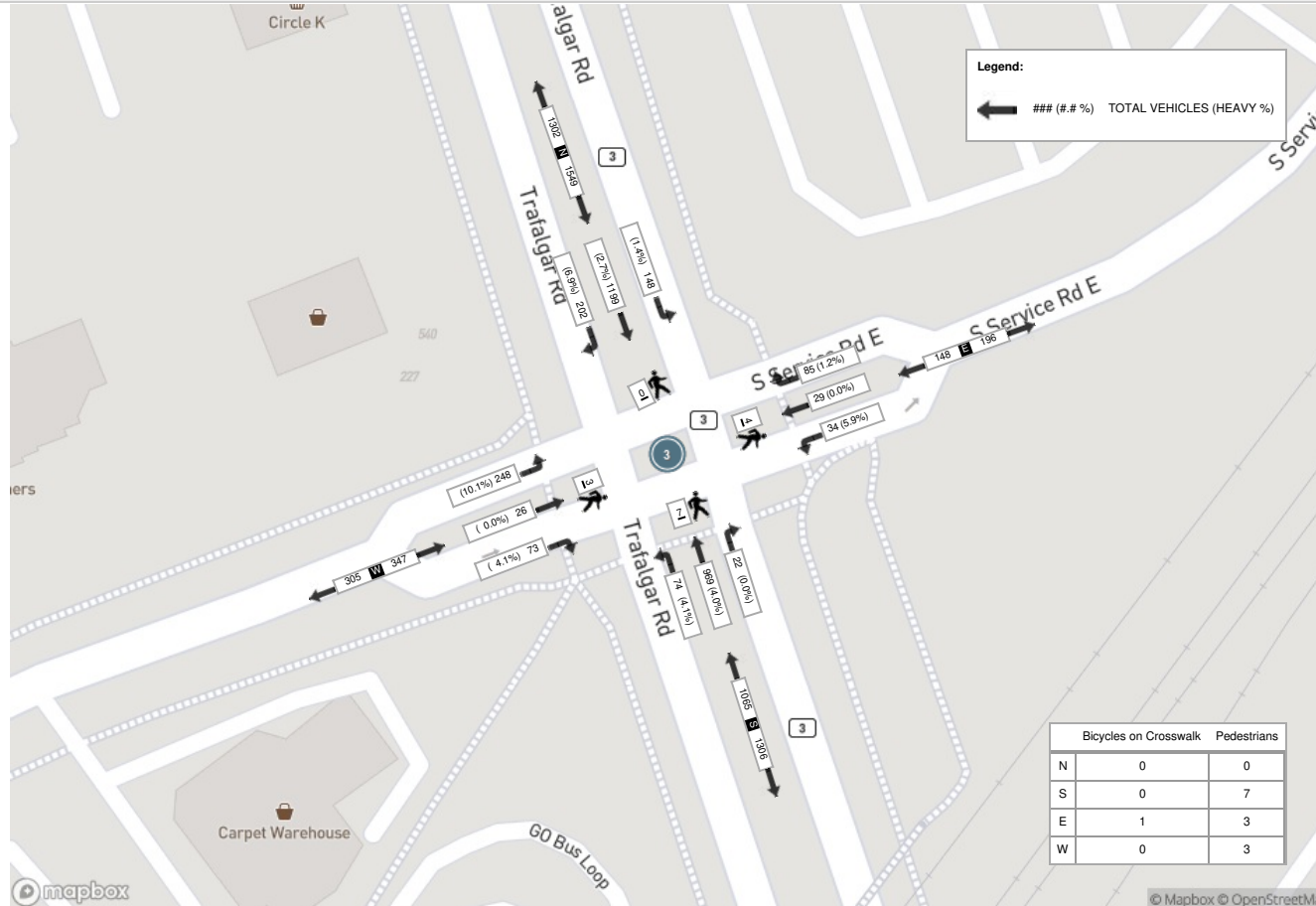
Start Time	N Approach TRAFALGAR RD						E Approach SOUTH SERVICE RD E						S Approach TRAFALGAR RD						W Approach CROSS AVE						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:15:00	48	313	35	0	0	396	19	9	4	0	1	32	0	268	23	0	1	291	22	8	70	0	0	100	819
08:30:00	56	286	36	2	0	380	23	5	13	0	0	41	7	293	20	0	3	320	12	7	58	0	1	77	818
08:45:00	42	336	34	2	0	414	18	9	5	0	2	32	6	202	18	0	2	226	19	7	52	0	1	78	750
09:00:00	56	264	43	4	0	367	25	6	12	0	1	43	9	206	13	2	1	230	20	4	68	0	1	92	732
Grand Total	202	1199	148	8	0	1557	85	29	34	0	4	148	22	969	74	2	7	1067	73	26	248	0	3	347	3119
Approach%	13%	77%	9.5%	0.5%	-	-	57.4%	19.6%	23%	0%	-	-	2.1%	90.8%	6.9%	0.2%	-	-	21%	7.5%	71.5%	0%	-	-	-
Totals %	6.5%	38.4%	4.7%	0.3%	49.9%	-	2.7%	0.9%	1.1%	0%	4.7%	-	0.7%	31.1%	2.4%	0.1%	34.2%	-	2.3%	0.8%	8%	0%	11.1%	-	-
PHF	0.9	0.89	0.86	0.5	0.94	-	0.85	0.81	0.65	0	0.86	-	0.61	0.83	0.8	0.25	0.83	-	0.83	0.81	0.89	0	0.87	-	-
Heavy	14	32	2	0	48	-	1	0	2	0	3	-	0	39	3	0	42	-	3	0	25	0	28	-	-
Heavy %	6.9%	2.7%	1.4%	0%	3.1%	-	1.2%	0%	5.9%	0%	2%	-	0%	4%	4.1%	0%	3.9%	-	4.1%	0%	10.1%	0%	8.1%	-	-
Lights	188	1167	146	8	1509	-	84	29	32	0	145	-	22	930	71	2	1025	-	70	26	223	0	319	-	-
Lights %	93.1%	97.3%	98.6%	100%	96.9%	-	98.8%	100%	94.1%	0%	98%	-	100%	96%	95.9%	100%	96.1%	-	95.9%	100%	89.9%	0%	91.9%	-	-
Single-Unit Trucks	1	18	2	0	21	-	1	0	1	0	2	-	0	18	0	0	18	-	0	0	0	0	0	-	-
Single-Unit Trucks %	0.5%	1.5%	1.4%	0%	1.3%	-	1.2%	0%	2.9%	0%	1.4%	-	0%	1.9%	0%	0%	1.7%	-	0%	0%	0%	0%	0%	-	-
Buses	12	9	0	0	21	-	0	0	0	0	0	-	0	17	3	0	20	-	3	0	25	0	28	-	-
Buses %	5.9%	0.8%	0%	0%	1.3%	-	0%	0%	0%	0%	0%	-	0%	1.8%	4.1%	0%	1.9%	-	4.1%	0%	10.1%	0%	8.1%	-	-
Articulated Trucks	1	5	0	0	6	-	0	0	1	0	1	-	0	4	0	0	4	-	0	0	0	0	0	-	-
Articulated Trucks %	0.5%	0.4%	0%	0%	0.4%	-	0%	0%	2.9%	0%	0.7%	-	0%	0.4%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	-
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road %	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	7	-	-	-	-	-	3	-	-
Pedestrians%	-	-	-	-	0%	-	-	-	-	-	21.4%	-	-	-	-	-	50%	-	-	-	-	-	21.4%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	-	7.1%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-



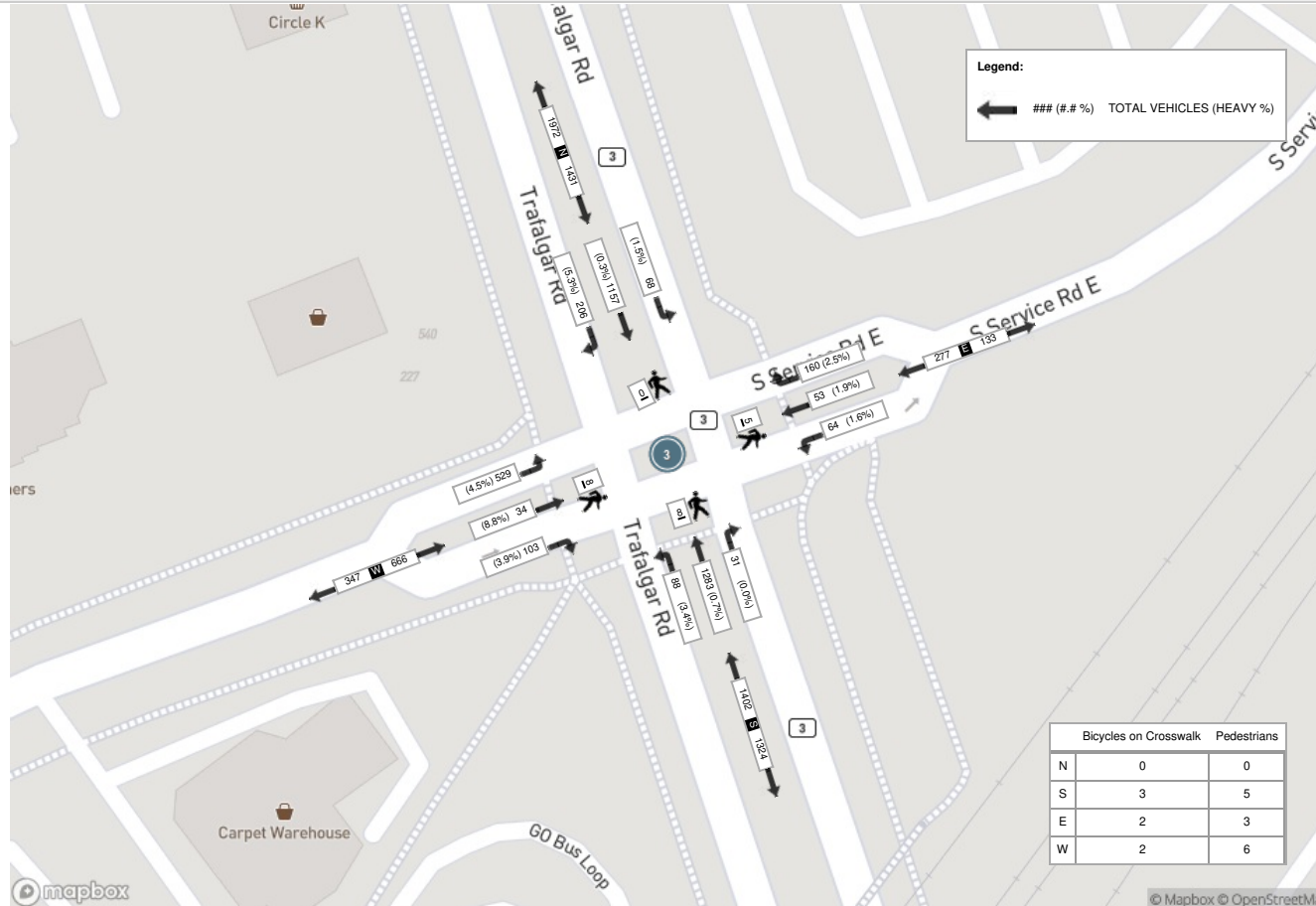
Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (19.92 °C)

Start Time	N Approach TRAFALGAR RD						E Approach SOUTH SERVICE RD E						S Approach TRAFALGAR RD						W Approach CROSS AVE						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
17:00:00	48	295	23	4	0	370	51	16	18	0	3	85	14	346	21	0	4	381	32	8	127	0	3	167	1003
17:15:00	41	265	20	0	0	326	47	19	22	0	0	88	6	329	15	0	1	350	21	9	147	0	2	177	941
17:30:00	71	286	15	4	0	376	35	7	16	0	2	58	6	336	24	0	3	366	21	8	106	0	3	135	935
17:45:00	46	311	10	3	0	370	27	11	8	0	0	46	5	272	28	2	0	307	29	9	149	0	0	187	910
Grand Total	206	1157	68	11	0	1442	160	53	64	0	5	277	31	1283	88	2	8	1404	103	34	529	0	8	666	3789
Approach%	14.3%	80.2%	4.7%	0.8%	-	-	57.8%	19.1%	23.1%	0%	-	-	2.2%	91.4%	6.3%	0.1%	-	-	15.5%	5.1%	79.4%	0%	-	-	-
Totals %	5.4%	30.5%	1.8%	0.3%	38.1%	-	4.2%	1.4%	1.7%	0%	7.3%	-	0.8%	33.9%	2.3%	0.1%	37.1%	-	2.7%	0.9%	14%	0%	17.6%	-	-
PHF	0.73	0.93	0.74	0.69	0.96	-	0.78	0.7	0.73	0	0.79	-	0.55	0.93	0.79	0.25	0.92	-	0.8	0.94	0.89	0	0.89	-	-
Heavy	11	3	1	0	15	-	4	1	1	0	6	-	0	9	3	0	12	-	4	3	24	0	31	-	-
Heavy %	5.3%	0.3%	1.5%	0%	1%	-	2.5%	1.9%	1.6%	0%	2.2%	-	0%	0.7%	3.4%	0%	0.9%	-	3.9%	8.8%	4.5%	0%	4.7%	-	-
Lights	195	1154	67	11	1427	-	156	52	63	0	271	-	31	1274	85	2	1392	-	99	31	505	0	635	-	-
Lights %	94.7%	99.7%	98.5%	100%	99%	-	97.5%	98.1%	98.4%	0%	97.8%	-	100%	99.3%	96.6%	100%	99.1%	-	96.1%	91.2%	95.5%	0%	95.3%	-	-
Single-Unit Trucks	3	3	1	0	7	-	3	1	1	0	5	-	0	7	0	0	7	-	0	0	3	0	3	-	-
Single-Unit Trucks %	1.5%	0.3%	1.5%	0%	0.5%	-	1.9%	1.9%	1.6%	0%	1.8%	-	0%	0.5%	0%	0%	0.5%	-	0%	0%	0.6%	0%	0.5%	-	-
Buses	8	0	0	0	8	-	0	0	0	0	0	-	0	0	3	0	3	-	4	1	21	0	26	-	-
Buses %	3.9%	0%	0%	0%	0.6%	-	0%	0%	0%	0%	0%	-	0%	0%	3.4%	0%	0.2%	-	3.9%	2.9%	4%	0%	3.9%	-	-
Articulated Trucks	0	0	0	0	0	-	1	0	0	0	1	-	0	2	0	0	2	-	0	2	0	0	2	-	-
Articulated Trucks %	0%	0%	0%	0%	0%	-	0.6%	0%	0%	0%	0.4%	-	0%	0.2%	0%	0%	0.1%	-	0%	5.9%	0%	0%	0.3%	-	-
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road %	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	-
Pedestrians	-	-	-	0	-	-	-	-	-	-	3	-	-	-	-	-	5	-	-	-	-	-	6	-	-
Pedestrians %	-	-	-	0%	-	-	-	-	-	-	14.3%	-	-	-	-	-	23.8%	-	-	-	-	-	28.6%	-	-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	2	-	-
Bicycles on Crosswalk %	-	-	-	0%	-	-	-	-	-	-	9.5%	-	-	-	-	-	14.3%	-	-	-	-	-	9.5%	-	-

Peak Hour: 08:15 AM - 09:15 AM Weather: Overcast Clouds (9.31 °C)



Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (19.92 °C)





Turning Movement Count (4 . TRAFALGAR RD & CORNWALL RD)

Start Time	N Approach TRAFALGAR RD						E Approach CORNWALL RD						S Approach TRAFALGAR RD						W Approach CORNWALL RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	15	27	16	0	0	58	14	14	1	0	0	29	1	15	2	0	2	18	0	9	17	0	0	26	131	
06:15:00	14	21	19	0	0	54	23	10	0	0	1	33	3	16	1	0	0	20	3	11	19	0	0	33	140	
06:30:00	33	35	37	0	5	105	34	10	0	0	1	44	1	29	6	0	2	36	4	16	32	0	2	52	237	
06:45:00	19	87	58	0	3	164	44	20	0	0	0	64	4	33	0	0	0	37	6	20	26	0	0	52	317	825
07:00:00	27	49	49	0	4	125	41	20	1	0	2	62	1	47	5	0	0	53	2	24	22	0	1	48	288	982
07:15:00	22	65	79	0	2	166	60	29	2	0	1	91	6	35	5	0	0	46	7	34	34	0	2	75	378	1220
07:30:00	48	91	83	0	5	222	73	39	0	1	4	113	2	61	4	0	3	67	5	50	43	0	3	98	500	1483
07:45:00	41	90	110	0	5	241	67	48	2	0	2	117	3	70	3	0	1	76	8	71	61	0	5	140	574	1740
08:00:00	64	138	144	0	4	346	96	42	1	0	2	139	8	61	10	0	2	79	9	71	52	0	6	132	696	2148
08:15:00	45	147	145	0	0	337	156	79	5	0	0	240	15	105	11	0	0	131	14	80	62	0	1	156	864	2634
08:30:00	55	124	140	0	5	319	153	93	10	0	3	256	13	76	19	0	1	108	9	87	54	0	0	150	833	2967
08:45:00	80	156	129	0	0	365	106	67	6	0	0	179	12	81	6	0	1	99	10	72	51	0	2	133	776	3169
09:00:00	58	138	89	0	2	285	102	62	6	0	0	170	4	72	4	0	1	80	6	88	60	0	1	154	689	3162
09:15:00	47	130	110	0	2	287	111	52	7	0	0	170	10	72	12	0	0	94	11	63	45	0	0	119	670	2968
09:30:00	38	127	90	0	1	255	80	56	6	1	1	143	4	68	8	0	0	80	9	67	45	0	0	121	599	2734
09:45:00	54	151	137	0	6	342	103	49	8	1	2	161	8	70	8	0	2	86	16	62	47	0	0	125	714	2672
BREAK																										
15:00:00	69	104	146	0	5	319	183	127	13	0	0	323	9	115	12	0	0	136	17	84	81	0	2	182	960	
15:15:00	65	138	128	0	9	331	179	118	5	1	0	303	18	117	17	0	8	152	15	84	81	0	6	180	966	
15:30:00	79	121	131	0	10	331	179	119	18	0	3	316	12	115	16	0	2	143	9	86	56	0	3	151	941	
15:45:00	68	130	102	0	5	300	182	109	9	0	0	300	10	84	8	0	1	102	11	92	83	0	1	186	888	3755
16:00:00	69	113	130	0	3	312	196	105	10	0	3	311	11	112	12	0	0	135	15	80	67	0	0	162	920	3715
16:15:00	58	98	121	0	1	277	143	120	15	0	3	278	10	113	8	0	3	131	9	80	85	0	3	174	860	3609
16:30:00	67	137	131	1	3	336	166	107	14	0	0	287	14	113	11	0	3	138	7	92	70	0	4	169	930	3598
16:45:00	72	108	94	0	3	274	157	96	10	0	6	263	12	112	7	0	0	131	7	96	86	0	0	189	857	3567
17:00:00	86	117	142	0	4	345	159	116	12	0	0	287	14	124	10	0	0	148	13	86	70	0	1	169	949	3596
17:15:00	79	110	105	1	2	295	136	96	11	0	1	243	7	140	7	0	1	154	15	93	84	0	1	192	884	3620
17:30:00	77	116	132	0	2	325	138	71	18	0	1	227	7	112	9	0	2	128	8	74	65	0	2	147	827	3517
17:45:00	74	141	123	0	4	338	125	85	9	0	2	219	14	110	9	0	2	133	14	71	95	0	2	180	870	3530
18:00:00	64	114	157	0	9	335	136	82	5	0	2	223	12	102	8	0	0	122	10	66	79	0	1	155	835	3416
18:15:00	65	131	116	0	5	312	111	69	9	0	3	189	5	113	6	0	2	124	9	69	60	0	4	138	763	3295
18:30:00	32	111	86	0	1	229	126	68	3	1	3	198	10	90	5	0	3	105	11	49	60	0	4	120	652	3120
18:45:00	59	109	85	0	2	253	91	45	17	0	3	153	4	87	3	0	1	94	5	51	48	0	3	104	604	2854
Grand Total	1743	3474	3364	2	112	8583	3670	2223	233	5	49	6131	264	2670	252	0	43	3186	294	2078	1840	0	60	4212	22112	-
Approach%	20.3%	40.5%	39.2%	0%	-	-	59.9%	36.3%	3.8%	0.1%	-	-	8.3%	83.8%	7.9%	0%	-	7%	49.3%	43.7%	0%	-	-	-	-	-
Totals %	7.9%	15.7%	15.2%	0%	38.8%	38.8%	16.6%	10.1%	1.1%	0%	27.7%	27.7%	1.2%	12.1%	1.1%	0%	14.4%	1.3%	9.4%	8.3%	0%	19%	-	-	-	-
Heavy	46	50	87	0	-	-	111	71	5	0	-	-	3	37	7	0	-	7	56	37	0	-	-	-	-	-
Heavy %	2.6%	1.4%	2.6%	0%	-	-	3%	3.2%	2.1%	0%	-	-	1.1%	1.4%	2.8%	0%	-	2.4%	2.7%	2%	0%	-	-	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (9.31 °C)

Start Time	N Approach TRAFALGAR RD						E Approach CORNWALL RD						S Approach TRAFALGAR RD						W Approach CORNWALL RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:00:00	64	138	144	0	4	346	96	42	1	0	2	139	8	61	10	0	2	79	9	71	52	0	6	132	696
08:15:00	45	147	145	0	0	337	156	79	5	0	0	240	15	105	11	0	0	131	14	80	62	0	1	156	864
08:30:00	55	124	140	0	5	319	153	93	10	0	3	256	13	76	19	0	1	108	9	87	54	0	0	150	833
08:45:00	80	156	129	0	0	365	106	67	6	0	0	179	12	81	6	0	1	99	10	72	51	0	2	133	776
Grand Total	244	565	558	0	9	1367	511	281	22	0	5	814	48	323	46	0	4	417	42	310	219	0	9	571	3169
Approach%	17.8%	41.3%	40.8%	0%	-	-	62.8%	34.5%	2.7%	0%	-	-	11.5%	77.5%	11%	0%	-	-	7.4%	54.3%	38.4%	0%	-	-	-
Totals %	7.7%	17.8%	17.6%	0%	43.1%	43.1%	16.1%	8.9%	0.7%	0%	25.7%	25.7%	1.5%	10.2%	1.5%	0%	13.2%	13.2%	1.3%	9.8%	6.9%	0%	18%	18%	-
PHF	0.76	0.91	0.96	0	0.94	0.94	0.82	0.76	0.55	0	0.79	0.79	0.8	0.77	0.61	0	0.8	0.8	0.75	0.89	0.88	0	0.92	0.92	-
Heavy	7	13	19	0	39	39	28	11	0	0	39	39	0	9	1	0	10	10	2	12	8	0	22	22	-
Heavy %	2.9%	2.3%	3.4%	0%	2.9%	2.9%	5.5%	3.9%	0%	0%	4.8%	4.8%	0%	2.8%	2.2%	0%	2.4%	2.4%	4.8%	3.9%	3.7%	0%	3.9%	3.9%	-
Lights	237	552	539	0	1328	1328	483	270	22	0	775	775	48	314	45	0	407	407	40	297	211	0	548	548	-
Lights %	97.1%	97.7%	96.6%	0%	97.1%	97.1%	94.5%	96.1%	100%	0%	95.2%	95.2%	100%	97.2%	97.8%	0%	97.6%	97.6%	95.2%	95.8%	96.3%	0%	96%	96%	-
Single-Unit Trucks	2	8	8	0	18	18	7	4	0	0	11	11	0	4	0	0	4	4	0	6	4	0	10	10	-
Single-Unit Trucks %	0.8%	1.4%	1.4%	0%	1.3%	1.3%	1.4%	1.4%	0%	0%	1.4%	1.4%	0%	1.2%	0%	0%	1%	1%	0%	1.9%	1.8%	0%	1.8%	1.8%	-
Buses	4	4	10	0	18	18	17	4	0	0	21	21	0	5	1	0	6	6	2	4	4	0	10	10	-
Buses %	1.6%	0.7%	1.8%	0%	1.3%	1.3%	3.3%	1.4%	0%	0%	2.6%	2.6%	0%	1.5%	2.2%	0%	1.4%	1.4%	4.8%	1.3%	1.8%	0%	1.8%	1.8%	-
Articulated Trucks	1	1	1	0	3	3	4	3	0	0	7	7	0	0	0	0	0	0	0	2	0	0	2	2	-
Articulated Trucks %	0.4%	0.2%	0.2%	0%	0.2%	0.2%	0.8%	1.1%	0%	0%	0.9%	0.9%	0%	0%	0%	0%	0%	0%	0%	0.6%	0%	0%	0.4%	0.4%	-
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	-
Bicycles on Road %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.3%	0%	0%	0.2%	0.2%	-
Pedestrians	-	-	-	-	8	-	-	-	-	-	5	-	-	-	-	-	4	-	-	-	-	-	8	-	-
Pedestrians %	-	-	-	-	29.6%	-	-	-	-	-	18.5%	-	-	-	-	-	14.8%	-	-	-	-	-	29.6%	-	-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
Bicycles on Crosswalk %	-	-	-	-	3.7%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	3.7%	-	-



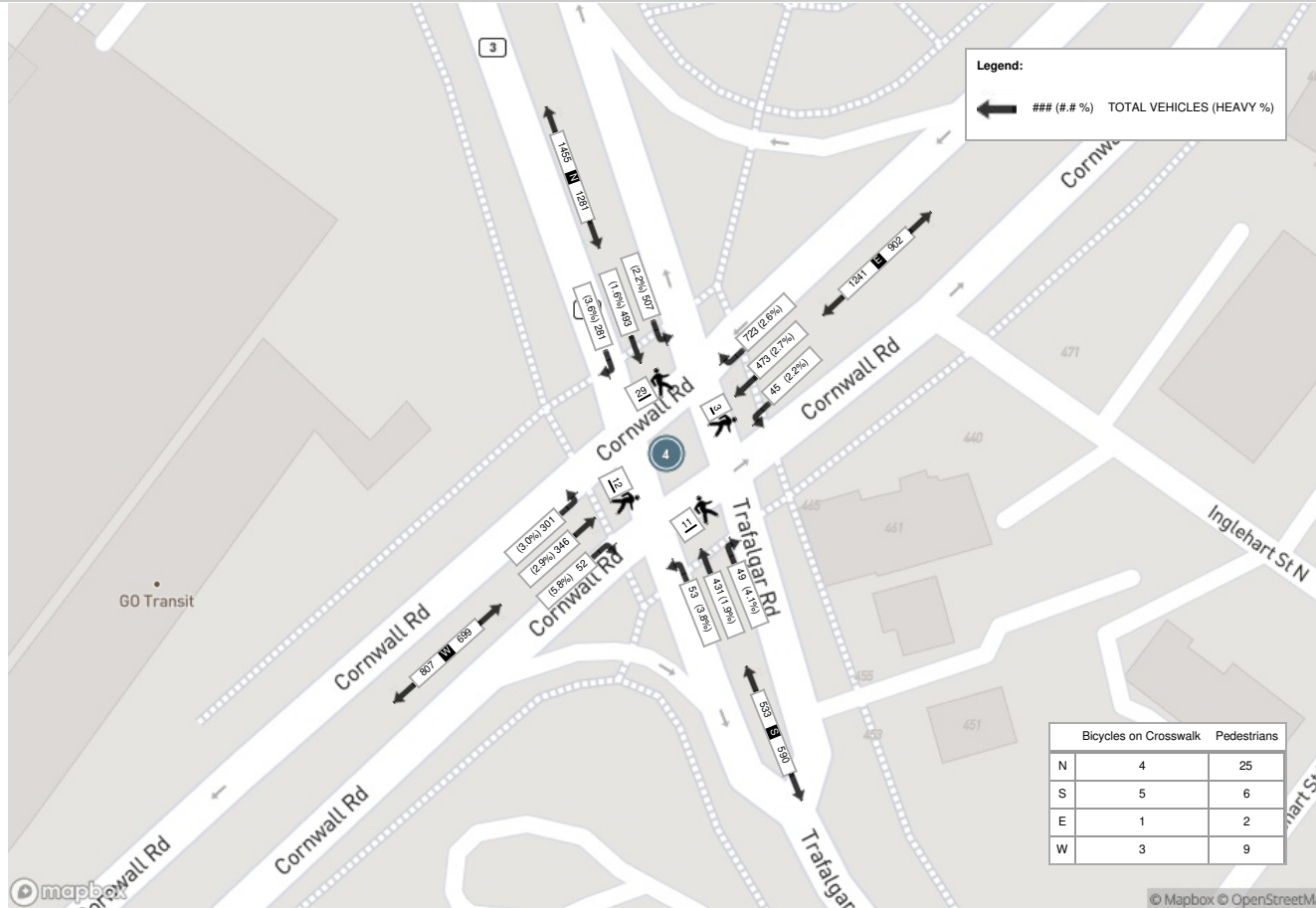
Peak Hour: 03:00 PM - 04:00 PM Weather: Overcast Clouds (19.92 °C)

Start Time	N Approach TRAFALGAR RD						E Approach CORNWALL RD						S Approach TRAFALGAR RD						W Approach CORNWALL RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
15:00:00	69	104	146	0	5	319	183	127	13	0	0	323	9	115	12	0	0	136	17	84	81	0	2	182	960
15:15:00	65	138	128	0	9	331	179	118	5	1	0	303	18	117	17	0	8	152	15	84	81	0	6	180	966
15:30:00	79	121	131	0	10	331	179	119	18	0	3	316	12	115	16	0	2	143	9	86	56	0	3	151	941
15:45:00	68	130	102	0	5	300	182	109	9	0	0	300	10	84	8	0	1	102	11	92	83	0	1	186	888
Grand Total	281	493	507	0	29	1281	723	473	45	1	3	1242	49	431	53	0	11	533	52	346	301	0	12	699	3755
Approach%	21.9%	38.5%	39.6%	0%	-	-	58.2%	38.1%	3.6%	0.1%	-	-	9.2%	80.9%	9.9%	0%	-	-	7.4%	49.5%	43.1%	0%	-	-	-
Totals %	7.5%	13.1%	13.5%	0%	34.1%	19.3%	12.6%	1.2%	0%	33.1%	1.3%	11.5%	1.4%	0%	14.2%	1.4%	9.2%	8%	0%	18.6%	-	-	-		
PHF	0.89	0.89	0.87	0	0.97	0.99	0.93	0.63	0.25	0.96	0.68	0.92	0.78	0	0.88	0.76	0.94	0.91	0	0.94	-	-	-		
Heavy	10	8	11	0	29	19	13	1	0	33	2	8	2	0	12	3	10	9	0	22	-	-	-		
Heavy %	3.6%	1.6%	2.2%	0%	2.3%	2.6%	2.7%	2.2%	0%	2.7%	4.1%	1.9%	3.8%	0%	2.3%	5.8%	2.9%	3%	0%	3.1%	-	-	-		
Lights	271	485	496	0	1252	704	460	44	1	1209	47	423	51	0	521	49	336	292	0	677	-	-	-		
Lights %	96.4%	98.4%	97.8%	0%	97.7%	97.4%	97.3%	97.8%	100%	97.3%	95.9%	98.1%	96.2%	0%	97.7%	94.2%	97.1%	97%	0%	96.9%	-	-	-		
Single-Unit Trucks	3	5	3	0	11	6	7	0	0	13	1	6	0	0	7	1	5	4	0	10	-	-	-		
Single-Unit Trucks %	1.1%	1%	0.6%	0%	0.9%	0.8%	1.5%	0%	0%	1%	2%	1.4%	0%	0%	1.3%	1.9%	1.4%	1.3%	0%	1.4%	-	-	-		
Buses	4	3	6	0	13	13	6	1	0	20	1	2	2	0	5	2	4	4	0	10	-	-	-		
Buses %	1.4%	0.6%	1.2%	0%	1%	1.8%	1.3%	2.2%	0%	1.6%	2%	0.5%	3.8%	0%	0.9%	3.8%	1.2%	1.3%	0%	1.4%	-	-	-		
Articulated Trucks	3	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	-	-	-		
Articulated Trucks %	1.1%	0%	0.4%	0%	0.4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.3%	0.3%	0%	0.3%	-	-	-		
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-		
Bicycles on Road %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-		
Pedestrians	-	-	-	-	25	-	-	-	-	2	-	-	-	-	6	-	-	-	-	9	-	-	-		
Pedestrians %	-	-	-	-	45.5%	-	-	-	-	3.6%	-	-	-	-	10.9%	-	-	-	-	16.4%	-	-	-		
Bicycles on Crosswalk	-	-	-	-	4	-	-	-	-	1	-	-	-	-	5	-	-	-	-	3	-	-	-		
Bicycles on Crosswalk %	-	-	-	-	7.3%	-	-	-	-	1.8%	-	-	-	-	9.1%	-	-	-	-	5.5%	-	-	-		

Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (9.31 °C)



Peak Hour: 03:00 PM - 04:00 PM Weather: Overcast Clouds (19.92 °C)





Turning Movement Count (5 . SOUTH SERVICE RD E & DAVIS RD)

Start Time	N Approach SOUTH SERVICE RD E						Approach Total	E Approach DAVIS RD					Approach Total	S Approach SOUTH SERVICE RD E					Approach Total	W Approach DAVIS RD					Approach Total	Int. Total (15 min)	Int. Total (1 hr)	
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Right E:N		Thru E:W	Left E:S	UTurn E:E	Peds E:	Right S:E		Thru S:N	Left S:W	UTurn S:S	Peds S:	Right W:S		Thru W:E	Left W:N	UTurn W:W	Peds W:					
06:00:00	0	7	0	0	0	7	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	18	
06:15:00	0	4	0	0	0	4	0	0	0	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	25	
06:30:00	0	14	0	0	0	14	0	0	0	0	0	0	0	1	12	0	1	0	0	0	0	0	0	0	0	0	28	
06:45:00	0	10	0	0	0	10	0	0	0	0	0	0	0	2	27	0	0	0	0	0	0	0	0	0	0	39	110	
07:00:00	0	26	0	0	0	26	0	0	1	0	0	1	0	2	15	0	0	0	0	0	0	0	0	0	0	44	136	
07:15:00	0	11	0	0	0	11	0	0	0	0	1	0	0	3	21	0	0	0	0	0	0	0	0	0	0	35	146	
07:30:00	0	22	0	0	0	22	0	0	1	0	0	1	0	3	21	0	0	0	0	0	0	0	0	0	0	47	165	
07:45:00	1	25	3	0	1	29	0	0	3	0	0	3	0	4	32	1	0	0	0	0	0	0	0	0	0	69	195	
08:00:00	0	28	0	0	1	28	0	0	1	0	0	1	0	4	37	0	0	0	0	0	0	1	0	0	1	71	222	
08:15:00	0	30	0	0	0	30	0	0	5	0	0	5	0	5	24	1	0	0	0	0	0	2	0	0	2	67	254	
08:30:00	0	36	3	0	0	39	1	0	3	0	0	4	0	2	40	0	0	0	0	0	0	0	0	0	0	85	292	
08:45:00	0	30	1	0	0	31	0	0	2	0	0	2	0	2	32	1	0	0	0	0	0	0	0	0	0	68	291	
09:00:00	0	40	3	0	0	43	1	0	3	0	0	4	0	3	36	1	0	0	0	0	0	1	0	0	1	88	308	
09:15:00	0	30	0	1	0	31	1	0	1	0	0	2	0	4	38	0	0	0	0	0	0	0	0	0	0	75	316	
09:30:00	0	34	0	0	0	34	0	0	7	0	0	7	0	7	31	0	0	0	0	0	0	1	0	0	1	80	311	
09:45:00	2	32	0	0	0	34	1	0	2	0	0	3	0	6	38	0	0	1	0	0	0	0	2	0	2	83	326	
BREAK																												
15:00:00	2	55	4	1	0	62	1	1	3	0	0	5	0	4	47	0	1	0	0	0	1	0	1	0	0	2	121	
15:15:00	1	59	2	0	0	62	1	0	1	0	2	2	0	7	29	0	0	0	0	0	0	0	1	0	0	2	102	
15:30:00	0	54	1	0	0	55	0	0	2	0	0	2	0	0	45	0	0	0	0	0	0	0	0	0	0	0	102	
15:45:00	0	59	1	1	0	61	0	0	4	0	0	4	0	4	25	0	0	0	0	0	0	0	0	0	0	0	94	419
16:00:00	0	54	2	0	0	56	1	0	16	0	0	17	0	15	22	0	0	0	0	0	0	0	0	0	0	0	110	408
16:15:00	0	52	2	0	0	54	3	0	8	0	0	11	0	4	24	0	0	0	0	0	0	0	0	0	0	0	93	399
16:30:00	0	60	1	0	0	61	3	0	3	0	0	6	0	1	32	1	0	0	0	0	0	1	0	0	1	102	399	
16:45:00	0	46	0	0	1	46	0	0	2	0	1	2	0	1	27	0	0	0	0	0	0	0	0	0	0	0	76	381
17:00:00	0	61	4	0	1	65	3	0	12	0	0	15	0	11	27	1	0	0	0	0	0	1	0	0	1	120	391	
17:15:00	0	63	0	0	0	63	5	0	13	0	0	18	0	6	28	0	0	0	0	0	0	0	0	0	0	0	115	413
17:30:00	0	48	0	0	0	48	0	0	3	0	4	3	0	4	24	0	0	0	0	0	0	0	0	0	0	0	79	390
17:45:00	0	35	0	0	0	35	0	0	7	0	0	7	0	3	19	1	0	0	0	0	0	1	0	0	1	66	380	
18:00:00	0	35	10	0	0	45	5	0	9	0	0	14	0	15	25	0	0	0	0	0	0	0	0	0	0	0	99	359
18:15:00	0	23	2	0	0	25	8	0	17	0	0	25	0	6	24	0	0	0	0	0	0	0	0	0	0	0	80	324
18:30:00	0	20	0	0	0	20	0	0	0	0	1	0	0	0	17	1	1	0	0	0	0	1	0	0	1	40	285	
18:45:00	0	19	1	0	0	20	0	0	0	0	2	0	0	2	10	0	0	0	0	0	0	0	0	0	0	0	32	251
Grand Total	6	1122	40	3	4	1171	34	1	129	0	11	164	131	861	8	3	1	1003	10	0	5	0	0	15	2353	-	-	
Approach%	0.5%	95.8%	3.4%	0.3%	-	-	20.7%	0.6%	78.7%	0%	-	-	13.1%	85.8%	0.8%	0.3%	-	66.7%	0%	33.3%	0%	-	-	-	-	-	-	
Totals %	0.3%	47.7%	1.7%	0.1%	49.8%	-	1.4%	0%	5.5%	0%	7%	-	5.6%	36.6%	0.3%	0.1%	42.6%	0.4%	0%	0.2%	0%	0.6%	-	-	-	-	-	
Heavy	0	39	3	0	-	-	0	0	2	0	-	-	2	28	1	0	-	1	0	0	0	-	-	-	-	-	-	
Heavy %	0%	3.5%	7.5%	0%	-	-	0%	0%	1.6%	0%	-	-	1.5%	3.3%	12.5%	0%	-	10%	0%	0%	0%	-	-	-	-	-	-	
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Peak Hour: 09:00 AM - 10:00 AM Weather: Overcast Clouds (9.31 °C)

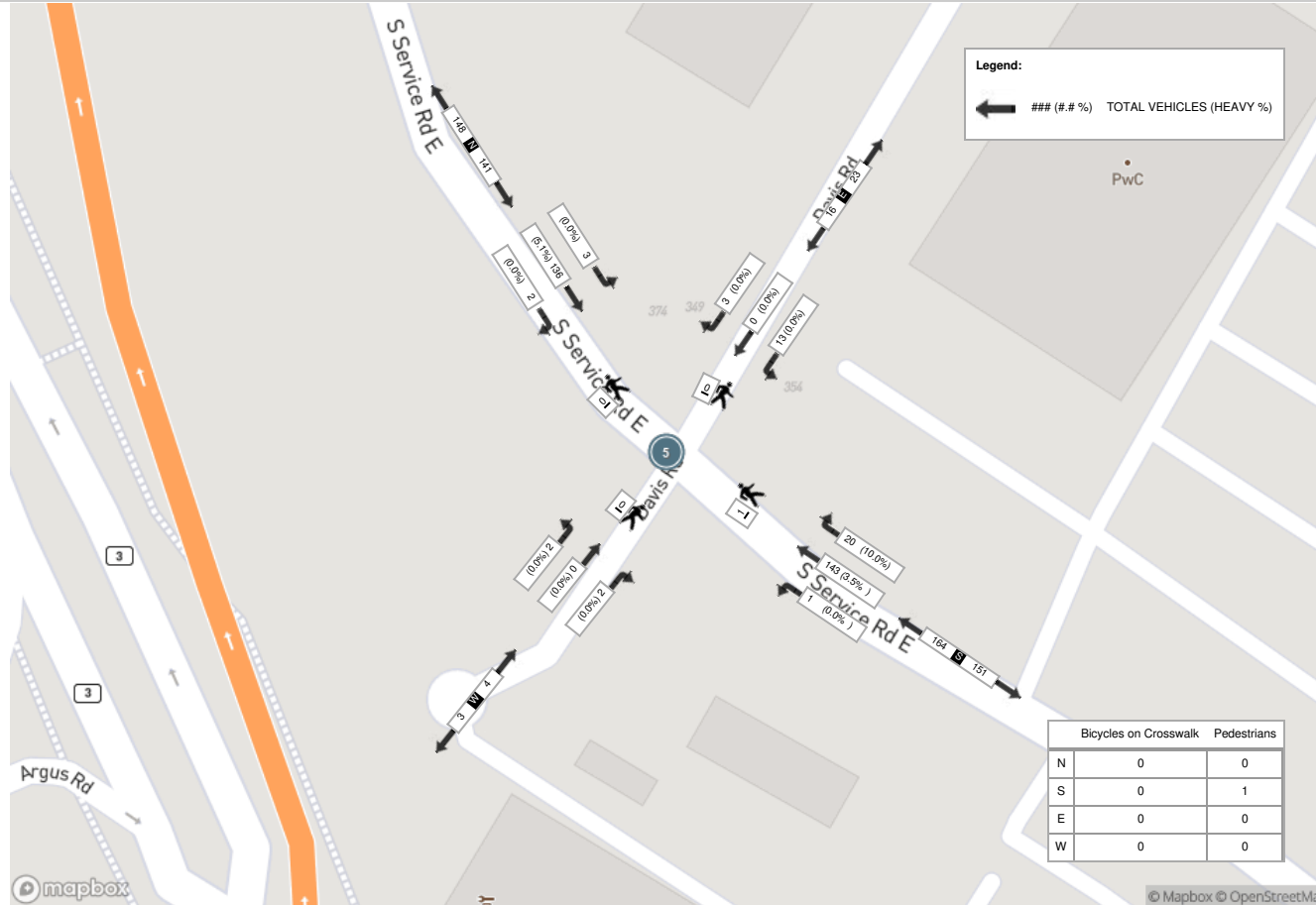
Start Time	N Approach SOUTH SERVICE RD E						E Approach DAVIS RD					S Approach SOUTH SERVICE RD E						W Approach DAVIS RD					Int. Total (15 min)		
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn		Peds	Approach Total
09:00:00	0	40	3	0	0	43	1	0	3	0	0	4	3	36	1	0	0	40	1	0	0	0	0	1	88
09:15:00	0	30	0	1	0	31	1	0	1	0	0	2	4	38	0	0	0	42	0	0	0	0	0	0	75
09:30:00	0	34	0	0	0	34	0	0	7	0	0	7	7	31	0	0	0	38	1	0	0	0	0	1	80
09:45:00	2	32	0	0	0	34	1	0	2	0	0	3	6	38	0	0	1	44	0	0	2	0	0	2	83
Grand Total	2	136	3	1	0	142	3	0	13	0	0	16	20	143	1	0	1	164	2	0	2	0	0	4	326
Approach%	1.4%	95.8%	2.1%	0.7%	-	-	18.8%	0%	81.3%	0%	-	-	12.2%	87.2%	0.6%	0%	-	-	50%	0%	50%	0%	-	-	-
Totals %	0.6%	41.7%	0.9%	0.3%	43.6%	0.9%	0%	4%	0%	4.9%	6.1%	43.9%	0.3%	0%	50.3%	0.6%	0%	0.6%	0%	1.2%	-	-	-	-	
PHF	0.25	0.85	0.25	0.25	0.83	0.75	0	0.46	0	0.57	0.71	0.94	0.25	0	0.93	0.5	0	0.25	0	0.5	-	-	-	-	
Heavy	0	7	0	0	7	0	0	0	0	0	2	5	0	0	7	0	0	0	0	0	-	-	-	-	
Heavy %	0%	5.1%	0%	0%	4.9%	0%	0%	0%	0%	0%	10%	3.5%	0%	0%	4.3%	0%	0%	0%	0%	0%	-	-	-	-	
Lights	2	129	3	1	135	3	0	13	0	16	18	138	1	0	157	2	0	2	0	4	-	-	-	-	
Lights %	100%	94.9%	100%	100%	95.1%	100%	0%	100%	0%	100%	90%	96.5%	100%	0%	95.7%	100%	0%	100%	0%	100%	-	-	-	-	
Single-Unit Trucks	0	3	0	0	3	0	0	0	0	0	2	2	0	0	4	0	0	0	0	0	-	-	-	-	
Single-Unit Trucks %	0%	2.2%	0%	0%	2.1%	0%	0%	0%	0%	0%	10%	1.4%	0%	0%	2.4%	0%	0%	0%	0%	0%	-	-	-	-	
Buses	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	
Buses %	0%	0.7%	0%	0%	0.7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-	-	
Articulated Trucks	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	-	-	-	-	
Articulated Trucks %	0%	2.2%	0%	0%	2.1%	0%	0%	0%	0%	0%	0%	2.1%	0%	0%	1.8%	0%	0%	0%	0%	0%	-	-	-	-	
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	
Bicycles on Road %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-	-	
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-	-	-	
Pedestrians%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	100%	-	-	-	-	0%	-	-	-	-	
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	



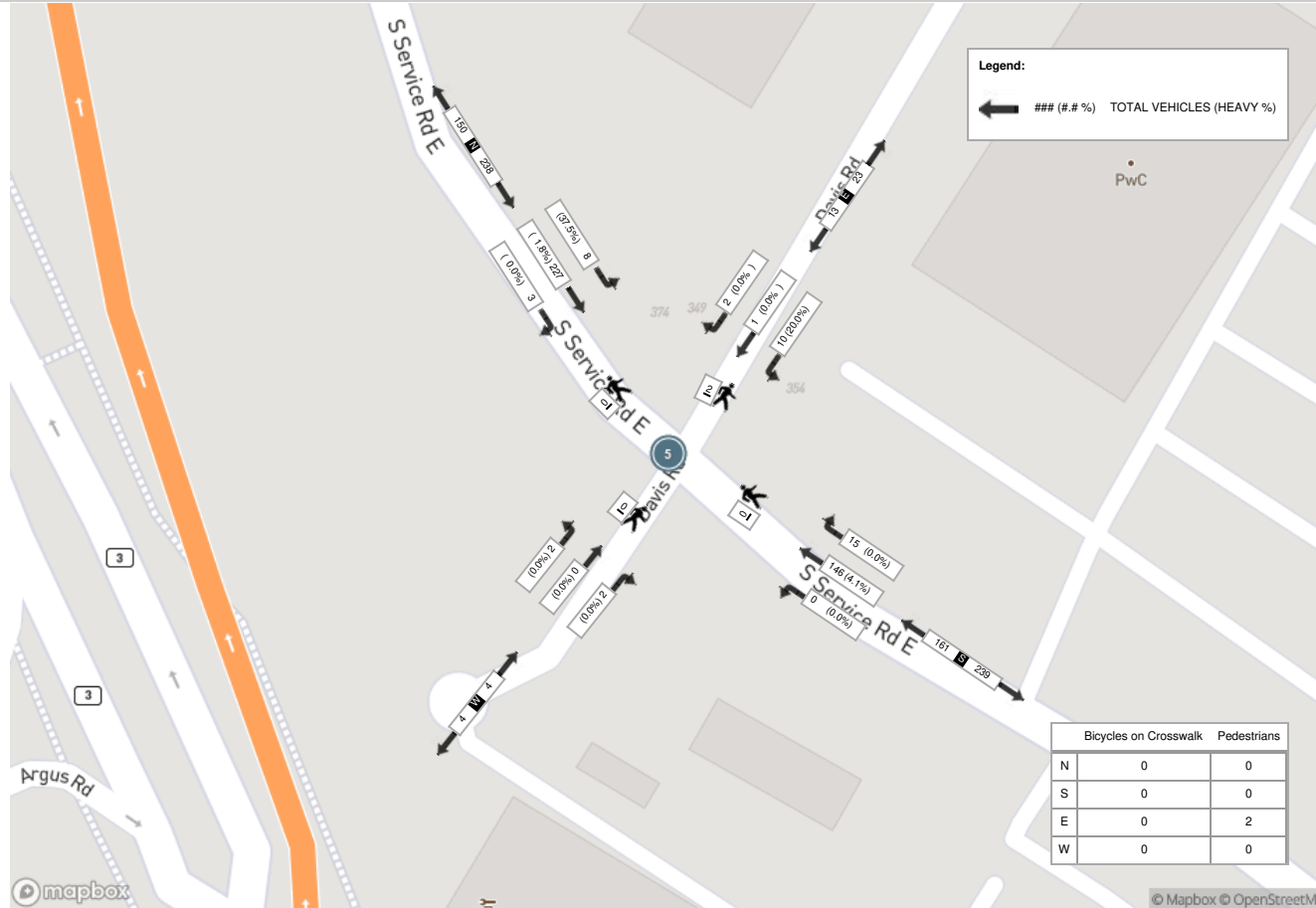
Peak Hour: 03:00 PM - 04:00 PM Weather: Overcast Clouds (19.92 °C)

Start Time	N Approach SOUTH SERVICE RD E						E Approach DAVIS RD						S Approach SOUTH SERVICE RD E						W Approach DAVIS RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
15:00:00	2	55	4	1	0	62	1	1	3	0	0	5	4	47	0	1	0	52	1	0	1	0	0	2	121
15:15:00	1	59	2	0	0	62	1	0	1	0	2	2	7	29	0	0	0	36	1	0	1	0	0	2	102
15:30:00	0	54	1	0	0	55	0	0	2	0	0	2	0	45	0	0	0	45	0	0	0	0	0	0	102
15:45:00	0	59	1	1	0	61	0	0	4	0	0	4	4	25	0	0	0	29	0	0	0	0	0	0	94
Grand Total	3	227	8	2	0	240	2	1	10	0	2	13	15	146	0	1	0	162	2	0	2	0	0	4	419
Approach%	1.3%	94.6%	3.3%	0.8%		-	15.4%	7.7%	76.9%	0%		-	9.3%	90.1%	0%	0.6%		-	50%	0%	50%	0%		-	-
Totals %	0.7%	54.2%	1.9%	0.5%		57.3%	0.5%	0.2%	2.4%	0%		3.1%	3.6%	34.8%	0%	0.2%		38.7%	0.5%	0%	0.5%	0%		1%	-
PHF	0.38	0.96	0.5	0.5		0.97	0.5	0.25	0.63	0		0.65	0.54	0.78	0	0.25		0.78	0.5	0	0.5	0		0.5	-
Heavy	0	4	3	0		7	0	0	2	0		2	0	6	0	0		6	0	0	0	0		0	-
Heavy %	0%	1.8%	37.5%	0%		2.9%	0%	0%	20%	0%		15.4%	0%	4.1%	0%	0%		3.7%	0%	0%	0%	0%		0%	-
Lights	3	223	5	2		233	2	1	8	0		11	15	139	0	1		155	2	0	2	0		4	-
Lights %	100%	98.2%	62.5%	100%		97.1%	100%	100%	80%	0%		84.6%	100%	95.2%	0%	100%		95.7%	100%	0%	100%	0%		100%	-
Single-Unit Trucks	0	0	3	0		3	0	0	2	0		2	0	2	0	0		2	0	0	0	0		0	-
Single-Unit Trucks %	0%	0%	37.5%	0%		1.3%	0%	0%	20%	0%		15.4%	0%	1.4%	0%	0%		1.2%	0%	0%	0%	0%		0%	-
Buses	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	-
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.7%	0%	0%		0.6%	0%	0%	0%	0%		0%	-
Articulated Trucks	0	4	0	0		4	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	-
Articulated Trucks %	0%	1.8%	0%	0%		1.7%	0%	0%	0%	0%		0%	0%	2.1%	0%	0%		1.9%	0%	0%	0%	0%		0%	-
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.7%	0%	0%		0.6%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%	-	-	-	-	-	100%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-

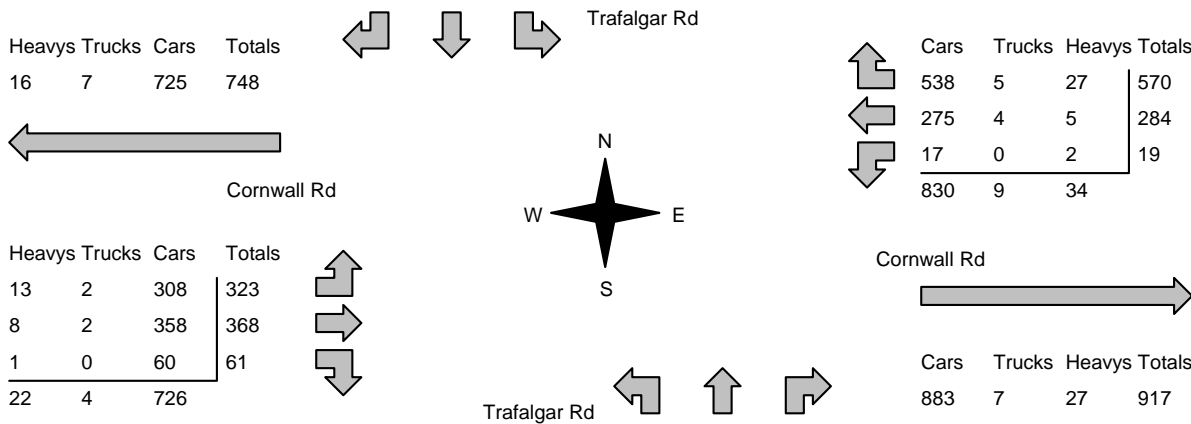
Peak Hour: 09:00 AM - 10:00 AM Weather: Overcast Clouds (9.31 °C)




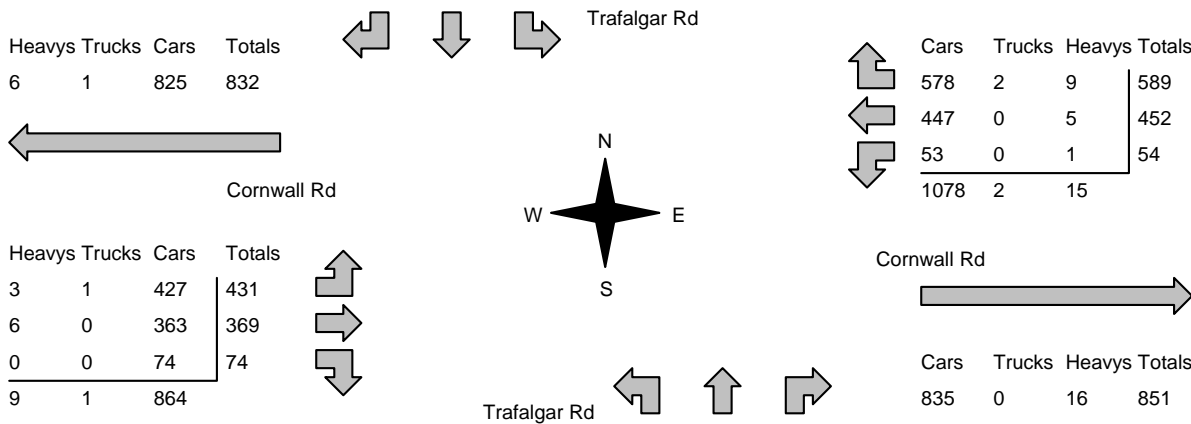

Peak Hour: 03:00 PM - 04:00 PM Weather: Overcast Clouds (19.92 °C)




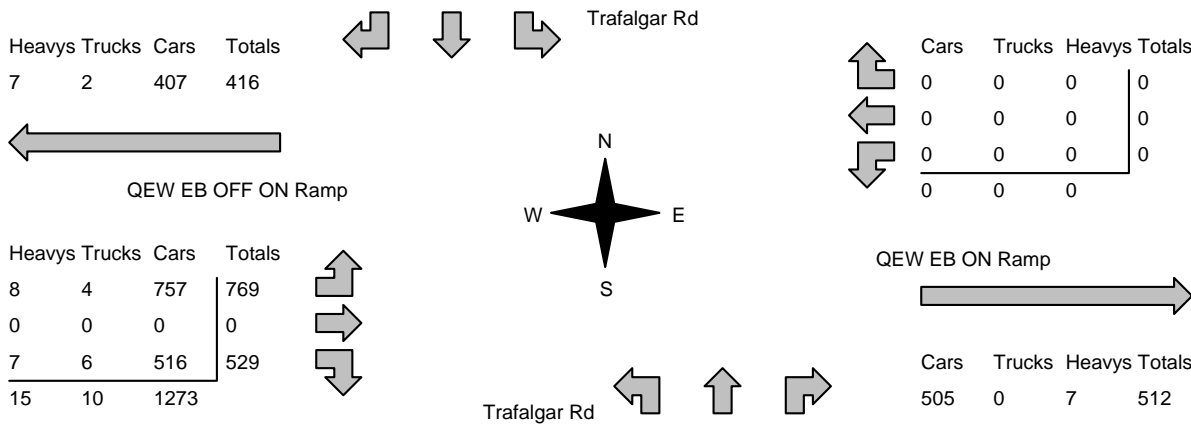

Accu-Traffic Inc.

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: Oakville Site #: 1902700006 Intersection: Trafalgar Rd & Cornwall Rd TFR File #: 1 Count date: 7-Mar-19		Weather conditions: Person counted: Person prepared: Person checked:																													
** Signalized Intersection **		Major Road: Trafalgar Rd runs N/S																													
North Leg Total: 2639 North Entering: 1401 North Peds: 17 Peds Cross: ☒	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>11</td><td>5</td><td>19</td><td>35</td></tr> <tr><td>Trucks</td><td>3</td><td>4</td><td>5</td><td>12</td></tr> <tr><td>Cars</td><td>386</td><td>493</td><td>475</td><td>1354</td></tr> <tr><td>Totals</td><td>400</td><td>502</td><td>499</td><td></td></tr> </table>	Heavys	11	5	19	35	Trucks	3	4	5	12	Cars	386	493	475	1354	Totals	400	502	499		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>44</td></tr> <tr><td>Trucks</td><td>8</td></tr> <tr><td>Cars</td><td>1186</td></tr> <tr><td>Totals</td><td>1238</td></tr> </table>	Heavys	44	Trucks	8	Cars	1186	Totals	1238	East Leg Total: 1790 East Entering: 873 East Peds: 6 Peds Cross: ☒
Heavys	11	5	19	35																											
Trucks	3	4	5	12																											
Cars	386	493	475	1354																											
Totals	400	502	499																												
Heavys	44																														
Trucks	8																														
Cars	1186																														
Totals	1238																														
																															
<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>16</td><td>7</td><td>725</td><td>748</td></tr> </table>	Heavys	Trucks	Cars	Totals	16	7	725	748		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>Trucks</td><td>Heavys</td><td>Totals</td></tr> <tr><td>538</td><td>5</td><td>27</td><td>570</td></tr> <tr><td>275</td><td>4</td><td>5</td><td>284</td></tr> <tr><td>17</td><td>0</td><td>2</td><td>19</td></tr> <tr><td>830</td><td>9</td><td>34</td><td></td></tr> </table>	Cars	Trucks	Heavys	Totals	538	5	27	570	275	4	5	284	17	0	2	19	830	9	34		
Heavys	Trucks	Cars	Totals																												
16	7	725	748																												
Cars	Trucks	Heavys	Totals																												
538	5	27	570																												
275	4	5	284																												
17	0	2	19																												
830	9	34																													
<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>13</td><td>2</td><td>308</td><td>323</td></tr> <tr><td>8</td><td>2</td><td>358</td><td>368</td></tr> <tr><td>1</td><td>0</td><td>60</td><td>61</td></tr> <tr><td>22</td><td>4</td><td>726</td><td></td></tr> </table>	Heavys	Trucks	Cars	Totals	13	2	308	323	8	2	358	368	1	0	60	61	22	4	726				<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>Trucks</td><td>Heavys</td><td>Totals</td></tr> <tr><td>883</td><td>7</td><td>27</td><td>917</td></tr> </table>	Cars	Trucks	Heavys	Totals	883	7	27	917
Heavys	Trucks	Cars	Totals																												
13	2	308	323																												
8	2	358	368																												
1	0	60	61																												
22	4	726																													
Cars	Trucks	Heavys	Totals																												
883	7	27	917																												
Peds Cross: ☒ West Peds: 11 West Entering: 752 West Leg Total: 1500	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>570</td></tr> <tr><td>Trucks</td><td>4</td></tr> <tr><td>Heavys</td><td>8</td></tr> <tr><td>Totals</td><td>582</td></tr> </table>	Cars	570	Trucks	4	Heavys	8	Totals	582	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>64</td><td>340</td><td>50</td><td>454</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>4</td><td>0</td><td>4</td></tr> <tr><td>Totals</td><td>64</td><td>345</td><td>50</td><td></td></tr> </table>	Cars	64	340	50	454	Trucks	0	1	0	1	Heavys	0	4	0	4	Totals	64	345	50		Peds Cross: ☒ South Peds: 10 South Entering: 459 South Leg Total: 1041
Cars	570																														
Trucks	4																														
Heavys	8																														
Totals	582																														
Cars	64	340	50	454																											
Trucks	0	1	0	1																											
Heavys	0	4	0	4																											
Totals	64	345	50																												
Comments																															


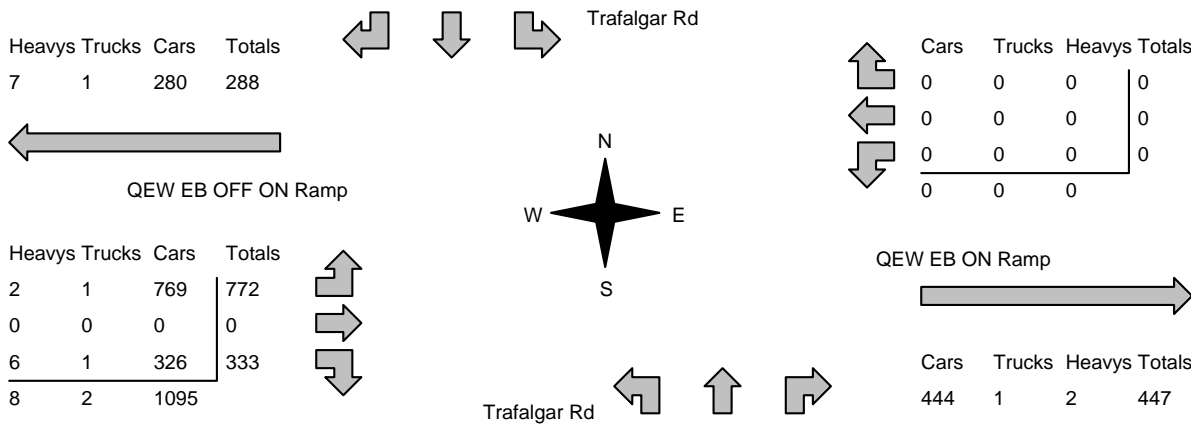

Accu-Traffic Inc.

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: Oakville Site #: 1902700006 Intersection: Trafalgar Rd & Cornwall Rd TFR File #: 1 Count date: 7-Mar-19		Weather conditions: Person counted: Person prepared: Person checked:																													
** Signalized Intersection **		Major Road: Trafalgar Rd runs N/S																													
North Leg Total: 2723 North Entering: 1223 North Peds: 11 Peds Cross: \bowtie	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>1</td><td>4</td><td>10</td><td>15</td></tr> <tr><td>Trucks</td><td>1</td><td>3</td><td>0</td><td>4</td></tr> <tr><td>Cars</td><td>328</td><td>456</td><td>420</td><td>1204</td></tr> <tr><td>Totals</td><td>330</td><td>463</td><td>430</td><td></td></tr> </table>	Heavys	1	4	10	15	Trucks	1	3	0	4	Cars	328	456	420	1204	Totals	330	463	430			<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>13</td></tr> <tr><td>Trucks</td><td>5</td></tr> <tr><td>Cars</td><td>1482</td></tr> <tr><td>Totals</td><td>1500</td></tr> </table>	Heavys	13	Trucks	5	Cars	1482	Totals	1500
Heavys	1	4	10	15																											
Trucks	1	3	0	4																											
Cars	328	456	420	1204																											
Totals	330	463	430																												
Heavys	13																														
Trucks	5																														
Cars	1482																														
Totals	1500																														
		East Leg Total: 1946 East Entering: 1095 East Peds: 9 Peds Cross: \bowtie																													
																															
<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>6</td><td>1</td><td>825</td><td>832</td></tr> </table>		Heavys	Trucks	Cars	Totals	6	1	825	832	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>Trucks</td><td>Heavys</td><td>Totals</td></tr> <tr><td>578</td><td>2</td><td>9</td><td>589</td></tr> <tr><td>447</td><td>0</td><td>5</td><td>452</td></tr> <tr><td>53</td><td>0</td><td>1</td><td>54</td></tr> <tr><td>1078</td><td>2</td><td>15</td><td></td></tr> </table>		Cars	Trucks	Heavys	Totals	578	2	9	589	447	0	5	452	53	0	1	54	1078	2	15	
Heavys	Trucks	Cars	Totals																												
6	1	825	832																												
Cars	Trucks	Heavys	Totals																												
578	2	9	589																												
447	0	5	452																												
53	0	1	54																												
1078	2	15																													
<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>3</td><td>1</td><td>427</td><td>431</td></tr> <tr><td>6</td><td>0</td><td>363</td><td>369</td></tr> <tr><td>0</td><td>0</td><td>74</td><td>74</td></tr> <tr><td>9</td><td>1</td><td>864</td><td></td></tr> </table>		Heavys	Trucks	Cars	Totals	3	1	427	431	6	0	363	369	0	0	74	74	9	1	864		<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>Trucks</td><td>Heavys</td><td>Totals</td></tr> <tr><td>835</td><td>0</td><td>16</td><td>851</td></tr> </table>		Cars	Trucks	Heavys	Totals	835	0	16	851
Heavys	Trucks	Cars	Totals																												
3	1	427	431																												
6	0	363	369																												
0	0	74	74																												
9	1	864																													
Cars	Trucks	Heavys	Totals																												
835	0	16	851																												
Peds Cross: \bowtie West Peds: 18 West Entering: 874 West Leg Total: 1706		<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>583</td></tr> <tr><td>Trucks</td><td>3</td></tr> <tr><td>Heavys</td><td>5</td></tr> <tr><td>Totals</td><td>591</td></tr> </table>		Cars	583	Trucks	3	Heavys	5	Totals	591																				
Cars	583																														
Trucks	3																														
Heavys	5																														
Totals	591																														
			<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>50</td><td>477</td><td>52</td><td>579</td></tr> <tr><td>Trucks</td><td>0</td><td>2</td><td>0</td><td>2</td></tr> <tr><td>Heavys</td><td>0</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Totals</td><td>50</td><td>480</td><td>52</td><td></td></tr> </table>	Cars	50	477	52	579	Trucks	0	2	0	2	Heavys	0	1	0	1	Totals	50	480	52									
Cars	50	477	52	579																											
Trucks	0	2	0	2																											
Heavys	0	1	0	1																											
Totals	50	480	52																												
			Peds Cross: \bowtie South Peds: 14 South Entering: 582 South Leg Total: 1173																												
Comments																															


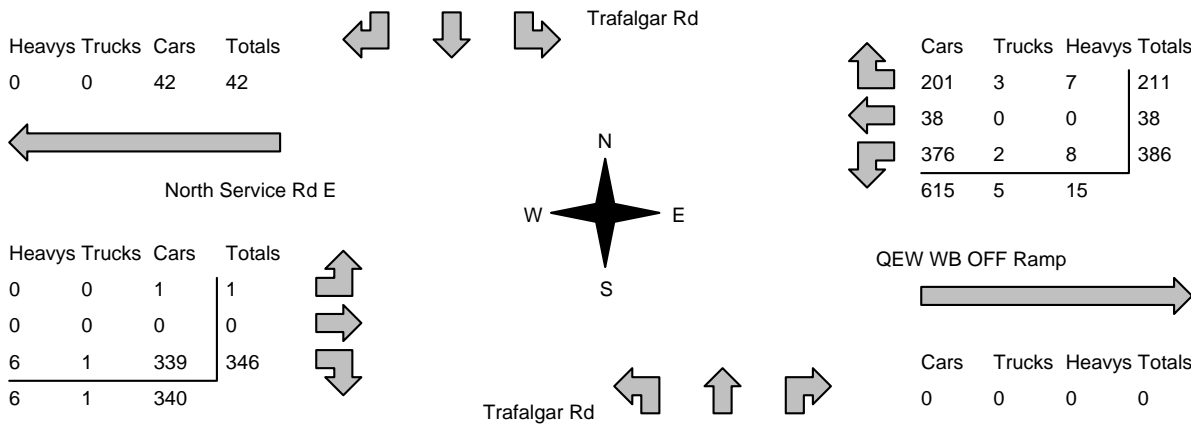

Accu-Traffic Inc.

Morning Peak Diagram		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 7:45:00 To: 8:45:00																													
Municipality: Oakville Site #: 1902700003 Intersection: Trafalgar Rd & QEW EB OFF ON R TFR File #: 1 Count date: 7-Mar-19		Weather conditions: Person counted: Person prepared: Person checked:																														
** Signalized Intersection **		Major Road: Trafalgar Rd runs N/S																														
North Leg Total: 4402 North Entering: 2584 North Peds: 0 Peds Cross: ☒	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>7</td><td>59</td><td>0</td><td style="border-left: 1px solid black;">66</td></tr> <tr><td>Trucks</td><td>1</td><td>8</td><td>0</td><td style="border-left: 1px solid black;">9</td></tr> <tr><td>Cars</td><td>406</td><td>2103</td><td>0</td><td style="border-left: 1px solid black;">2509</td></tr> <tr><td>Totals</td><td>414</td><td>2170</td><td>0</td><td style="border-left: 1px solid black;">2509</td></tr> </table>	Heavys	7	59	0	66	Trucks	1	8	0	9	Cars	406	2103	0	2509	Totals	414	2170	0	2509		<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>72</td></tr> <tr><td>Trucks</td><td>16</td></tr> <tr><td>Cars</td><td>1730</td></tr> <tr><td>Totals</td><td>1818</td></tr> </table>	Heavys	72	Trucks	16	Cars	1730	Totals	1818	East Leg Total: 512 East Entering: 0 East Peds: 0 Peds Cross: ☒
Heavys	7	59	0	66																												
Trucks	1	8	0	9																												
Cars	406	2103	0	2509																												
Totals	414	2170	0	2509																												
Heavys	72																															
Trucks	16																															
Cars	1730																															
Totals	1818																															
																																
Heavys Trucks Cars Totals 7 2 407 416 Peds Cross: ☒ West Peds: 3 West Entering: 1298 West Leg Total: 1714	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>2619</td></tr> <tr><td>Trucks</td><td>14</td></tr> <tr><td>Heavys</td><td>66</td></tr> <tr><td>Totals</td><td>2699</td></tr> </table>	Cars	2619	Trucks	14	Heavys	66	Totals	2699		<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>1</td><td>973</td><td>505</td><td style="border-left: 1px solid black;">1479</td></tr> <tr><td>Trucks</td><td>1</td><td>12</td><td>0</td><td style="border-left: 1px solid black;">13</td></tr> <tr><td>Heavys</td><td>0</td><td>64</td><td>7</td><td style="border-left: 1px solid black;">71</td></tr> <tr><td>Totals</td><td>2</td><td>1049</td><td>512</td><td style="border-left: 1px solid black;">1594</td></tr> </table>	Cars	1	973	505	1479	Trucks	1	12	0	13	Heavys	0	64	7	71	Totals	2	1049	512	1594	Peds Cross: ☒ South Peds: 0 South Entering: 1563 South Leg Total: 4262
Cars	2619																															
Trucks	14																															
Heavys	66																															
Totals	2699																															
Cars	1	973	505	1479																												
Trucks	1	12	0	13																												
Heavys	0	64	7	71																												
Totals	2	1049	512	1594																												
Comments people making u-turns																																








































































































































































































































































































Accu-Traffic Inc.

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: Oakville Site #: 1902700003 Intersection: Trafalgar Rd & QEW EB OFF ON R TFR File #: 1 Count date: 7-Mar-19		Weather conditions: Person counted: Person prepared: Person checked:																														
** Signalized Intersection **		Major Road: Trafalgar Rd runs N/S																														
North Leg Total: 4626 North Entering: 1604 North Peds: 0 Peds Cross: ☒	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>7</td><td>30</td><td>0</td><td style="border-left: 1px solid black;">37</td></tr> <tr><td>Trucks</td><td>1</td><td>9</td><td>0</td><td style="border-left: 1px solid black;">10</td></tr> <tr><td>Cars</td><td>280</td><td>1277</td><td>0</td><td style="border-left: 1px solid black;">1557</td></tr> <tr><td>Totals</td><td>288</td><td>1316</td><td>0</td><td style="border-left: 1px solid black;"></td></tr> </table>	Heavys	7	30	0	37	Trucks	1	9	0	10	Cars	280	1277	0	1557	Totals	288	1316	0			<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>35</td></tr> <tr><td>Trucks</td><td>4</td></tr> <tr><td>Cars</td><td>2983</td></tr> <tr><td>Totals</td><td>3022</td></tr> </table>	Heavys	35	Trucks	4	Cars	2983	Totals	3022	East Leg Total: 447 East Entering: 0 East Peds: 0 Peds Cross: ☒
Heavys	7	30	0	37																												
Trucks	1	9	0	10																												
Cars	280	1277	0	1557																												
Totals	288	1316	0																													
Heavys	35																															
Trucks	4																															
Cars	2983																															
Totals	3022																															
																																
<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>7</td><td>1</td><td>280</td><td>288</td></tr> </table>	Heavys	Trucks	Cars	Totals	7	1	280	288			<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>Trucks</td><td>Heavys</td><td>Totals</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	Cars	Trucks	Heavys	Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Heavys	Trucks	Cars	Totals																													
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Cars	Trucks	Heavys	Totals																													
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0	0	0	0																													
0	0	0	0																													
0	0	0	0																													
<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>2</td><td>1</td><td>769</td><td>772</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>6</td><td>1</td><td>326</td><td>333</td></tr> <tr><td>8</td><td>2</td><td>1095</td><td></td></tr> </table>	Heavys	Trucks	Cars	Totals	2	1	769	772	0	0	0	0	6	1	326	333	8	2	1095				<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>Trucks</td><td>Heavys</td><td>Totals</td></tr> <tr><td>444</td><td>1</td><td>2</td><td>447</td></tr> </table>	Cars	Trucks	Heavys	Totals	444	1	2	447	
Heavys	Trucks	Cars	Totals																													
2	1	769	772																													
0	0	0	0																													
6	1	326	333																													
8	2	1095																														
Cars	Trucks	Heavys	Totals																													
444	1	2	447																													
Peds Cross: ☒ West Peds: 4 West Entering: 1105 West Leg Total: 1393	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>1603</td></tr> <tr><td>Trucks</td><td>10</td></tr> <tr><td>Heavys</td><td>36</td></tr> <tr><td>Totals</td><td>1649</td></tr> </table>	Cars	1603	Trucks	10	Heavys	36	Totals	1649		<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>0</td><td>2214</td><td>444</td><td style="border-left: 1px solid black;">2658</td></tr> <tr><td>Trucks</td><td>0</td><td>3</td><td>1</td><td style="border-left: 1px solid black;">4</td></tr> <tr><td>Heavys</td><td>0</td><td>33</td><td>2</td><td style="border-left: 1px solid black;">35</td></tr> <tr><td>Totals</td><td>0</td><td>2250</td><td>447</td><td style="border-left: 1px solid black;"></td></tr> </table>	Cars	0	2214	444	2658	Trucks	0	3	1	4	Heavys	0	33	2	35	Totals	0	2250	447		Peds Cross: ☒ South Peds: 0 South Entering: 2697 South Leg Total: 4346
Cars	1603																															
Trucks	10																															
Heavys	36																															
Totals	1649																															
Cars	0	2214	444	2658																												
Trucks	0	3	1	4																												
Heavys	0	33	2	35																												
Totals	0	2250	447																													
Comments																																

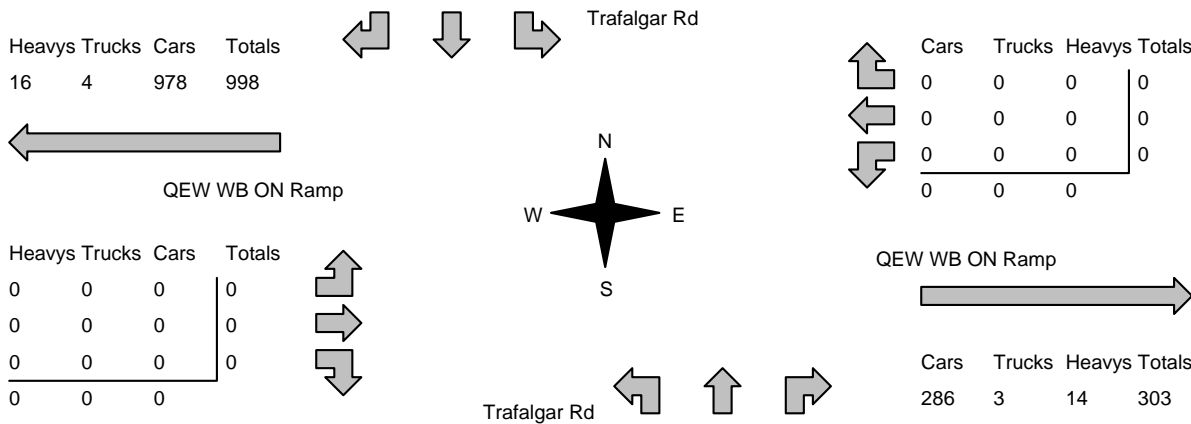
Accu-Traffic Inc.

Morning Peak Diagram		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 7:45:00 To: 8:45:00																												
Municipality: Oakville Site #: 1902700001 Intersection: Trafalgar Rd & QEW WB OFF Ram TFR File #: 1 Count date: 7-Mar-19		Weather conditions: Person counted: Person prepared: Person checked:																													
** Signalized Intersection **		Major Road: Trafalgar Rd runs N/S																													
North Leg Total: 4638 North Entering: 2893 North Peds: 6 Peds Cross: \bowtie	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>67</td><td>0</td><td>67</td></tr> <tr><td>Trucks</td><td>0</td><td>12</td><td>0</td><td>12</td></tr> <tr><td>Cars</td><td>4</td><td>2810</td><td>0</td><td>2814</td></tr> <tr><td>Totals</td><td>4</td><td>2889</td><td>0</td><td></td></tr> </table>	Heavys	0	67	0	67	Trucks	0	12	0	12	Cars	4	2810	0	2814	Totals	4	2889	0			<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>65</td></tr> <tr><td>Trucks</td><td>17</td></tr> <tr><td>Cars</td><td>1663</td></tr> <tr><td>Totals</td><td>1745</td></tr> </table>	Heavys	65	Trucks	17	Cars	1663	Totals	1745
Heavys	0	67	0	67																											
Trucks	0	12	0	12																											
Cars	4	2810	0	2814																											
Totals	4	2889	0																												
Heavys	65																														
Trucks	17																														
Cars	1663																														
Totals	1745																														
		<table style="width: 100%; border-collapse: collapse;"> <tr><td>East Leg Total:</td><td>635</td></tr> <tr><td>East Entering:</td><td>635</td></tr> <tr><td>East Peds:</td><td>0</td></tr> <tr><td>Peds Cross:</td><td>\bowtie</td></tr> </table>	East Leg Total:	635	East Entering:	635	East Peds:	0	Peds Cross:	\bowtie																					
East Leg Total:	635																														
East Entering:	635																														
East Peds:	0																														
Peds Cross:	\bowtie																														
																															
<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>42</td><td>42</td></tr> </table>		Heavys	Trucks	Cars	Totals	0	0	42	42	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>Trucks</td><td>Heavys</td><td>Totals</td></tr> <tr><td>201</td><td>3</td><td>7</td><td>211</td></tr> <tr><td>38</td><td>0</td><td>0</td><td>38</td></tr> <tr><td>376</td><td>2</td><td>8</td><td>386</td></tr> <tr><td>615</td><td>5</td><td>15</td><td></td></tr> </table>		Cars	Trucks	Heavys	Totals	201	3	7	211	38	0	0	38	376	2	8	386	615	5	15	
Heavys	Trucks	Cars	Totals																												
0	0	42	42																												
Cars	Trucks	Heavys	Totals																												
201	3	7	211																												
38	0	0	38																												
376	2	8	386																												
615	5	15																													
<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>1</td><td>1</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>6</td><td>1</td><td>339</td><td>346</td></tr> <tr><td>6</td><td>1</td><td>340</td><td></td></tr> </table>		Heavys	Trucks	Cars	Totals	0	0	1	1	0	0	0	0	6	1	339	346	6	1	340		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>Trucks</td><td>Heavys</td><td>Totals</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>		Cars	Trucks	Heavys	Totals	0	0	0	0
Heavys	Trucks	Cars	Totals																												
0	0	1	1																												
0	0	0	0																												
6	1	339	346																												
6	1	340																													
Cars	Trucks	Heavys	Totals																												
0	0	0	0																												
Peds Cross: \bowtie West Peds: 3 West Entering: 347 West Leg Total: 389		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>3525</td></tr> <tr><td>Trucks</td><td>15</td></tr> <tr><td>Heavys</td><td>81</td></tr> <tr><td>Totals</td><td>3621</td></tr> </table>		Cars	3525	Trucks	15	Heavys	81	Totals	3621																				
Cars	3525																														
Trucks	15																														
Heavys	81																														
Totals	3621																														
			<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>0</td><td>1461</td><td>0</td><td>1461</td></tr> <tr><td>Trucks</td><td>0</td><td>14</td><td>0</td><td>14</td></tr> <tr><td>Heavys</td><td>0</td><td>58</td><td>0</td><td>58</td></tr> <tr><td>Totals</td><td>0</td><td>1533</td><td>0</td><td></td></tr> </table>		Cars	0	1461	0	1461	Trucks	0	14	0	14	Heavys	0	58	0	58	Totals	0	1533	0								
Cars	0	1461	0	1461																											
Trucks	0	14	0	14																											
Heavys	0	58	0	58																											
Totals	0	1533	0																												
		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Peds Cross:</td><td>\bowtie</td></tr> <tr><td>South Peds:</td><td>0</td></tr> <tr><td>South Entering:</td><td>1533</td></tr> <tr><td>South Leg Total:</td><td>5154</td></tr> </table>		Peds Cross:	\bowtie	South Peds:	0	South Entering:	1533	South Leg Total:	5154																				
Peds Cross:	\bowtie																														
South Peds:	0																														
South Entering:	1533																														
South Leg Total:	5154																														
Comments																															

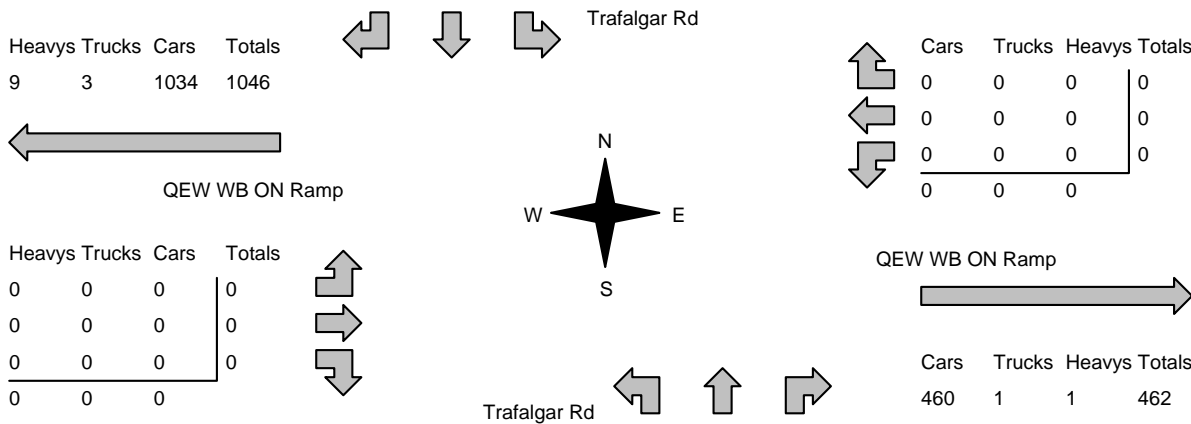
Accu-Traffic Inc.

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: Oakville Site #: 1902700001 Intersection: Trafalgar Rd & QEW WB OFF Ram TFR File #: 1 Count date: 7-Mar-19		Weather conditions: Person counted: Person prepared: Person checked:																																																									
** Signalized Intersection **		Major Road: Trafalgar Rd runs N/S																																																									
North Leg Total: 4963 North Entering: 2124 North Peds: 0 Peds Cross: ☒	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>41</td><td>0</td><td style="border-left: 1px solid black;">41</td></tr> <tr><td>Trucks</td><td>0</td><td>8</td><td>0</td><td style="border-left: 1px solid black;">8</td></tr> <tr><td>Cars</td><td>10</td><td>2065</td><td>0</td><td style="border-left: 1px solid black;">2075</td></tr> <tr><td>Totals</td><td>10</td><td>2114</td><td>0</td><td style="border-left: 1px solid black;"></td></tr> </table>	Heavys	0	41	0	41	Trucks	0	8	0	8	Cars	10	2065	0	2075	Totals	10	2114	0			<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>35</td></tr> <tr><td>Trucks</td><td>5</td></tr> <tr><td>Cars</td><td>2799</td></tr> <tr><td>Totals</td><td>2839</td></tr> </table>	Heavys	35	Trucks	5	Cars	2799	Totals	2839																												
Heavys	0	41	0	41																																																							
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Accu-Traffic Inc.

Morning Peak Diagram		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 7:45:00 To: 8:45:00																												
Municipality: Oakville Site #: 1902700002 Intersection: Trafalgar Rd & QEW WB ON Ramp TFR File #: 1 Count date: 7-Mar-19		Weather conditions: Person counted: Person prepared: Person checked:																													
** Non-Signalized Intersection **		Major Road: Trafalgar Rd runs N/S																													
North Leg Total: 5142 North Entering: 3613 North Peds: 0 Peds Cross: ☒	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>16</td><td>65</td><td>0</td><td>81</td></tr> <tr><td>Trucks</td><td>4</td><td>10</td><td>0</td><td>14</td></tr> <tr><td>Cars</td><td>978</td><td>2540</td><td>0</td><td>3518</td></tr> <tr><td>Totals</td><td>998</td><td>2615</td><td>0</td><td></td></tr> </table>	Heavys	16	65	0	81	Trucks	4	10	0	14	Cars	978	2540	0	3518	Totals	998	2615	0		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>58</td></tr> <tr><td>Trucks</td><td>14</td></tr> <tr><td>Cars</td><td>1457</td></tr> <tr><td>Totals</td><td>1529</td></tr> </table>	Heavys	58	Trucks	14	Cars	1457	Totals	1529	East Leg Total: 303 East Entering: 0 East Peds: 0 Peds Cross: ☒
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Peds Cross: ☒ West Peds: 0 West Entering: 0 West Leg Total: 998	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>2540</td></tr> <tr><td>Trucks</td><td>10</td></tr> <tr><td>Heavys</td><td>65</td></tr> <tr><td>Totals</td><td>2615</td></tr> </table>	Cars	2540	Trucks	10	Heavys	65	Totals	2615	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>0</td><td>1457</td><td>286</td><td>1743</td></tr> <tr><td>Trucks</td><td>0</td><td>14</td><td>3</td><td>17</td></tr> <tr><td>Heavys</td><td>0</td><td>58</td><td>14</td><td>72</td></tr> <tr><td>Totals</td><td>0</td><td>1529</td><td>303</td><td></td></tr> </table>	Cars	0	1457	286	1743	Trucks	0	14	3	17	Heavys	0	58	14	72	Totals	0	1529	303		Peds Cross: ☒ South Peds: 0 South Entering: 1832 South Leg Total: 4447
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Heavys	0	58	14	72																											
Totals	0	1529	303																												
Comments																															

Accu-Traffic Inc.

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: Oakville Site #: 1902700002 Intersection: Trafalgar Rd & QEW WB ON Ramp TFR File #: 1 Count date: 7-Mar-19		Weather conditions: Person counted: Person prepared: Person checked:																													
** Non-Signalized Intersection **		Major Road: Trafalgar Rd runs N/S																													
North Leg Total: 5202 North Entering: 2649 North Peds: 0 Peds Cross: ☒	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>9</td><td>37</td><td>0</td><td style="border-left: 1px solid black;">46</td></tr> <tr><td>Trucks</td><td>3</td><td>10</td><td>0</td><td style="border-left: 1px solid black;">13</td></tr> <tr><td>Cars</td><td>1034</td><td>1556</td><td>0</td><td style="border-left: 1px solid black;">2590</td></tr> <tr><td>Totals</td><td>1046</td><td>1603</td><td>0</td><td style="border-left: 1px solid black;"></td></tr> </table>	Heavys	9	37	0	46	Trucks	3	10	0	13	Cars	1034	1556	0	2590	Totals	1046	1603	0		<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>33</td></tr> <tr><td>Trucks</td><td>3</td></tr> <tr><td>Cars</td><td>2517</td></tr> <tr><td>Totals</td><td>2553</td></tr> </table>	Heavys	33	Trucks	3	Cars	2517	Totals	2553	East Leg Total: 462 East Entering: 0 East Peds: 0 Peds Cross: ☒
Heavys	9	37	0	46																											
Trucks	3	10	0	13																											
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Cars	Trucks	Heavys	Totals																												
460	1	1	462																												
Peds Cross: ☒ West Peds: 0 West Entering: 0 West Leg Total: 1046	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>1556</td></tr> <tr><td>Trucks</td><td>10</td></tr> <tr><td>Heavys</td><td>37</td></tr> <tr><td>Totals</td><td>1603</td></tr> </table>	Cars	1556	Trucks	10	Heavys	37	Totals	1603	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>0</td><td>2517</td><td>460</td><td style="border-left: 1px solid black;">2977</td></tr> <tr><td>Trucks</td><td>0</td><td>3</td><td>1</td><td style="border-left: 1px solid black;">4</td></tr> <tr><td>Heavys</td><td>0</td><td>33</td><td>1</td><td style="border-left: 1px solid black;">34</td></tr> <tr><td>Totals</td><td>0</td><td>2553</td><td>462</td><td style="border-left: 1px solid black;"></td></tr> </table>	Cars	0	2517	460	2977	Trucks	0	3	1	4	Heavys	0	33	1	34	Totals	0	2553	462		Peds Cross: ☒ South Peds: 0 South Entering: 3015 South Leg Total: 4618
Cars	1556																														
Trucks	10																														
Heavys	37																														
Totals	1603																														
Cars	0	2517	460	2977																											
Trucks	0	3	1	4																											
Heavys	0	33	1	34																											
Totals	0	2553	462																												
Comments																															

Trafalgar Rd @ South Service Rd

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: Halton Region
Site #: 0000003366
Intersection: Trafalgar Rd & South Service Rd
TFR File #: 3
Count date: 6-Nov-2019

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 3524
 North Entering: 2011
 North Peds: 0
 Peds Cross: \times

Heavys	10	25	4	39
Trucks	2	14	2	18
Cars	348	1349	257	1954
Totals	360	1388	263	



Heavys	46
Trucks	23
Cars	1444
Totals	1513

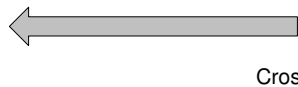
East Leg Total: 578
 East Entering: 186
 East Peds: 22
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
25	4	508	537

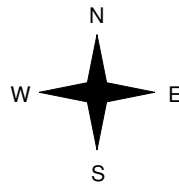


Trafalgar Rd

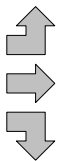
Cars	Trucks	Heavys	Totals
49	1	6	56
68	1	6	75
53	1	1	55
170	3	13	



Cross Ave



Heavys	Trucks	Cars	Totals
26	1	329	356
8	0	60	68
6	0	110	116
40	1	499	



South Service Rd



Peds Cross: \times
 West Peds: 9
 West Entering: 540
 West Leg Total: 1077

Cars	1512	Cars	92	1066	60	1218
Trucks	15	Trucks	1	21	1	23
Heavys	32	Heavys	9	14	0	23
Totals	1559	Totals	102	1101	61	



Trafalgar Rd



Peds Cross: \times
 South Peds: 4
 South Entering: 1264
 South Leg Total: 2823

Comments

Trafalgar Rd @ South Service Rd

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 12:00:00

To: 13:00:00

Municipality: Halton Region
Site #: 0000003366
Intersection: Trafalgar Rd & South Service Rd
TFR File #: 3
Count date: 6-Nov-2019

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 3176
 North Entering: 1440
 North Peds: 0
 Peds Cross: \times

Heavys	9	6	2	17
Trucks	4	14	3	21
Cars	203	1098	101	1402
Totals	216	1118	106	



Heavys	44
Trucks	28
Cars	1664
Totals	1736

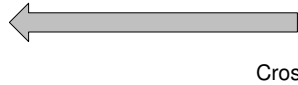
East Leg Total: 495
 East Entering: 271
 East Peds: 5
 Peds Cross: \times

Heavys	12
Trucks	7
Cars	401
Totals	420

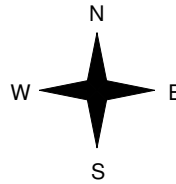


Trafalgar Rd

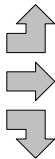
Cars	121	Trucks	2	Heavys	6	Totals	129
	81		1		0		82
	60		0		0		60
Totals	262	3	6				



Cross Ave



Heavys	21
Trucks	5
Cars	390
Totals	416
	0
	0
	69
Totals	126
	3
	2
	121
Totals	24
	7
	580



South Service Rd



Cars	218	Trucks	4	Heavys	2	Totals	224
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Peds Cross: \times
 West Peds: 19
 West Entering: 611
 West Leg Total: 1031

Cars	1279
Trucks	16
Heavys	9
Totals	1304



Cars	117	1153	48	1318
Trucks	2	21	1	24
Heavys	3	17	0	20
Totals	122	1191	49	

Peds Cross: \times
 South Peds: 17
 South Entering: 1362
 South Leg Total: 2666

Comments

Trafalgar Rd @ South Service Rd

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 16:30:00

To: 17:30:00

Municipality: Halton Region
Site #: 0000003366
Intersection: Trafalgar Rd & South Service Rd
TFR File #: 3
Count date: 6-Nov-2019

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 3839
 North Entering: 1409
 North Peds: 0
 Peds Cross: \times

Heavys	6	5	0	11
Trucks	1	1	0	2
Cars	233	1065	98	1396
Totals	240	1071	98	



Heavys	40
Trucks	9
Cars	2381
Totals	2430

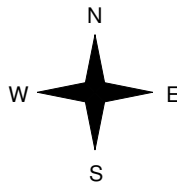
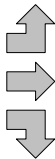
East Leg Total: 714
 East Entering: 526
 East Peds: 37
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
17	2	401	420



Cross Ave

Heavys	Trucks	Cars	Totals
29	1	780	810
5	0	53	58
5	0	94	99
39	1	927	



Cars	Trucks	Heavys	Totals
327	1	5	333
71	0	5	76
114	0	3	117
512	1	13	



South Service Rd



Cars	Trucks	Heavys	Totals
183	0	5	188

Peds Cross: \times
 West Peds: 10
 West Entering: 967
 West Leg Total: 1387

Cars	1273
Trucks	1
Heavys	13
Totals	1287



Cars	97	1274	32	1403
Trucks	1	7	0	8
Heavys	6	6	0	12
Totals	104	1287	32	

Peds Cross: \times
 South Peds: 17
 South Entering: 1423
 South Leg Total: 2710

Comments

Trafalgar Rd @ South Service Rd

Total Count Diagram

Municipality: Halton Region
Site #: 0000003366
Intersection: Trafalgar Rd & South Service Rd
TFR File #: 3
Count date: 6-Nov-2019

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 26403
 North Entering: 12257
 North Peds: 3
 Peds Cross: \times

Heavys	85	116	23	224
Trucks	14	107	11	132
Cars	2223	8698	980	11901
Totals	2322	8921	1014	



Heavys	327
Trucks	152
Cars	13667
Totals	14146

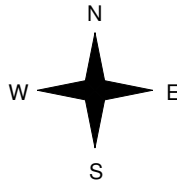
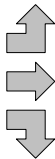
East Leg Total: 3967
 East Entering: 2232
 East Peds: 139
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
147	30	3429	3606



Cross Ave

Heavys	Trucks	Cars	Totals
180	17	3426	3623
19	4	405	428
37	6	816	859
236	27	4647	



Trafalgar Rd

Cars	Trucks	Heavys	Totals
1180	14	33	1227
489	7	17	513
477	6	9	492
2146	27	59	



South Service Rd



Cars	Trucks	Heavys	Totals
1667	21	47	1735

Peds Cross: \times
 West Peds: 81
 West Entering: 4910
 West Leg Total: 8516

Cars	9991
Trucks	119
Heavys	162
Totals	10272



Cars	717	9061	282	10060
Trucks	9	121	6	136
Heavys	45	114	5	164
Totals	771	9296	293	

Peds Cross: \times
 South Peds: 75
 South Entering: 10360
 South Leg Total: 20632

Comments

Trafalgar Rd @ Cornwall Rd

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: Halton Region
Site #: 0000003365
Intersection: Trafalgar Rd & Cornwall Rd
TFR File #: 2
Count date: 6-Nov-2019

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 2842
 North Entering: 1522
 North Peds: 36
 Peds Cross: \times

Heavys	10	4	17	31
Trucks	5	3	9	17
Cars	372	561	541	1474
Totals	387	568	567	



Heavys	39
Trucks	15
Cars	1266
Totals	1320

East Leg Total: 2044
 East Entering: 985
 East Peds: 15
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
24	10	832	866



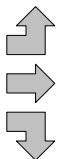
Trafalgar Rd

Cars	Trucks	Heavys	Totals
524	10	26	560
381	5	13	399
24	1	1	26
929	16	40	

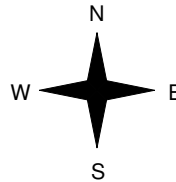


Cornwall Rd

Heavys	Trucks	Cars	Totals
5	3	344	352
11	2	428	441
2	0	57	59
18	5	829	



Cornwall Rd



Trafalgar Rd



Cars	Trucks	Heavys	Totals
1020	11	28	1059



Peds Cross: \times
 West Peds: 14
 West Entering: 852
 West Leg Total: 1718

Cars	642	Cars	79	398	51	528
Trucks	4	Trucks	0	2	0	2
Heavys	7	Heavys	1	8	0	9
Totals	653	Totals	80	408	51	



Peds Cross: \times
 South Peds: 10
 South Entering: 539
 South Leg Total: 1192

Comments

Trafalgar Rd @ Cornwall Rd

Mid-day Peak Diagram

Specified Period

From: 11:00:00
To: 14:00:00

One Hour Peak

From: 12:00:00
To: 13:00:00

Municipality: Halton Region
Site #: 0000003365
Intersection: Trafalgar Rd & Cornwall Rd
TFR File #: 2
Count date: 6-Nov-2019

Weather conditions:
Cloudy/Dry
Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 2590
North Entering: 1295
North Peds: 33
Peds Cross: \times

Heavys	2	1	7	10
Trucks	2	5	9	16
Cars	288	467	514	1269
Totals	292	473	530	



Heavys	20
Trucks	26
Cars	1249
Totals	1295

East Leg Total: 1874
East Entering: 940
East Peds: 37
Peds Cross: \times

Heavys	7
Trucks	10
Cars	631
Totals	648

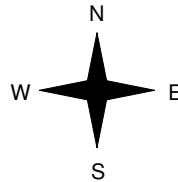


Trafalgar Rd

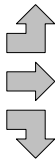
Cars	558	Trucks	11	Heavys	11	Totals	580
Cars	302	Trucks	8	Heavys	5	Totals	315
Cars	45	Trucks	0	Heavys	0	Totals	45
Cars	905	Trucks	19	Heavys	16	Totals	



Cornwall Rd



Heavys	7
Trucks	6
Cars	300
Totals	313
Heavys	7
Trucks	7
Cars	330
Totals	344
Heavys	0
Trucks	0
Cars	55
Totals	55
Heavys	14
Trucks	13
Cars	685
Totals	



Cornwall Rd



Peds Cross: \times
West Peds: 4
West Entering: 712
West Leg Total: 1360

Cars	567
Trucks	5
Heavys	1
Totals	573



Cars	41	391	60	492
Trucks	0	9	0	9
Heavys	0	2	0	2
Totals	41	402	60	

Peds Cross: \times
South Peds: 5
South Entering: 503
South Leg Total: 1076

Comments

Trafalgar Rd @ Cornwall Rd

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 15:30:00

To: 16:30:00

Municipality: Halton Region
Site #: 0000003365
Intersection: Trafalgar Rd & Cornwall Rd
TFR File #: 2
Count date: 6-Nov-2019

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 2825
 North Entering: 1297
 North Peds: 20
 Peds Cross: \times

Heavys	6	1	12	19
Trucks	1	2	2	5
Cars	309	462	502	1273
Totals	316	465	516	



Heavys	32
Trucks	10
Cars	1486
Totals	1528

East Leg Total: 2188
 East Entering: 1244
 East Peds: 11
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
18	8	853	879

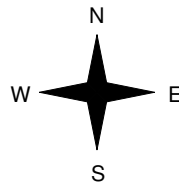


Trafalgar Rd

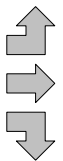
Cars	Trucks	Heavys	Totals
666	6	15	687
482	6	11	499
56	2	0	58
1204	14	26	



Cornwall Rd



Heavys	Trucks	Cars	Totals
11	1	355	367
7	2	368	377
0	0	66	66
18	3	789	



Cornwall Rd



Cars	Trucks	Heavys	Totals
921	4	19	944

Peds Cross: \times
 West Peds: 10
 West Entering: 810
 West Leg Total: 1689

Cars	584	Cars	62	465	51	578
Trucks	4	Trucks	1	3	0	4
Heavys	1	Heavys	1	6	0	7
Totals	589	Totals	64	474	51	



Trafalgar Rd

Peds Cross: \times
 South Peds: 10
 South Entering: 589
 South Leg Total: 1178

Comments

Trafalgar Rd @ Cornwall Rd

Total Count Diagram

Municipality: Halton Region
Site #: 0000003365
Intersection: Trafalgar Rd & Cornwall Rd
TFR File #: 2
Count date: 6-Nov-2019

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 20494
 North Entering: 10081
 North Peds: 211
 Peds Cross: \times

Heavys	46	24	84	154
Trucks	36	34	57	127
Cars	2464	3617	3719	9800
Totals	2546	3675	3860	



Heavys	184
Trucks	112
Cars	10117
Totals	10413

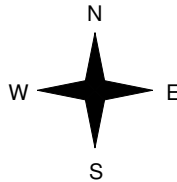
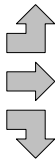
East Leg Total: 14725
 East Entering: 7655
 East Peds: 165
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
114	88	5716	5918



Cornwall Rd

Heavys	Trucks	Cars	Totals
41	22	2614	2677
49	43	2698	2790
3	4	448	455
93	69	5760	



Trafalgar Rd

Cars	Trucks	Heavys	Totals
4221	61	107	4389
2827	47	62	2936
316	12	2	330
7364	120	171	



Cornwall Rd



Cars	Trucks	Heavys	Totals
6831	105	134	7070

Peds Cross: \times
 West Peds: 77
 West Entering: 5922
 West Leg Total: 11840

Cars	4381
Trucks	50
Heavys	29
Totals	4460



Cars	425	3282	414	4121
Trucks	5	29	5	39
Heavys	6	36	1	43
Totals	436	3347	420	

Peds Cross: \times
 South Peds: 60
 South Entering: 4203
 South Leg Total: 8663

Comments

APPENDIX F

Level of Service Definitions

DRAFT

Level of Service Definitions

Two-Way Stop Controlled Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	≤ 10	EXCELLENT. Large and frequent gaps in traffic on the main roadway. Queuing on the minor street is rare.
B	> 10 and ≤ 15	VERY GOOD. Many gaps exist in traffic on the main roadway. Queuing on the minor street is minimal.
C	> 15 and ≤ 25	GOOD. Fewer gaps exist in traffic on the main roadway. Delay on minor approach becomes more noticeable.
D	> 25 and ≤ 35	FAIR. Infrequent and shorter gaps in traffic on the main roadway. Queue lengths develop on the minor street.
E	> 35 and ≤ 50	POOR. Very infrequent gaps in traffic on the main roadway. Queue lengths become noticeable.
F	> 50	UNSATISFACTORY. Very few gaps in traffic on the main roadway. Excessive delay with significant queue lengths on the minor street.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

Level of Service Definitions

Signalized Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	≤ 10	EXCELLENT. Extremely favourable progression with most vehicles arriving during the green phase. Most vehicles do not stop and short cycle lengths may contribute to low delay.
B	> 10 and ≤ 20	VERY GOOD. Very good progression and/or short cycle lengths with slightly more vehicles stopping than LOS "A" causing slightly higher levels of average delay.
C	> 20 and ≤ 35	GOOD. Fair progression and longer cycle lengths lead to a greater number of vehicles stopping than LOS "B".
D	> 35 and ≤ 55	FAIR. Congestion becomes noticeable with higher average delays resulting from a combination of long cycle lengths, high volume-to-capacity ratios and unfavourable progression.
E	> 55 and ≤ 80	POOR. Lengthy delays values are indicative of poor progression, long cycle lengths and high volume-to-capacity ratios. Individual cycle failures are common with individual movement failures also common.
F	> 80	UNSATISFACTORY. Indicative of oversaturated conditions with vehicular demand greater than the capacity of the intersection.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

APPENDIX G

Detailed Capacity Analysis Worksheets

DRAFT

Lanes, Volumes, Timings

2022 AM Existing Conditions

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	6	239	107	386	38	225	1533	311	1996	893	5
Future Volume (vph)	6	239	107	386	38	225	1533	311	1996	893	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0	0.0				60.0		80.0		0.0	
Storage Lanes	1	1				1		1		1	
Taper Length (m)	15.0										
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Ped Bike Factor						0.99		0.98		0.96	
Frt		0.850				0.850		0.850		0.850	
Flt Protected	0.950			0.950	0.961						
Satd. Flow (prot)	1825	1622	0	1667	1686	1570	5142	1601	5092	1570	0
Flt Permitted	0.950			0.950	0.961						
Satd. Flow (perm)	1825	1622	0	1667	1686	1550	5142	1562	5092	1506	0
Right Turn on Red			No			Yes		Yes			Yes
Satd. Flow (RTOR)						237		327		82	
Link Speed (k/h)					40		60		60		
Link Distance (m)					190.6		330.4		230.9		
Travel Time (s)					17.2		19.8		13.9		
Confl. Peds. (#/hr)						2		2		6	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	4%	4%	4%	2%	2%	3%	4%	0%
Adj. Flow (vph)	6	252	113	406	40	237	1614	327	2101	940	5
Shared Lane Traffic (%)				45%							
Lane Group Flow (vph)	6	365	0	223	223	237	1614	327	2101	945	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)					3.7		2.0		2.0		
Link Offset(m)					0.0		0.0		0.0		
Crosswalk Width(m)					4.9		4.9		4.9		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	14	24		14		14		14	14
Number of Detectors	1	1		1	2	1	2	1	2	1	
Detector Template	Left	Right		Left	Thru	Right	Thru	Right	Thru	Right	
Leading Detector (m)	6.1	6.1		6.1	30.5	6.1	30.5	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	6.1		6.1	1.8	6.1	1.8	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)					28.7		28.7		28.7		
Detector 2 Size(m)					1.8		1.8		1.8		
Detector 2 Type					Cl+Ex		Cl+Ex		Cl+Ex		
Detector 2 Channel											
Detector 2 Extend (s)					0.0		0.0		0.0		

Lanes, Volumes, Timings

2022 AM Existing Conditions

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

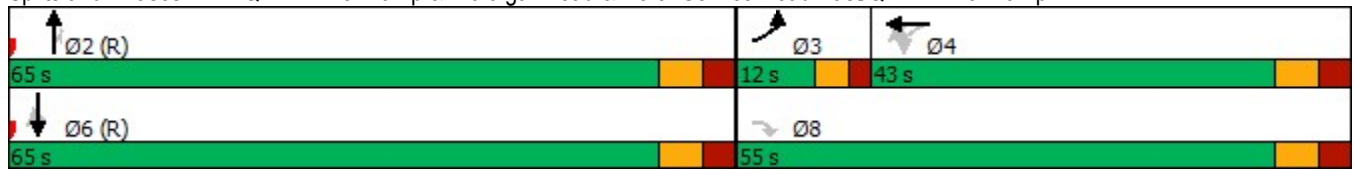


Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Turn Type	Prot	Perm		Perm	NA	Free	NA	Perm	NA	Perm	
Protected Phases	3				4		2		6		
Permitted Phases		8		4		Free		2		6	
Detector Phase	3	8		4	4		2	2	6	6	
Switch Phase											
Minimum Initial (s)	7.0	10.0		5.0	5.0		28.0	28.0	28.0	28.0	
Minimum Split (s)	12.0	22.5		38.0	38.0		35.0	35.0	35.0	35.0	
Total Split (s)	12.0	55.0		43.0	43.0		65.0	65.0	65.0	65.0	
Total Split (%)	10.0%	45.8%		35.8%	35.8%		54.2%	54.2%	54.2%	54.2%	
Maximum Green (s)	7.0	48.0		36.0	36.0		58.0	58.0	58.0	58.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-3.0	-3.0		-3.0	-3.0	-3.0	-3.0	
Total Lost Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
Lead/Lag	Lead			Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	
Walk Time (s)				7.0	7.0		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)				24.0	24.0		21.0	21.0	21.0	21.0	
Pedestrian Calls (#/hr)				0	0		0	0	0	0	
Act Effct Green (s)	9.0	35.9		33.5	33.5	120.0	76.1	76.1	76.1	76.1	
Actuated g/C Ratio	0.08	0.30		0.28	0.28	1.00	0.63	0.63	0.63	0.63	
v/c Ratio	0.04	0.75		0.48	0.47	0.15	0.50	0.29	0.65	0.96	
Control Delay	52.5	47.5		39.3	39.1	0.2	13.3	2.0	16.0	41.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	52.5	47.5		39.3	39.1	0.2	13.3	2.0	16.0	41.6	
LOS	D	D		D	D	A	B	A	B	D	
Approach Delay					25.6		11.4		23.9		
Approach LOS					C		B		C		























Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.96
Intersection Signal Delay:	21.5
Intersection LOS:	C
Intersection Capacity Utilization:	100.3%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

											
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	 				  			  			
Traffic Volume (vph)	769	0	529	0	1075	512	0	2201	420	0	0
Future Volume (vph)	769	0	529	0	1075	512	0	2201	420	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		175.0	0.0	0.0		75.0	0.0		65.0	0.0	0.0
Storage Lanes		1	1	0		1	0		1	0	0
Taper Length (m)		25.0		7.6			7.6			2.5	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor						0.97			0.95		
Frt			0.850			0.850			0.850		
Flt Protected	0.950										
Satd. Flow (prot)	3471	0	1601	0	5142	1601	0	4902	1585	0	0
Flt Permitted	0.950										
Satd. Flow (perm)	3471	0	1601	0	5142	1557	0	4902	1505	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)			23			539			280		
Link Speed (k/h)		40			60			60		40	
Link Distance (m)		226.4			327.5			330.4		203.9	
Travel Time (s)		20.4			19.7			19.8		18.4	
Confl. Peds. (#/hr)						2			8		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	2%	0%	2%	2%	0%	7%	3%	0%	0%
Adj. Flow (vph)	809	0	557	0	1132	539	0	2317	442	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	809	0	557	0	1132	539	0	2317	442	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)		7.4			2.0			2.0		0.0	
Link Offset(m)		0.0			0.0			0.0		0.0	
Crosswalk Width(m)		4.9			4.9			4.9		1.6	
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	24	14	24		14	24		14	24	14
Number of Detectors	1		1		2	1		2	1		
Detector Template	Left		Right		Thru	Right		Thru	Right		
Leading Detector (m)	6.1		6.1		30.5	6.1		30.5	6.1		
Trailing Detector (m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1		6.1		1.8	6.1		1.8	6.1		
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)					28.7			28.7			
Detector 2 Size(m)					1.8			1.8			
Detector 2 Type					Cl+Ex			Cl+Ex			
Detector 2 Channel											
Detector 2 Extend (s)					0.0			0.0			

Lanes, Volumes, Timings
 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2022 AM Existing Conditions

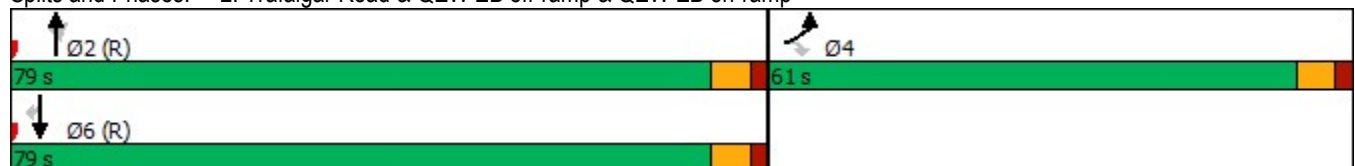


Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Turn Type	Prot		Perm		NA	Perm		NA	Perm		
Protected Phases	4				2			6			
Permitted Phases			4			2			6		
Detector Phase	4		4		2	2		6	6		
Switch Phase											
Minimum Initial (s)	5.0		5.0		5.0	5.0		5.0	5.0		
Minimum Split (s)	24.0		24.0		24.0	24.0		24.0	24.0		
Total Split (s)	61.0		61.0		79.0	79.0		79.0	79.0		
Total Split (%)	43.6%		43.6%		56.4%	56.4%		56.4%	56.4%		
Maximum Green (s)	55.0		55.0		73.0	73.0		73.0	73.0		
Yellow Time (s)	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		
Lost Time Adjust (s)	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Recall Mode	None		None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	7.0		7.0		7.0	7.0		7.0	7.0		
Flash Dont Walk (s)	11.0		11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0		0	0		0	0		
Act Effct Green (s)	54.4		54.4		79.6	79.6		79.6	79.6		
Actuated g/C Ratio	0.39		0.39		0.57	0.57		0.57	0.57		
v/c Ratio	0.60		0.88		0.39	0.48		0.83	0.45		
Control Delay	35.8		53.5		13.4	3.6		28.9	7.9		
Queue Delay	0.0		0.0		0.0	0.0		0.0	0.0		
Total Delay	35.8		53.5		13.4	3.6		28.9	7.9		
LOS	D		D		B	A		C	A		
Approach Delay		43.0			10.2			25.5			
Approach LOS		D			B			C			

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 5.6 (4%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 25.2
 Intersection LOS: C
 Intersection Capacity Utilization 81.9%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp



3: Trafalgar Road & Cross Avenue/South Service Road East

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	68	116	55	75	85	107	1158	64	263	1388	360
Future Volume (vph)	356	68	116	55	75	85	107	1158	64	263	1388	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		0.0	55.0		0.0	120.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	25.0			30.0			30.0			20.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor		0.99						1.00			1.00	
Frt		0.906				0.850		0.992			0.969	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3219	1676	0	1722	1921	1617	1755	5005	0	1807	4878	0
Flt Permitted	0.950			0.950			0.950			0.117		
Satd. Flow (perm)	3219	1676	0	1722	1921	1617	1755	5005	0	223	4878	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		61				125		8			56	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		191.2			115.5			274.1			327.5	
Travel Time (s)		13.8			8.3			19.7			23.6	
Confl. Peds. (#/hr)			7						4			3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	10%	0%	4%	6%	0%	1%	4%	4%	0%	1%	3%	7%
Adj. Flow (vph)	375	72	122	58	79	89	113	1219	67	277	1461	379
Shared Lane Traffic (%)												
Lane Group Flow (vph)	375	194	0	58	79	89	113	1286	0	277	1840	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.4			5.4			5.7			5.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
 3: Trafalgar Road & Cross Avenue/South Service Road East

2022 AM Existing Conditions

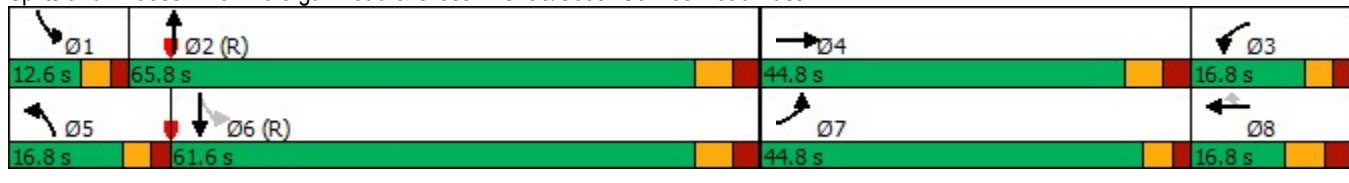


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8				6		
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	9.8	9.8	7.0	20.0		7.0	20.0	
Minimum Split (s)	10.0	42.0		10.0	16.8	16.8	12.0	34.0		12.0	34.0	
Total Split (s)	44.8	44.8		16.8	16.8	16.8	16.8	65.8		12.6	61.6	
Total Split (%)	32.0%	32.0%		12.0%	12.0%	12.0%	12.0%	47.0%		9.0%	44.0%	
Maximum Green (s)	39.8	37.8		11.8	9.8	9.8	11.8	58.8		7.6	54.6	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	3.0		2.0	3.0	3.0	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		2.0	-3.0	-3.0	-2.0	-3.0		-2.0	-3.0	
Total Lost Time (s)	3.0	4.0		7.0	4.0	4.0	3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		7.0						7.0			7.0	
Flash Dont Walk (s)		28.0						20.0			20.0	
Pedestrian Calls (#/hr)		0						0			0	
Act Effct Green (s)	23.7	24.3		12.4	14.7	14.7	16.3	62.2		90.1	71.2	
Actuated g/C Ratio	0.17	0.17		0.09	0.10	0.10	0.12	0.44		0.64	0.51	
v/c Ratio	0.69	0.57		0.38	0.39	0.32	0.55	0.58		0.64	0.73	
Control Delay	61.2	43.5		66.1	63.8	6.0	52.1	41.9		37.4	27.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	61.2	43.5		66.1	63.8	6.0	52.1	41.9		37.4	27.3	
LOS	E	D		E	E	A	D	D		D	C	
Approach Delay		55.2			41.6			42.7			28.6	
Approach LOS		E			D			D			C	

Intersection Summary





























Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 8.4 (6%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 37.4
 Intersection LOS: D
 Intersection Capacity Utilization 75.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 3: Trafalgar Road & Cross Avenue/South Service Road East



Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2022 AM Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 		 	 	
Traffic Volume (vph)	352	441	61	26	399	570	80	408	51	576	577	406
Future Volume (vph)	352	441	61	26	399	570	80	408	51	576	577	406
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		0.0	85.0		85.0	40.0		0.0	90.0		0.0
Storage Lanes	2		0	1		1	2		0	1		1
Taper Length (m)	20.0			7.5			85.0			15.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor		1.00				0.99		1.00				0.98
Frt		0.982				0.850		0.983				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3404	3430	0	1825	3510	1541	1789	3488	0	3437	1883	1585
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3404	3430	0	1825	3510	1518	1789	3488	0	3437	1883	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				620		9				351
Link Speed (k/h)		60			60			50				50
Link Distance (m)		267.7			164.8			224.3				274.1
Travel Time (s)		16.1			9.9			16.1				19.7
Confl. Peds. (#/hr)			4			9			5			9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	5%	0%	4%	6%	2%	3%	0%	3%	2%	3%
Adj. Flow (vph)	383	479	66	28	434	620	87	443	55	626	627	441
Shared Lane Traffic (%)												
Lane Group Flow (vph)	383	545	0	28	434	620	87	498	0	626	627	441
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2022 AM Existing Conditions

	↖		→		↗		↖		←		↗		↖		↑		↗		↘		↓		↘		
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR													
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA		Prot	NA	Perm													
Protected Phases	3	8		7	4		5	2		1	6														
Permitted Phases						Free																			6
Detector Phase	3	8		7	4		5	2		1	6														6
Switch Phase																									
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0														20.0
Minimum Split (s)	12.0	37.0		12.0	37.0		12.0	39.0		12.0	39.0														39.0
Total Split (s)	22.4	49.0		12.6	39.2		12.6	40.6		37.8	65.8														65.8
Total Split (%)	16.0%	35.0%		9.0%	28.0%		9.0%	29.0%		27.0%	47.0%														47.0%
Maximum Green (s)	17.4	42.0		7.6	32.2		7.6	33.6		32.8	58.8														58.8
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0														3.0
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0														-3.0
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag														Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes														Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0														3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max														C-Max
Walk Time (s)		7.0			7.0			7.0			7.0														7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0														25.0
Pedestrian Calls (#/hr)		0			0			0			0														0
Act Effct Green (s)	19.2	40.3		9.4	25.7	140.0	13.4	48.7		32.4	67.7														67.7
Actuated g/C Ratio	0.14	0.29		0.07	0.18	1.00	0.10	0.35		0.23	0.48														0.48
v/c Ratio	0.82	0.55		0.23	0.67	0.41	0.51	0.41		0.79	0.69														0.47
Control Delay	74.0	43.9		66.7	58.3	0.8	70.8	37.0		56.8	15.7														2.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0														0.0
Total Delay	74.0	43.9		66.7	58.3	0.8	70.8	37.0		56.8	15.7														2.9
LOS	E	D		E	E	A	E	D		E	B														A
Approach Delay		56.3			25.6			42.0			27.6														
Approach LOS		E			C			D			C														

Intersection Summary

















Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 35.3 Intersection LOS: D
 Intersection Capacity Utilization 81.1% ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 4: Trafalgar Road & Cornwall Road



















Lanes, Volumes, Timings
5: South Service Road East & Davis Road

2022 AM Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	2	13	0	3	1	143	20	3	136	2
Future Volume (vph)	2	0	2	13	0	3	1	143	20	3	136	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Fr _t		0.932			0.977			0.982			0.998	
Fl _t Protected		0.976			0.960						0.999	
Satd. Flow (prot)	0	1748	0	0	1544	0	0	3584	0	0	3545	0
Fl _t Permitted		0.976			0.960						0.999	
Satd. Flow (perm)	0	1748	0	0	1544	0	0	3584	0	0	3545	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	0%	0%	38%	2%	0%
Adj. Flow (vph)	2	0	2	15	0	3	1	164	23	3	156	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	18	0	0	188	0	0	161	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	16.0%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
5: South Service Road East & Davis Road

2022 AM Existing Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	2	13	0	3	1	143	20	3	136	2
Future Volume (Veh/h)	2	0	2	13	0	3	1	143	20	3	136	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	2	0	2	15	0	3	1	164	23	3	156	2
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	250	352	79	264	342	94	158			187		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	250	352	79	264	342	94	158			187		
tC, single (s)	7.5	6.5	6.9	7.9	6.5	6.9	4.1			4.9		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.6		
p0 queue free %	100	100	100	98	100	100	100			100		
cM capacity (veh/h)	684	574	972	620	582	952	1434			1158		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	4	18	83	105	81	80						
Volume Left	2	15	1	0	3	0						
Volume Right	2	3	0	23	0	2						
cSH	803	658	1434	1700	1158	1700						
Volume to Capacity	0.00	0.03	0.00	0.06	0.00	0.05						
Queue Length 95th (m)	0.1	0.6	0.0	0.0	0.1	0.0						
Control Delay (s)	9.5	10.6	0.1	0.0	0.3	0.0						
Lane LOS	A	B	A		A							
Approach Delay (s)	9.5	10.6	0.0		0.2							
Approach LOS	A	B										
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			16.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: Davis Road & Site Access

2022 AM Existing Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	12	14	0	0	2
Future Volume (vph)	11	12	14	0	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.865	
Fl _t Protected		0.977				
Satd. Flow (prot)	0	1840	1883	0	1629	0
Fl _t Permitted		0.977				
Satd. Flow (perm)	0	1840	1883	0	1629	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		90.2	144.8		45.4	
Travel Time (s)		6.5	10.4		3.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	13	15	0	0	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	15	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	17.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
6: Davis Road & Site Access

2022 AM Existing Conditions



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	12	14	0	0	2
Future Volume (Veh/h)	11	12	14	0	0	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	13	15	0	0	2
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	15				52	15
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	15				52	15
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				100	100
cM capacity (veh/h)	1603				949	1065
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	25	15	2			
Volume Left	12	0	0			
Volume Right	0	0	2			
cSH	1603	1700	1065			
Volume to Capacity	0.01	0.01	0.00			
Queue Length 95th (m)	0.2	0.0	0.0			
Control Delay (s)	3.5	0.0	8.4			
Lane LOS	A		A			
Approach Delay (s)	3.5	0.0	8.4			
Approach LOS			A			
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			17.9%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R>	<	<LT	T	T	T	T	T	T	R>
Maximum Queue (m)	79.8	121.7	64.6	69.3	70.7	73.3	78.0	180.2	227.1	237.1	238.4
Average Queue (m)	5.1	97.7	36.9	37.4	35.7	41.6	46.0	91.1	140.3	228.0	229.1
95th Queue (m)	34.6	143.5	59.9	62.9	62.0	67.8	74.3	142.1	248.3	233.2	235.3
Link Distance (m)		112.3	173.7	173.7	275.5	275.5	275.5	222.0	222.0	222.0	222.0
Upstream Blk Time (%)		44							1	50	75
Queuing Penalty (veh)		0							0	0	0
Storage Bay Dist (m)	65.0										
Storage Blk Time (%)		61		2			0				
Queuing Penalty (veh)		4		3			1				

Intersection: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	<	<	R	T	T	T	T	T	T	R
Maximum Queue (m)	128.0	164.1	165.6	23.5	30.5	39.6	166.8	167.4	143.8	96.0
Average Queue (m)	77.6	99.3	91.7	6.3	9.1	13.7	79.4	78.4	71.4	8.8
95th Queue (m)	116.9	141.5	145.1	18.0	23.4	31.6	134.6	138.7	126.8	60.2
Link Distance (m)		209.2	209.2	295.8	295.8	295.8	275.5	275.5	275.5	
Upstream Blk Time (%)		0	0							
Queuing Penalty (veh)		0	0							
Storage Bay Dist (m)	175.0									65.0
Storage Blk Time (%)		0							10	
Queuing Penalty (veh)		0							41	

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	TR	L	T
Maximum Queue (m)	96.3	114.0	71.3	34.6	39.0	34.2	52.8	115.5	162.1	179.1	74.9	172.8
Average Queue (m)	48.1	68.3	34.8	14.0	17.5	13.5	22.5	61.2	106.6	129.2	57.1	89.1
95th Queue (m)	87.2	96.9	64.3	30.3	32.6	26.5	42.3	98.2	158.1	168.7	88.8	157.2
Link Distance (m)		171.6	171.6		93.4	93.4		236.4	236.4	236.4		295.8
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	130.0			55.0			120.0				55.0	
Storage Blk Time (%)	0	0						0			24	18
Queuing Penalty (veh)	0	0						0			109	48

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (m)	177.7	189.8
Average Queue (m)	83.6	95.0
95th Queue (m)	147.6	163.0
Link Distance (m)	295.8	295.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	TR	L	T	T	L	T	TR	L	L
Maximum Queue (m)	94.9	104.8	194.3	176.2	21.3	88.7	76.8	44.9	108.6	121.3	97.5	106.8
Average Queue (m)	75.0	86.8	86.8	66.6	5.4	56.5	43.0	19.4	45.3	67.3	46.2	52.2
95th Queue (m)	109.6	118.8	180.3	142.1	15.2	78.7	70.7	36.7	86.3	104.0	77.9	84.7
Link Distance (m)			249.6	249.6		141.5	141.5			203.7		236.4
Upstream Blk Time (%)			0									
Queuing Penalty (veh)			0									
Storage Bay Dist (m)	85.0	85.0			85.0			40.0	40.0		90.0	
Storage Blk Time (%)	4	33	0			0		2	3	35	0	2
Queuing Penalty (veh)	8	72	0			0		4	9	98	1	5

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	SB	SB
Directions Served	T	R
Maximum Queue (m)	102.9	63.8
Average Queue (m)	28.5	12.1
95th Queue (m)	70.1	39.5
Link Distance (m)	236.4	236.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: South Service Road East & Davis Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LT	LT
Maximum Queue (m)	7.2	22.0	1.8	2.7
Average Queue (m)	0.9	4.0	0.1	0.1
95th Queue (m)	4.7	13.4	1.3	1.4
Link Distance (m)	38.3	70.7	102.9	206.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Davis Road & Site Access

Movement	SB
Directions Served	LR
Maximum Queue (m)	8.8
Average Queue (m)	0.6
95th Queue (m)	4.4
Link Distance (m)	36.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 404

Lanes, Volumes, Timings

2022 PM Existing Conditions

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	13	127	94	333	118	278	2650	479	1159	955	11
Future Volume (vph)	13	127	94	333	118	278	2650	479	1159	955	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0	0.0				60.0		80.0		0.0	
Storage Lanes	1	1				1		1		1	
Taper Length (m)	15.0										
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Ped Bike Factor						0.99		0.96		0.95	
Frt		0.850				0.850		0.850		0.850	
Flt Protected	0.950			0.950	0.977						
Satd. Flow (prot)	1825	1608	0	1717	1765	1585	5142	1601	5142	1601	0
Flt Permitted	0.950			0.950	0.977						
Satd. Flow (perm)	1825	1608	0	1717	1765	1563	5142	1542	5142	1515	0
Right Turn on Red			No			Yes		Yes			Yes
Satd. Flow (RTOR)						287		347		82	
Link Speed (k/h)					40		60		60		
Link Distance (m)					324.6		330.4		230.9		
Travel Time (s)					29.2		19.8		13.9		
Confl. Peds. (#/hr)						8		8		10	6
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	1%	1%	1%	3%	2%	2%	2%	2%	0%
Adj. Flow (vph)	13	131	97	343	122	287	2732	494	1195	985	11
Shared Lane Traffic (%)				33%							
Lane Group Flow (vph)	13	228	0	230	235	287	2732	494	1195	996	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)					3.7		2.0		2.0		
Link Offset(m)					0.0		0.0		0.0		
Crosswalk Width(m)					4.9		4.9		4.9		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	14	24		14		14		14	14
Number of Detectors	1	1		1	2	1	2	1	2	1	
Detector Template	Left	Right		Left	Thru	Right	Thru	Right	Thru	Right	
Leading Detector (m)	6.1	6.1		6.1	30.5	6.1	30.5	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	6.1		6.1	1.8	6.1	1.8	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)					28.7		28.7		28.7		
Detector 2 Size(m)					1.8		1.8		1.8		
Detector 2 Type					Cl+Ex		Cl+Ex		Cl+Ex		
Detector 2 Channel											
Detector 2 Extend (s)					0.0		0.0		0.0		

Lanes, Volumes, Timings

2022 PM Existing Conditions

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

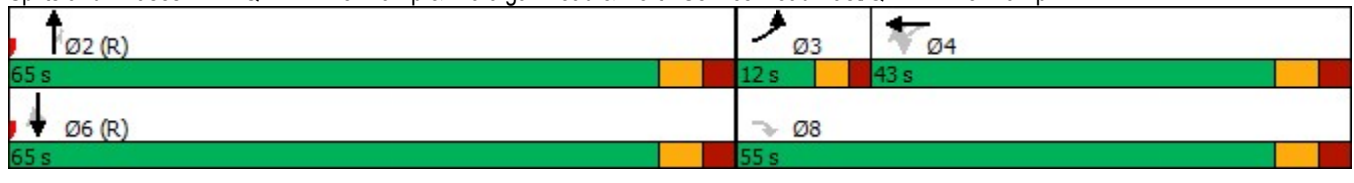


Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Turn Type	Prot	Perm		Perm	NA	Free	NA	Perm	NA	Perm	
Protected Phases	3				4		2		6		
Permitted Phases		8		4		Free		2		6	
Detector Phase	3	8		4	4		2	2	6	6	
Switch Phase											
Minimum Initial (s)	7.0	10.0		5.0	5.0		28.0	28.0	28.0	28.0	
Minimum Split (s)	12.0	22.5		38.0	38.0		35.0	35.0	35.0	35.0	
Total Split (s)	12.0	55.0		43.0	43.0		65.0	65.0	65.0	65.0	
Total Split (%)	10.0%	45.8%		35.8%	35.8%		54.2%	54.2%	54.2%	54.2%	
Maximum Green (s)	7.0	48.0		36.0	36.0		58.0	58.0	58.0	58.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-3.0	-3.0		-3.0	-3.0	-3.0	-3.0	
Total Lost Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
Lead/Lag	Lead			Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	
Walk Time (s)				7.0	7.0		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)				24.0	24.0		21.0	21.0	21.0	21.0	
Pedestrian Calls (#/hr)				0	0		0	0	0	0	
Act Effct Green (s)	9.0	30.2		25.4	25.4	120.0	81.8	81.8	81.8	81.8	
Actuated g/C Ratio	0.08	0.25		0.21	0.21	1.00	0.68	0.68	0.68	0.68	
v/c Ratio	0.10	0.56		0.63	0.63	0.18	0.78	0.43	0.34	0.94	
Control Delay	53.5	42.8		50.4	50.0	0.3	17.4	4.6	9.7	35.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	53.5	42.8		50.4	50.0	0.3	17.4	4.6	9.7	35.5	
LOS	D	D		D	D	A	B	A	A	D	
Approach Delay					31.1		15.4		21.4		
Approach LOS					C		B		C		























Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.94
Intersection Signal Delay:	20.4
Intersection LOS:	C
Intersection Capacity Utilization:	100.0%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

											
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	 				  			  			
Traffic Volume (vph)	879	0	333	0	2250	447	0	1329	290	0	0
Future Volume (vph)	879	0	333	0	2250	447	0	1329	290	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		175.0	0.0	0.0		75.0	0.0		65.0	0.0	0.0
Storage Lanes		1	1	0		1	0		1	0	0
Taper Length (m)		25.0		7.6			7.6			2.5	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor			0.98			0.97			0.94		
Frt			0.850			0.850			0.850		
Flt Protected	0.950										
Satd. Flow (prot)	3506	0	1617	0	5142	1601	0	5142	1617	0	0
Flt Permitted	0.950										
Satd. Flow (perm)	3506	0	1590	0	5142	1557	0	5142	1517	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)			41			360			302		
Link Speed (k/h)		40			60			60		40	
Link Distance (m)		226.4			327.5			330.4		203.9	
Travel Time (s)		20.4			19.7			19.8		18.4	
Confl. Peds. (#/hr)			2			2			11		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	0%	1%	0%	2%	2%	0%	2%	1%	0%	0%
Adj. Flow (vph)	916	0	347	0	2344	466	0	1384	302	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	916	0	347	0	2344	466	0	1384	302	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)		7.4			2.0			2.0		0.0	
Link Offset(m)		0.0			0.0			0.0		0.0	
Crosswalk Width(m)		4.9			4.9			4.9		1.6	
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	24	14	24		14	24		14	24	14
Number of Detectors	1		1		2	1		2	1		
Detector Template	Left		Right		Thru	Right		Thru	Right		
Leading Detector (m)	6.1		6.1		30.5	6.1		30.5	6.1		
Trailing Detector (m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1		6.1		1.8	6.1		1.8	6.1		
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)					28.7			28.7			
Detector 2 Size(m)					1.8			1.8			
Detector 2 Type					Cl+Ex			Cl+Ex			
Detector 2 Channel											
Detector 2 Extend (s)					0.0			0.0			

Lanes, Volumes, Timings
 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2022 PM Existing Conditions

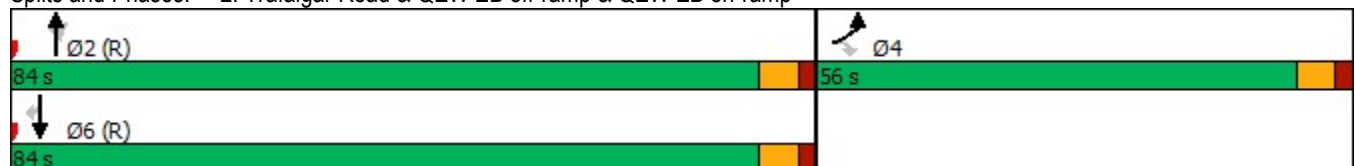


Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Turn Type	Prot		Perm		NA	Perm		NA	Perm		
Protected Phases	4				2			6			
Permitted Phases			4			2			6		
Detector Phase	4		4		2	2		6	6		
Switch Phase											
Minimum Initial (s)	10.0		10.0		28.0	28.0		28.0	28.0		
Minimum Split (s)	24.0		24.0		34.0	34.0		34.0	34.0		
Total Split (s)	56.0		56.0		84.0	84.0		84.0	84.0		
Total Split (%)	40.0%		40.0%		60.0%	60.0%		60.0%	60.0%		
Maximum Green (s)	50.0		50.0		78.0	78.0		78.0	78.0		
Yellow Time (s)	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		
Lost Time Adjust (s)	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Recall Mode	None		None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	7.0		7.0		7.0	7.0		7.0	7.0		
Flash Dont Walk (s)	11.0		11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0		0	0		0	0		
Act Effct Green (s)	46.5		46.5		87.5	87.5		87.5	87.5		
Actuated g/C Ratio	0.33		0.33		0.62	0.62		0.62	0.62		
v/c Ratio	0.79		0.63		0.73	0.42		0.43	0.28		
Control Delay	47.3		39.2		27.1	8.8		14.5	2.1		
Queue Delay	0.0		0.0		0.0	0.0		0.0	0.0		
Total Delay	47.3		39.2		27.1	8.8		14.5	2.1		
LOS	D		D		C	A		B	A		
Approach Delay		45.1			24.1			12.3			
Approach LOS		D			C			B			




























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 51.8 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 25.2
 Intersection Capacity Utilization 75.2%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D

Splits and Phases: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp



3: Trafalgar Road & Cross Avenue/South Service Road East

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							  			  	
Traffic Volume (vph)	810	58	103	117	76	333	119	1478	37	98	1157	240
Future Volume (vph)	810	58	103	117	76	333	119	1478	37	98	1157	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		0.0	55.0		0.0	120.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	25.0			30.0			30.0			20.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor		0.99						1.00			1.00	
Frt		0.904				0.850		0.996			0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3372	1619	0	1789	1883	1585	1772	5169	0	1789	5044	0
Flt Permitted	0.950			0.950			0.950			0.071		
Satd. Flow (perm)	3372	1619	0	1789	1883	1585	1772	5169	0	134	5044	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		65				166		3			37	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		191.2			115.5			274.1			327.5	
Travel Time (s)		13.8			8.3			19.7			23.6	
Confl. Peds. (#/hr)			8						5			8
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	9%	4%	2%	2%	3%	3%	1%	0%	2%	0%	5%
Adj. Flow (vph)	862	62	110	124	81	354	127	1572	39	104	1231	255
Shared Lane Traffic (%)												
Lane Group Flow (vph)	862	172	0	124	81	354	127	1611	0	104	1486	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.4			5.4			5.7			5.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
3: Trafalgar Road & Cross Avenue/South Service Road East

2022 PM Existing Conditions

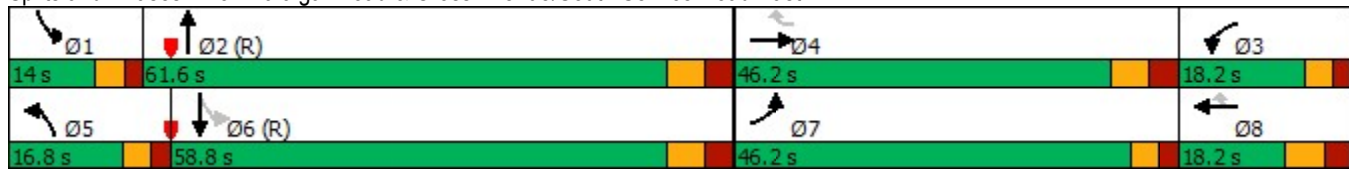


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	custom	Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						4 8				6		
Detector Phase	7	4		3	8	4 8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	9.8		7.0	20.0		7.0	20.0	
Minimum Split (s)	10.0	42.0		10.0	16.8		12.0	34.0		12.0	34.0	
Total Split (s)	46.2	46.2		18.2	18.2		16.8	61.6		14.0	58.8	
Total Split (%)	33.0%	33.0%		13.0%	13.0%		12.0%	44.0%		10.0%	42.0%	
Maximum Green (s)	41.2	39.2		13.2	11.2		11.8	54.6		9.0	51.8	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0	
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0						7.0			7.0	
Flash Dont Walk (s)		28.0						20.0			20.0	
Pedestrian Calls (#/hr)		0						0			0	
Act Effct Green (s)	41.1	22.1		32.7	13.6	35.7	13.8	60.8		68.9	57.5	
Actuated g/C Ratio	0.29	0.16		0.23	0.10	0.26	0.10	0.43		0.49	0.41	
v/c Ratio	0.87	0.55		0.30	0.44	0.67	0.73	0.72		0.55	0.71	
Control Delay	57.4	38.9		47.9	67.6	22.4	82.2	23.3		29.1	32.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	57.4	38.9		47.9	67.6	22.4	82.2	23.3		29.1	32.8	
LOS	E	D		D	E	C	F	C		C	C	
Approach Delay		54.3			34.6			27.6			32.6	
Approach LOS		D			C			C			C	

Intersection Summary






























Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 98 (70%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 35.6
 Intersection LOS: D
 Intersection Capacity Utilization 83.1%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 3: Trafalgar Road & Cross Avenue/South Service Road East



Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2022 PM Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 		 	 	
Traffic Volume (vph)	431	377	74	58	499	723	64	480	52	531	507	339
Future Volume (vph)	431	377	74	58	499	723	64	480	52	531	507	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		0.0	85.0		85.0	40.0		0.0	90.0		0.0
Storage Lanes	2		0	1		1	2		0	1		1
Taper Length (m)	20.0			7.5			85.0			15.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor		0.99				0.98		1.00				0.97
Frt		0.975				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3437	3413	0	1789	3544	1585	1755	3513	0	3471	1883	1570
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3437	3413	0	1789	3544	1553	1755	3513	0	3471	1883	1527
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				609		8				321
Link Speed (k/h)		60			60			50				50
Link Distance (m)		267.7			164.8			224.3				274.1
Travel Time (s)		16.1			9.9			16.1				19.7
Confl. Peds. (#/hr)			11			29			3			12
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	6%	2%	3%	3%	4%	2%	4%	2%	2%	4%
Adj. Flow (vph)	444	389	76	60	514	745	66	495	54	547	523	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	444	465	0	60	514	745	66	549	0	547	523	349
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2022 PM Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						Free						6
Detector Phase	3	8		7	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0	20.0
Minimum Split (s)	12.0	37.0		12.0	37.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	25.2	50.4		14.0	39.2		14.0	42.0		33.6	61.6	61.6
Total Split (%)	18.0%	36.0%		10.0%	28.0%		10.0%	30.0%		24.0%	44.0%	44.0%
Maximum Green (s)	20.2	43.4		9.0	32.2		9.0	35.0		28.6	54.6	54.6
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0	-3.0
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0	25.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	21.8	42.5		10.5	28.8	140.0	11.6	47.1		28.3	66.2	66.2
Actuated g/C Ratio	0.16	0.30		0.08	0.21	1.00	0.08	0.34		0.20	0.47	0.47
v/c Ratio	0.83	0.44		0.45	0.71	0.48	0.46	0.46		0.78	0.59	0.39
Control Delay	71.4	39.2		72.9	56.9	1.1	71.3	39.0		44.2	46.9	24.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	71.4	39.2		72.9	56.9	1.1	71.3	39.0		44.2	46.9	24.1
LOS	E	D		E	E	A	E	D		D	D	C
Approach Delay		54.9			26.1			42.5			40.3	
Approach LOS		D			C			D			D	

Intersection Summary

















Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 39.3 Intersection LOS: D
 Intersection Capacity Utilization 88.2% ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 4: Trafalgar Road & Cornwall Road



















Lanes, Volumes, Timings
5: South Service Road East & Davis Road

2022 PM Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	2	10	1	2	0	146	15	8	227	3
Future Volume (vph)	2	0	2	10	1	2	0	146	15	8	227	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.932			0.981			0.986			0.998	
Flt Protected		0.976			0.962						0.998	
Satd. Flow (prot)	0	1748	0	0	1567	0	0	3473	0	0	3524	0
Flt Permitted		0.976			0.962						0.998	
Satd. Flow (perm)	0	1748	0	0	1567	0	0	3473	0	0	3524	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Confl. Peds. (#/hr)										2		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	4%	0%	38%	2%	0%
Adj. Flow (vph)	2	0	2	11	1	2	0	168	17	9	261	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	14	0	0	185	0	0	273	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	22.2%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
5: South Service Road East & Davis Road

2022 PM Existing Conditions

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	2	0	2	10	1	2	0	146	15	8	227	3	
Future Volume (Veh/h)	2	0	2	10	1	2	0	146	15	8	227	3	
Sign Control	Stop			Stop			Free			Free			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	
Hourly flow rate (vph)	2	0	2	11	1	2	0	168	17	9	261	3	
Pedestrians												2	
Lane Width (m)												3.7	
Walking Speed (m/s)												1.1	
Percent Blockage												0	
Right turn flare (veh)													
Median type							None			None			
Median storage veh													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	367	468	132	329	460	94	264				187		
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	367	468	132	329	460	94	264				187		
tC, single (s)	7.5	6.5	6.9	7.9	6.5	6.9	4.1				4.9		
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2				2.6		
p0 queue free %	100	100	100	98	100	100	100				99		
cM capacity (veh/h)	563	491	899	551	496	948	1312				1156		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total	4	14	84	101	140	134							
Volume Left	2	11	0	0	9	0							
Volume Right	2	2	0	17	0	3							
cSH	693	581	1312	1700	1156	1700							
Volume to Capacity	0.01	0.02	0.00	0.06	0.01	0.08							
Queue Length 95th (m)	0.1	0.6	0.0	0.0	0.2	0.0							
Control Delay (s)	10.2	11.4	0.0	0.0	0.6	0.0							
Lane LOS	B	B					A						
Approach Delay (s)	10.2	11.4	0.0			0.3							
Approach LOS	B	B											
Intersection Summary													
Average Delay			0.6										
Intersection Capacity Utilization			22.2%		ICU Level of Service				A				
Analysis Period (min)			15										

Lanes, Volumes, Timings
6: Davis Road & Site Access

2022 PM Existing Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	17	2	0	0	11
Future Volume (vph)	6	17	2	0	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.865	
Fl _t Protected		0.986				
Satd. Flow (prot)	0	1857	1883	0	1629	0
Fl _t Permitted		0.986				
Satd. Flow (perm)	0	1857	1883	0	1629	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		90.2	144.8		45.4	
Travel Time (s)		6.5	10.4		3.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	18	2	0	0	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	2	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	16.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
6: Davis Road & Site Access

2022 PM Existing Conditions



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	17	2	0	0	11
Future Volume (Veh/h)	6	17	2	0	0	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	18	2	0	0	12
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	2				34	2
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2				34	2
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1620				975	1082
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	25	2	12			
Volume Left	7	0	0			
Volume Right	0	0	12			
cSH	1620	1700	1082			
Volume to Capacity	0.00	0.00	0.01			
Queue Length 95th (m)	0.1	0.0	0.3			
Control Delay (s)	2.0	0.0	8.4			
Lane LOS	A		A			
Approach Delay (s)	2.0	0.0	8.4			
Approach LOS			A			
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utilization			16.1%	ICU Level of Service		A
Analysis Period (min)			15			

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R>	<	<LT	T	T	T	R	T	T	T	R>
Maximum Queue (m)	12.8	85.3	65.7	82.5	161.3	174.2	163.4	139.7	127.9	215.9	238.1	238.6
Average Queue (m)	2.8	40.0	33.0	47.5	86.5	93.8	96.1	18.5	49.4	80.6	224.6	228.0
95th Queue (m)	9.2	71.4	58.6	75.3	153.1	160.0	155.6	96.6	91.1	192.0	265.4	233.9
Link Distance (m)		112.3	307.7	307.7	275.5	275.5	275.5		222.1	222.1	222.1	222.1
Upstream Blk Time (%)										0	54	84
Queuing Penalty (veh)										0	0	0
Storage Bay Dist (m)	65.0							80.0				
Storage Blk Time (%)		4		6			13					
Queuing Penalty (veh)		1		16			63					

Intersection: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	<	<	R	T	T	T	R	T	T	T
Maximum Queue (m)	153.6	199.4	155.2	130.4	132.6	151.0	129.9	68.6	72.4	70.2
Average Queue (m)	103.5	123.6	37.8	74.0	83.3	90.7	13.7	36.7	36.9	32.6
95th Queue (m)	146.6	173.7	91.1	118.0	124.4	133.4	79.1	65.4	66.1	62.7
Link Distance (m)		209.2	209.2	295.8	295.8	295.8		275.5	275.5	275.5
Upstream Blk Time (%)		0	0							
Queuing Penalty (veh)		0	0							
Storage Bay Dist (m)	175.0						75.0			
Storage Blk Time (%)		1				15			1	
Queuing Penalty (veh)		3				68			2	

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	TR	L	T
Maximum Queue (m)	154.8	183.9	178.2	58.8	50.6	99.8	77.6	93.5	141.5	134.6	74.9	122.8
Average Queue (m)	125.7	153.8	63.7	26.9	20.2	69.1	36.2	42.9	66.0	84.2	23.4	65.4
95th Queue (m)	166.4	198.2	170.9	50.0	41.2	92.7	69.8	76.1	109.8	123.6	56.5	102.1
Link Distance (m)		171.6	171.6		93.4	93.4		236.4	236.4	236.4		295.8
Upstream Blk Time (%)		14	3			1						
Queuing Penalty (veh)		0	0			2						
Storage Bay Dist (m)	130.0			55.0			120.0				55.0	
Storage Blk Time (%)	1	25		1	0							8
Queuing Penalty (veh)	4	100		1	0							8

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (m)	111.2	125.5
Average Queue (m)	67.8	76.3
95th Queue (m)	107.0	121.2
Link Distance (m)	295.8	295.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	T	R	L	T	TR	L
Maximum Queue (m)	94.9	104.5	146.2	133.6	74.0	100.8	87.2	18.0	42.3	106.6	120.8	86.8
Average Queue (m)	74.8	85.7	67.8	54.0	17.0	66.2	53.1	0.6	16.3	59.2	75.3	53.0
95th Queue (m)	103.8	113.6	161.2	124.4	42.9	88.8	76.2	12.6	30.5	94.5	109.1	78.6
Link Distance (m)			249.6	249.6		141.5	141.5					203.7
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	85.0	85.0			85.0			85.0	40.0	40.0		90.0
Storage Blk Time (%)	6	22				1	0	0	0	7	40	0
Queuing Penalty (veh)	11	40				1	1	0	0	20	122	0

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	109.6	161.6	95.0
Average Queue (m)	59.6	100.4	49.9
95th Queue (m)	88.5	143.9	83.6
Link Distance (m)	236.4	236.4	236.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	0		
Queuing Penalty (veh)	1		

Intersection: 5: South Service Road East & Davis Road

Movement	EB	WB	SB
Directions Served	LTR	LTR	LT
Maximum Queue (m)	7.2	15.1	7.8
Average Queue (m)	1.5	2.8	0.3
95th Queue (m)	6.2	10.6	3.5
Link Distance (m)	38.3	70.7	206.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Davis Road & Site Access

Movement	SB
Directions Served	LR
Maximum Queue (m)	8.8
Average Queue (m)	2.7
95th Queue (m)	9.3
Link Distance (m)	36.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 462























1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	6	239	114	430	40	239	1648	349	2127	948	5
Future Volume (vph)	6	239	114	430	40	239	1648	349	2127	948	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0	0.0				60.0		80.0		0.0	
Storage Lanes	1	1				1		1		1	
Taper Length (m)	15.0										
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Ped Bike Factor						0.99		0.98		0.96	
Frt		0.850				0.850		0.850		0.850	
Flt Protected	0.950			0.950	0.960						
Satd. Flow (prot)	1825	1622	0	1667	1685	1570	5142	1601	5092	1570	0
Flt Permitted	0.950			0.950	0.960						
Satd. Flow (perm)	1825	1622	0	1667	1685	1550	5142	1561	5092	1501	0
Right Turn on Red			No			Yes		Yes			Yes
Satd. Flow (RTOR)						230		349		70	
Link Speed (k/h)					40		60		60		
Link Distance (m)					190.6		330.4		230.9		
Travel Time (s)					17.2		19.8		13.9		
Confl. Peds. (#/hr)						2		2		6	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	1%	0%	4%	4%	4%	2%	2%	3%	4%	0%
Adj. Flow (vph)	6	239	114	430	40	239	1648	349	2127	948	5
Shared Lane Traffic (%)				46%							
Lane Group Flow (vph)	6	353	0	232	238	239	1648	349	2127	953	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)					3.7		2.0		2.0		
Link Offset(m)					0.0		0.0		0.0		
Crosswalk Width(m)					4.9		4.9		4.9		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	14	24		14		14		14	14
Number of Detectors	1	1		1	2	1	2	1	2	1	
Detector Template	Left	Right		Left	Thru	Right	Thru	Right	Thru	Right	
Leading Detector (m)	6.1	6.1		6.1	30.5	6.1	30.5	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	6.1		6.1	1.8	6.1	1.8	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)					28.7		28.7		28.7		
Detector 2 Size(m)					1.8		1.8		1.8		
Detector 2 Type					Cl+Ex		Cl+Ex		Cl+Ex		
Detector 2 Channel											
Detector 2 Extend (s)					0.0		0.0		0.0		

Lanes, Volumes, Timings
2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2025 AM Future Background

											
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	 				  			  			
Traffic Volume (vph)	816	0	572	0	1181	567	0	2365	446	0	0
Future Volume (vph)	816	0	572	0	1181	567	0	2365	446	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		175.0	0.0	0.0		75.0	0.0		65.0	0.0	0.0
Storage Lanes		1	1	0		1	0		1	0	0
Taper Length (m)		25.0		7.6			7.6			2.5	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00
Frt			0.850			0.850			0.850		
Flt Protected	0.950										
Satd. Flow (prot)	3471	0	1601	0	5142	1601	0	4902	1585	0	0
Flt Permitted	0.950										
Satd. Flow (perm)	3471	0	1601	0	5142	1601	0	4902	1585	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)			23			567			277		
Link Speed (k/h)		40			60			60		40	
Link Distance (m)		226.4			327.5			330.4		203.9	
Travel Time (s)		20.4			19.7			19.8		18.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	0%	2%	0%	2%	2%	0%	7%	3%	0%	0%
Adj. Flow (vph)	816	0	572	0	1181	567	0	2365	446	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	816	0	572	0	1181	567	0	2365	446	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)		7.4			2.0			2.0		0.0	
Link Offset(m)		0.0			0.0			0.0		0.0	
Crosswalk Width(m)		4.9			4.9			4.9		1.6	
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	24	14	24		14	24		14	24	14
Number of Detectors	1		1		2	1		2	1		
Detector Template	Left		Right		Thru	Right		Thru	Right		
Leading Detector (m)	6.1		6.1		30.5	6.1		30.5	6.1		
Trailing Detector (m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1		6.1		1.8	6.1		1.8	6.1		
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)					28.7			28.7			
Detector 2 Size(m)					1.8			1.8			
Detector 2 Type					Cl+Ex			Cl+Ex			
Detector 2 Channel											
Detector 2 Extend (s)					0.0			0.0			
Turn Type	Prot		Perm		NA	Perm		NA	Perm		
Protected Phases	4				2			6			

Lanes, Volumes, Timings
 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2025 AM Future Background

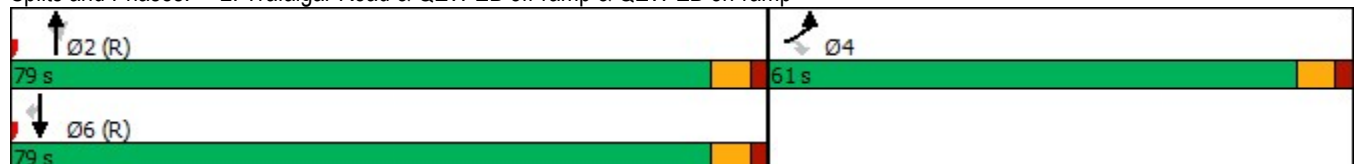


Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Permitted Phases			4			2			6		
Detector Phase	4		4		2	2		6	6		
Switch Phase											
Minimum Initial (s)	5.0		5.0		5.0	5.0		5.0	5.0		
Minimum Split (s)	24.0		24.0		24.0	24.0		24.0	24.0		
Total Split (s)	61.0		61.0		79.0	79.0		79.0	79.0		
Total Split (%)	43.6%		43.6%		56.4%	56.4%		56.4%	56.4%		
Maximum Green (s)	55.0		55.0		73.0	73.0		73.0	73.0		
Yellow Time (s)	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		
Lost Time Adjust (s)	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Recall Mode	None		None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	7.0		7.0		7.0	7.0		7.0	7.0		
Flash Dont Walk (s)	11.0		11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0		0	0		7	7		
Act Effct Green (s)	55.1		55.1		78.9	78.9		78.9	78.9		
Actuated g/C Ratio	0.39		0.39		0.56	0.56		0.56	0.56		
v/c Ratio	0.60		0.89		0.41	0.49		0.86	0.44		
Control Delay	35.4		54.8		13.6	3.4		25.1	4.4		
Queue Delay	0.0		0.0		0.0	0.0		0.0	0.0		
Total Delay	35.4		54.8		13.6	3.4		25.1	4.4		
LOS	D		D		B	A		C	A		
Approach Delay		43.4			10.3			21.8			
Approach LOS		D			B			C			

Intersection Summary



























Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 5.6 (4%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 23.5
 Intersection LOS: C
 Intersection Capacity Utilization 87.8%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp



Lanes, Volumes, Timings
3: Trafalgar Road & Cross Avenue/South Service Road East

2025 AM Future Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							  			  	
Traffic Volume (vph)	385	76	120	55	79	85	110	1264	64	263	1509	364
Future Volume (vph)	385	76	120	55	79	85	110	1264	64	263	1509	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		0.0	55.0		0.0	120.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	25.0			30.0			30.0			20.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.908				0.850		0.993			0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3219	1703	0	1722	1921	1617	1755	5017	0	1807	4907	0
Flt Permitted	0.950			0.950			0.950			0.117		
Satd. Flow (perm)	3219	1703	0	1722	1921	1617	1755	5017	0	223	4907	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56				148		6			52	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		191.2			115.5			274.1			327.5	
Travel Time (s)		13.8			8.3			19.7			23.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	10%	0%	4%	6%	0%	1%	4%	4%	0%	1%	3%	7%
Adj. Flow (vph)	385	76	120	55	79	85	110	1264	64	263	1509	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	385	196	0	55	79	85	110	1328	0	263	1873	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.4			5.4			5.7			5.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings
3: Trafalgar Road & Cross Avenue/South Service Road East

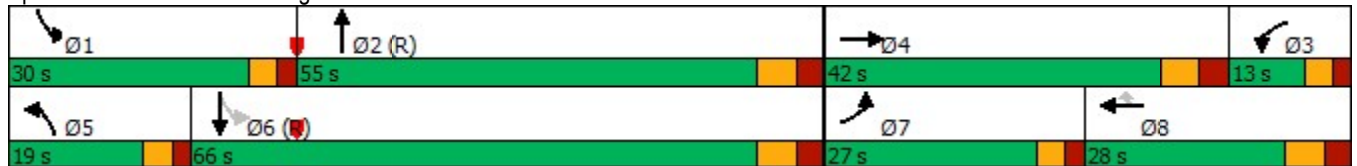
2025 AM Future Background

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases							8			6		
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	9.8	9.8	7.0	20.0		7.0	20.0	
Minimum Split (s)	10.0	42.0		10.0	16.8	16.8	12.0	34.0		12.0	34.0	
Total Split (s)	27.0	42.0		13.0	28.0	28.0	19.0	55.0		30.0	66.0	
Total Split (%)	19.3%	30.0%		9.3%	20.0%	20.0%	13.6%	39.3%		21.4%	47.1%	
Maximum Green (s)	22.0	35.0		8.0	21.0	21.0	14.0	48.0		25.0	59.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	3.0		2.0	3.0	3.0	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0	-3.0	-2.0	-3.0		-2.0	-3.0	
Total Lost Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)	7.0			7.0			7.0			7.0		
Flash Dont Walk (s)	28.0			20.0			20.0			20.0		
Pedestrian Calls (#/hr)	7			4			3			3		
Act Effct Green (s)	22.4	26.6		13.9	15.9	15.9	15.0	66.0		91.7	72.8	
Actuated g/C Ratio	0.16	0.19		0.10	0.11	0.11	0.11	0.47		0.66	0.52	
v/c Ratio	0.75	0.53		0.32	0.36	0.27	0.59	0.56		0.67	0.73	
Control Delay	65.7	41.5		64.1	60.9	2.1	61.4	39.3		34.6	30.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.7	41.5		64.1	60.9	2.1	61.4	39.3		34.6	30.0	
LOS	E	D		E	E	A	E	D		C	C	
Approach Delay	57.6			38.9			41.0			30.6		
Approach LOS	E			D			D			C		

Intersection Summary




























Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 8.4 (6%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 38.0
 Intersection LOS: D
 Intersection Capacity Utilization 75.9%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 3: Trafalgar Road & Cross Avenue/South Service Road East



Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2025 AM Future Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 		 		
Traffic Volume (vph)	374	472	61	31	432	611	80	410	56	649	579	431
Future Volume (vph)	374	472	61	31	432	611	80	410	56	649	579	431
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		0.0	85.0		85.0	40.0		0.0	90.0		0.0
Storage Lanes	2		0	1		1	2		0	1		1
Taper Length (m)	20.0			7.5			85.0			15.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Frt		0.983				0.850		0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3404	3446	0	1825	3510	1541	1789	3492	0	3437	1883	1585
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3404	3446	0	1825	3510	1541	1789	3492	0	3437	1883	1585
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				611		10				359
Link Speed (k/h)		60			60			50				50
Link Distance (m)		267.7			164.8			224.3				274.1
Travel Time (s)		16.1			9.9			16.1				19.7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	4%	5%	0%	4%	6%	2%	3%	0%	3%	2%	3%
Adj. Flow (vph)	374	472	61	31	432	611	80	410	56	649	579	431
Shared Lane Traffic (%)												
Lane Group Flow (vph)	374	533	0	31	432	611	80	466	0	649	579	431
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2025 AM Future Background

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free											6
Detector Phase	3	8		7	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0	20.0
Minimum Split (s)	12.0	37.0		12.0	37.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	26.0	51.0		12.0	37.0		15.0	39.0		38.0	62.0	62.0
Total Split (%)	18.6%	36.4%		8.6%	26.4%		10.7%	27.9%		27.1%	44.3%	44.3%
Maximum Green (s)	21.0	44.0		7.0	30.0		10.0	32.0		33.0	55.0	55.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0	-3.0
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0	25.0
Pedestrian Calls (#/hr)		4			9			5			9	9
Act Effct Green (s)	21.3	43.0		9.0	25.9	140.0	12.4	46.4		32.4	66.4	66.4
Actuated g/C Ratio	0.15	0.31		0.06	0.18	1.00	0.09	0.33		0.23	0.47	0.47
v/c Ratio	0.72	0.50		0.26	0.67	0.40	0.51	0.40		0.82	0.65	0.46
Control Delay	65.0	40.6		68.4	57.8	0.8	72.2	38.5		51.4	17.8	5.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	65.0	40.6		68.4	57.8	0.8	72.2	38.5		51.4	17.8	5.5
LOS	E	D		E	E	A	E	D		D	B	A
Approach Delay		50.6			25.7			43.5			27.7	
Approach LOS		D			C			D			C	

Intersection Summary

















Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 34.2 Intersection LOS: C
 Intersection Capacity Utilization 72.3% ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 4: Trafalgar Road & Cornwall Road



















Lanes, Volumes, Timings
5: South Service Road East & Davis Road

2025 AM Future Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	2	13	0	3	1	151	20	3	140	2
Future Volume (vph)	2	0	2	13	0	3	1	151	20	3	140	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.932			0.977			0.983			0.998	
Flt Protected		0.976			0.960						0.999	
Satd. Flow (prot)	0	1748	0	0	1544	0	0	3588	0	0	3546	0
Flt Permitted		0.976			0.960						0.999	
Satd. Flow (perm)	0	1748	0	0	1544	0	0	3588	0	0	3546	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	0%	0%	38%	2%	0%
Adj. Flow (vph)	2	0	2	15	0	3	1	174	23	3	161	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	18	0	0	198	0	0	166	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	16.1%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
5: South Service Road East & Davis Road

2025 AM Future Background

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	2	13	0	3	1	151	20	3	140	2
Future Volume (Veh/h)	2	0	2	13	0	3	1	151	20	3	140	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	2	0	2	15	0	3	1	174	23	3	161	2
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	260	367	82	276	356	98	163			197		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	260	367	82	276	356	98	163			197		
tC, single (s)	7.5	6.5	6.9	7.9	6.5	6.9	4.1			4.9		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.6		
p0 queue free %	100	100	100	98	100	100	100			100		
cM capacity (veh/h)	673	563	968	607	571	945	1428			1147		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	4	18	88	110	84	82						
Volume Left	2	15	1	0	3	0						
Volume Right	2	3	0	23	0	2						
cSH	794	645	1428	1700	1147	1700						
Volume to Capacity	0.01	0.03	0.00	0.06	0.00	0.05						
Queue Length 95th (m)	0.1	0.7	0.0	0.0	0.1	0.0						
Control Delay (s)	9.6	10.7	0.1	0.0	0.3	0.0						
Lane LOS	A	B	A		A							
Approach Delay (s)	9.6	10.7	0.0		0.2							
Approach LOS	A	B										
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			16.1%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: Davis Road & Site Access

2025 AM Future Background



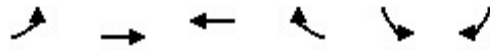
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	12	14	0	0	2
Future Volume (vph)	11	12	14	0	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.865	
Fl _t Protected		0.977				
Satd. Flow (prot)	0	1840	1883	0	1629	0
Fl _t Permitted		0.977				
Satd. Flow (perm)	0	1840	1883	0	1629	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		90.2	144.8		45.4	
Travel Time (s)		6.5	10.4		3.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	13	15	0	0	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	15	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
6: Davis Road & Site Access

2025 AM Future Background



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	12	14	0	0	2
Future Volume (Veh/h)	11	12	14	0	0	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	13	15	0	0	2
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	15				52	15
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	15				52	15
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				100	100
cM capacity (veh/h)	1603				949	1065
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	25	15	2			
Volume Left	12	0	0			
Volume Right	0	0	2			
cSH	1603	1700	1065			
Volume to Capacity	0.01	0.01	0.00			
Queue Length 95th (m)	0.2	0.0	0.0			
Control Delay (s)	3.5	0.0	8.4			
Lane LOS	A		A			
Approach Delay (s)	3.5	0.0	8.4			
Approach LOS			A			
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			17.9%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R>	<	<LT	T	T	T	T	T	T	R>
Maximum Queue (m)	63.9	122.4	86.9	86.4	44.3	46.0	49.1	183.4	226.4	235.2	238.5
Average Queue (m)	8.8	117.2	51.5	54.2	24.0	26.0	28.2	85.2	129.0	226.8	229.0
95th Queue (m)	49.3	119.4	78.5	80.6	44.6	46.2	51.4	137.2	237.0	232.0	235.4
Link Distance (m)		112.3	173.7	173.7	275.5	275.5	275.5	222.0	222.0	222.0	222.0
Upstream Blk Time (%)		97						0	1	34	64
Queuing Penalty (veh)		0						0	0	0	0
Storage Bay Dist (m)	65.0										
Storage Blk Time (%)		95		8							
Queuing Penalty (veh)		6		19							

Intersection: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	<	<	R	T	T	T	T	T	T	R
Maximum Queue (m)	145.4	195.4	199.5	25.2	34.9	38.8	158.4	173.7	158.2	96.0
Average Queue (m)	85.1	105.0	116.8	8.7	11.9	12.9	80.0	81.1	74.0	7.9
95th Queue (m)	126.2	157.8	184.7	21.4	27.4	28.7	126.2	133.0	123.4	57.0
Link Distance (m)		209.2	209.2	295.8	295.8	295.8	275.5	275.5	275.5	
Upstream Blk Time (%)		0	0					0		
Queuing Penalty (veh)		0	0					0		
Storage Bay Dist (m)	175.0									65.0
Storage Blk Time (%)		0							9	
Queuing Penalty (veh)		1							39	

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	TR	L	T
Maximum Queue (m)	111.0	127.2	78.1	38.8	46.2	30.0	60.1	142.3	212.4	223.5	74.9	152.5
Average Queue (m)	70.0	88.6	38.3	14.4	20.1	13.1	25.1	76.4	130.5	153.4	57.9	92.8
95th Queue (m)	103.6	121.9	69.9	30.3	38.3	24.7	47.2	131.1	198.7	215.5	88.5	137.2
Link Distance (m)		171.6	171.6		93.4	93.4		236.4	236.4	236.4		295.8
Upstream Blk Time (%)									0	1		
Queuing Penalty (veh)									0	5		
Storage Bay Dist (m)	130.0			55.0			120.0				55.0	
Storage Blk Time (%)		0			0			0			8	29
Queuing Penalty (veh)		0			0			0			39	76

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (m)	142.5	173.9
Average Queue (m)	93.2	106.4
95th Queue (m)	130.3	163.6
Link Distance (m)	295.8	295.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	T	R	L	T	TR	L
Maximum Queue (m)	94.9	104.7	152.6	121.2	42.9	103.2	89.6	42.0	41.3	100.3	124.6	83.0
Average Queue (m)	67.1	80.5	63.1	55.3	8.5	62.8	51.2	1.7	19.8	53.2	74.8	37.5
95th Queue (m)	103.6	112.2	132.7	102.5	24.4	88.6	78.8	19.6	35.1	89.0	108.0	67.5
Link Distance (m)			249.6	249.6		141.5	141.5					203.7
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	85.0	85.0			85.0			85.0	40.0	40.0		90.0
Storage Blk Time (%)	1	15	0			1	0	0	1	7	44	0
Queuing Penalty (veh)	3	34	1			0	0	0	4	17	124	0

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	89.8	143.0	65.8
Average Queue (m)	44.8	67.3	22.8
95th Queue (m)	74.1	121.2	50.3
Link Distance (m)	236.4	236.4	236.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	0		
Queuing Penalty (veh)	1		

Intersection: 5: South Service Road East & Davis Road

Movement	EB	WB	SB
Directions Served	LTR	LTR	LT
Maximum Queue (m)	7.2	19.4	2.6
Average Queue (m)	0.9	4.6	0.1
95th Queue (m)	4.7	13.7	1.8
Link Distance (m)	38.3	70.7	206.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Davis Road & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	1.8	8.6
Average Queue (m)	0.1	0.5
95th Queue (m)	1.3	3.6
Link Distance (m)	70.7	36.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 371

Lanes, Volumes, Timings

2025 PM Future Background

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	13	127	100	383	125	295	2823	527	1245	1013	11
Future Volume (vph)	13	127	100	383	125	295	2823	527	1245	1013	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0	0.0				60.0		80.0		0.0	
Storage Lanes	1	1				1		1		1	
Taper Length (m)	15.0										
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Ped Bike Factor						0.99		0.96		0.94	
Frt		0.850				0.850		0.850		0.850	
Flt Protected	0.950			0.950	0.975						
Satd. Flow (prot)	1825	1608	0	1717	1762	1585	5142	1601	5142	1601	0
Flt Permitted	0.950			0.950	0.975						
Satd. Flow (perm)	1825	1608	0	1717	1762	1563	5142	1538	5142	1506	0
Right Turn on Red			No			Yes		Yes			Yes
Satd. Flow (RTOR)						265		392		70	
Link Speed (k/h)					40		60		60		
Link Distance (m)					324.6		330.4		230.9		
Travel Time (s)					29.2		19.8		13.9		
Confl. Peds. (#/hr)						8		8		10	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	2%	1%	1%	1%	3%	2%	2%	2%	2%	0%
Adj. Flow (vph)	13	127	100	383	125	295	2823	527	1245	1013	11
Shared Lane Traffic (%)				34%							
Lane Group Flow (vph)	13	227	0	253	255	295	2823	527	1245	1024	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)					3.7		2.0		2.0		
Link Offset(m)					0.0		0.0		0.0		
Crosswalk Width(m)					4.9		4.9		4.9		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	14	24		14		14		14	14
Number of Detectors	1	1		1	2	1	2	1	2	1	
Detector Template	Left	Right		Left	Thru	Right	Thru	Right	Thru	Right	
Leading Detector (m)	6.1	6.1		6.1	30.5	6.1	30.5	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	6.1		6.1	1.8	6.1	1.8	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)					28.7		28.7		28.7		
Detector 2 Size(m)					1.8		1.8		1.8		
Detector 2 Type					Cl+Ex		Cl+Ex		Cl+Ex		
Detector 2 Channel											
Detector 2 Extend (s)					0.0		0.0		0.0		

Lanes, Volumes, Timings

2025 PM Future Background

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

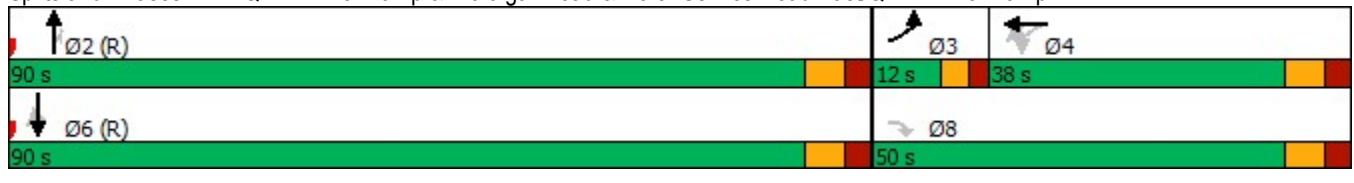


Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Turn Type	Prot	Perm		Perm	NA	Free	NA	Perm	NA	Perm	
Protected Phases	3				4		2		6		
Permitted Phases		8		4		Free		2		6	
Detector Phase	3	8		4	4		2	2	6	6	
Switch Phase											
Minimum Initial (s)	7.0	10.0		5.0	5.0		28.0	28.0	28.0	28.0	
Minimum Split (s)	12.0	22.5		38.0	38.0		35.0	35.0	35.0	35.0	
Total Split (s)	12.0	50.0		38.0	38.0		90.0	90.0	90.0	90.0	
Total Split (%)	8.6%	35.7%		27.1%	27.1%		64.3%	64.3%	64.3%	64.3%	
Maximum Green (s)	7.0	43.0		31.0	31.0		83.0	83.0	83.0	83.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-3.0	-3.0		-3.0	-3.0	-3.0	-3.0	
Total Lost Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
Lead/Lag	Lead			Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	
Walk Time (s)				7.0	7.0		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)				24.0	24.0		21.0	21.0	21.0	21.0	
Pedestrian Calls (#/hr)				0	0		0	0	0	0	
Act Effct Green (s)	9.0	33.5		28.7	28.7	140.0	98.5	98.5	98.5	98.5	
Actuated g/C Ratio	0.06	0.24		0.20	0.20	1.00	0.70	0.70	0.70	0.70	
v/c Ratio	0.11	0.59		0.72	0.71	0.19	0.78	0.44	0.34	0.95	
Control Delay	64.1	52.0		63.4	62.3	0.3	20.0	6.3	9.6	37.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.1	0.0	0.0	0.0	
Total Delay	64.1	52.0		63.4	62.3	0.3	20.1	6.3	9.6	37.2	
LOS	E	D		E	E	A	C	A	A	D	
Approach Delay					39.9		17.9		22.0		
Approach LOS					D		B		C		

Intersection Summary























Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.95
Intersection Signal Delay:	23.2
Intersection LOS:	C
Intersection Capacity Utilization:	105.2%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lanes, Volumes, Timings
2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2025 PM Future Background

											
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	 				  			  			
Traffic Volume (vph)	933	0	369	0	2418	492	0	1455	308	0	0
Future Volume (vph)	933	0	369	0	2418	492	0	1455	308	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		175.0	0.0	0.0		75.0	0.0		65.0	0.0	0.0
Storage Lanes		1	1	0		1	0		1	0	0
Taper Length (m)		25.0		7.6			7.6			2.5	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor			0.98			0.97			0.94		
Frt			0.850			0.850			0.850		
Flt Protected	0.950										
Satd. Flow (prot)	3506	0	1617	0	5142	1601	0	5142	1617	0	0
Flt Permitted	0.950										
Satd. Flow (perm)	3506	0	1590	0	5142	1557	0	5142	1517	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)			40			388			308		
Link Speed (k/h)		40			60			60		40	
Link Distance (m)		226.4			327.5			330.4		203.9	
Travel Time (s)		20.4			19.7			19.8		18.4	
Confl. Peds. (#/hr)			2			2			11		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	1%	0%	2%	2%	0%	2%	1%	0%	0%
Adj. Flow (vph)	933	0	369	0	2418	492	0	1455	308	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	933	0	369	0	2418	492	0	1455	308	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)		7.4			2.0			2.0		0.0	
Link Offset(m)		0.0			0.0			0.0		0.0	
Crosswalk Width(m)		4.9			4.9			4.9		1.6	
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	24	14	24		14	24		14	24	14
Number of Detectors	1		1		2	1		2	1		
Detector Template	Left		Right		Thru	Right		Thru	Right		
Leading Detector (m)	6.1		6.1		30.5	6.1		30.5	6.1		
Trailing Detector (m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1		6.1		1.8	6.1		1.8	6.1		
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)					28.7			28.7			
Detector 2 Size(m)					1.8			1.8			
Detector 2 Type					Cl+Ex			Cl+Ex			
Detector 2 Channel											
Detector 2 Extend (s)					0.0			0.0			

Lanes, Volumes, Timings
 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2025 PM Future Background



Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Turn Type	Prot		Perm		NA	Perm		NA	Perm		
Protected Phases	4				2			6			
Permitted Phases			4			2			6		
Detector Phase	4		4		2	2		6	6		
Switch Phase											
Minimum Initial (s)	10.0		10.0		28.0	28.0		28.0	28.0		
Minimum Split (s)	24.0		24.0		34.0	34.0		34.0	34.0		
Total Split (s)	53.0		53.0		87.0	87.0		87.0	87.0		
Total Split (%)	37.9%		37.9%		62.1%	62.1%		62.1%	62.1%		
Maximum Green (s)	47.0		47.0		81.0	81.0		81.0	81.0		
Yellow Time (s)	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		
Lost Time Adjust (s)	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Recall Mode	None		None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	7.0		7.0		7.0	7.0		7.0	7.0		
Flash Dont Walk (s)	11.0		11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0		0	0		0	0		
Act Effct Green (s)	46.1		46.1		87.9	87.9		87.9	87.9		
Actuated g/C Ratio	0.33		0.33		0.63	0.63		0.63	0.63		
v/c Ratio	0.81		0.67		0.75	0.44		0.45	0.29		
Control Delay	48.9		42.0		25.5	7.6		19.2	6.2		
Queue Delay	0.0		0.0		0.0	0.0		0.0	0.0		
Total Delay	48.9		42.0		25.5	7.6		19.2	6.2		
LOS	D		D		C	A		B	A		
Approach Delay		47.0			22.5			16.9			
Approach LOS		D			C			B			

Intersection Summary



























Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 51.8 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 26.2
 Intersection LOS: C
 Intersection Capacity Utilization 80.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp



Lanes, Volumes, Timings
3: Trafalgar Road & Cross Avenue/South Service Road East

2025 PM Future Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							  			  	
Traffic Volume (vph)	847	64	117	117	85	333	125	1579	37	98	1279	250
Future Volume (vph)	847	64	117	117	85	333	125	1579	37	98	1279	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		0.0	55.0		0.0	120.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	25.0			30.0			30.0			20.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor		0.99						1.00			1.00	
Frt		0.903				0.850		0.997			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3372	1617	0	1789	1883	1585	1772	5174	0	1789	5052	0
Flt Permitted	0.950			0.950			0.950			0.073		
Satd. Flow (perm)	3372	1617	0	1789	1883	1585	1772	5174	0	137	5052	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		66				173		3			33	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		191.2			115.5			274.1			327.5	
Travel Time (s)		13.8			8.3			19.7			23.6	
Confl. Peds. (#/hr)			8						5			8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	9%	4%	2%	2%	3%	3%	1%	0%	2%	0%	5%
Adj. Flow (vph)	847	64	117	117	85	333	125	1579	37	98	1279	250
Shared Lane Traffic (%)												
Lane Group Flow (vph)	847	181	0	117	85	333	125	1616	0	98	1529	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.4			5.4			5.7			5.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
3: Trafalgar Road & Cross Avenue/South Service Road East

2025 PM Future Background

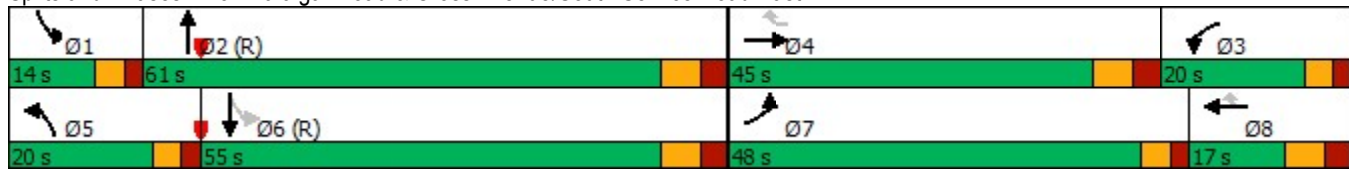


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	custom	Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						4 8				6		
Detector Phase	7	4		3	8	4 8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	9.8		7.0	20.0		7.0	20.0	
Minimum Split (s)	10.0	42.0		10.0	16.8		12.0	34.0		12.0	34.0	
Total Split (s)	48.0	45.0		20.0	17.0		20.0	61.0		14.0	55.0	
Total Split (%)	34.3%	32.1%		14.3%	12.1%		14.3%	43.6%		10.0%	39.3%	
Maximum Green (s)	43.0	38.0		15.0	10.0		15.0	54.0		9.0	48.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0	
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0						7.0			7.0	
Flash Dont Walk (s)		28.0						20.0			20.0	
Pedestrian Calls (#/hr)		0						0			0	
Act Effct Green (s)	41.5	20.3		34.5	13.2	33.6	15.5	60.7		67.2	55.7	
Actuated g/C Ratio	0.30	0.14		0.25	0.09	0.24	0.11	0.43		0.48	0.40	
v/c Ratio	0.85	0.62		0.27	0.48	0.65	0.64	0.72		0.52	0.75	
Control Delay	54.9	43.7		45.4	69.7	20.3	74.0	21.8		33.0	34.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	54.9	43.7		45.4	69.7	20.3	74.0	21.8		33.0	34.7	
LOS	D	D		D	E	C	E	C		C	C	
Approach Delay		52.9			33.7			25.5			34.6	
Approach LOS		D			C			C			C	

Intersection Summary































Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 98 (70%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 35.1
 Intersection LOS: D
 Intersection Capacity Utilization 86.1%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 3: Trafalgar Road & Cross Avenue/South Service Road East



Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2025 PM Future Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Traffic Volume (vph)	457	408	74	61	535	770	64	483	56	621	515	360
Future Volume (vph)	457	408	74	61	535	770	64	483	56	621	515	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		0.0	85.0		85.0	40.0		0.0	90.0		0.0
Storage Lanes	2		0	1		1	2		0	1		1
Taper Length (m)	20.0			7.5			85.0			15.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor		0.99				0.98		1.00				0.97
Frt		0.977				0.850		0.984				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3437	3423	0	1789	3544	1585	1755	3508	0	3471	1883	1570
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3437	3423	0	1789	3544	1553	1755	3508	0	3471	1883	1527
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16				606		8				338
Link Speed (k/h)		60			60			50				50
Link Distance (m)		267.7			164.8			224.3				274.1
Travel Time (s)		16.1			9.9			16.1				19.7
Confl. Peds. (#/hr)			11			29			3			12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	6%	2%	3%	3%	4%	2%	4%	2%	2%	4%
Adj. Flow (vph)	457	408	74	61	535	770	64	483	56	621	515	360
Shared Lane Traffic (%)												
Lane Group Flow (vph)	457	482	0	61	535	770	64	539	0	621	515	360
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2025 PM Future Background

	↖		→		↗		↖		←		↗		↖		↑		↗		↘		↓		↘		
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR													
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA		Prot	NA	Perm													
Protected Phases	3	8		7	4		5	2		1	6														
Permitted Phases						Free																			6
Detector Phase	3	8		7	4		5	2		1	6														6
Switch Phase																									
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0														20.0
Minimum Split (s)	12.0	37.0		12.0	37.0		12.0	39.0		12.0	39.0														39.0
Total Split (s)	28.0	52.0		13.0	37.0		13.0	39.0		36.0	62.0														62.0
Total Split (%)	20.0%	37.1%		9.3%	26.4%		9.3%	27.9%		25.7%	44.3%														44.3%
Maximum Green (s)	23.0	45.0		8.0	30.0		8.0	32.0		31.0	55.0														55.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0														3.0
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0														-3.0
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag														Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes														Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0														3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max														C-Max
Walk Time (s)		7.0			7.0			7.0			7.0														7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0														25.0
Pedestrian Calls (#/hr)		0			0			0			0														0
Act Effct Green (s)	23.7	45.5		9.8	29.2	140.0	10.6	42.3		30.8	64.9														64.9
Actuated g/C Ratio	0.17	0.32		0.07	0.21	1.00	0.08	0.30		0.22	0.46														0.46
v/c Ratio	0.79	0.43		0.49	0.72	0.50	0.48	0.51		0.81	0.59														0.40
Control Delay	66.0	37.0		76.3	57.5	1.1	75.0	43.2		45.0	46.1														23.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0														0.0
Total Delay	66.0	37.0		76.3	57.5	1.1	75.0	43.2		45.0	46.1														23.1
LOS	E	D		E	E	A	E	D		D	D														C
Approach Delay		51.1			26.6			46.6			40.1														
Approach LOS		D			C			D			D														

Intersection Summary

















Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 39.1 Intersection LOS: D
 Intersection Capacity Utilization 91.9% ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 4: Trafalgar Road & Cornwall Road



















Lanes, Volumes, Timings
5: South Service Road East & Davis Road

2025 PM Future Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	2	10	1	2	0	152	15	8	236	3
Future Volume (vph)	2	0	2	10	1	2	0	152	15	8	236	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.932			0.981			0.987			0.998	
Flt Protected		0.976			0.962						0.998	
Satd. Flow (prot)	0	1748	0	0	1567	0	0	3476	0	0	3525	0
Flt Permitted		0.976			0.962						0.998	
Satd. Flow (perm)	0	1748	0	0	1567	0	0	3476	0	0	3525	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Confl. Peds. (#/hr)										2		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	4%	0%	38%	2%	0%
Adj. Flow (vph)	2	0	2	11	1	2	0	175	17	9	271	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	14	0	0	192	0	0	283	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	22.4%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
5: South Service Road East & Davis Road

2025 PM Future Background

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	2	10	1	2	0	152	15	8	236	3
Future Volume (Veh/h)	2	0	2	10	1	2	0	152	15	8	236	3
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	2	0	2	11	1	2	0	175	17	9	271	3
Pedestrians												2
Lane Width (m)												3.7
Walking Speed (m/s)												1.1
Percent Blockage												0
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	380	484	137	341	478	98	274				194	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	380	484	137	341	478	98	274				194	
tC, single (s)	7.5	6.5	6.9	7.9	6.5	6.9	4.1				4.9	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2				2.6	
p0 queue free %	100	100	100	98	100	100	100				99	
cM capacity (veh/h)	551	481	893	539	485	943	1301				1148	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	4	14	88	104	144	138						
Volume Left	2	11	0	0	9	0						
Volume Right	2	2	0	17	0	3						
cSH	681	570	1301	1700	1148	1700						
Volume to Capacity	0.01	0.02	0.00	0.06	0.01	0.08						
Queue Length 95th (m)	0.1	0.6	0.0	0.0	0.2	0.0						
Control Delay (s)	10.3	11.5	0.0	0.0	0.6	0.0						
Lane LOS	B	B				A						
Approach Delay (s)	10.3	11.5	0.0			0.3						
Approach LOS	B	B										
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			22.4%		ICU Level of Service			A				
Analysis Period (min)	15											

Lanes, Volumes, Timings
6: Davis Road & Site Access

2025 PM Future Background



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	17	2	0	0	11
Future Volume (vph)	6	17	2	0	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.865	
Fl _t Protected		0.986				
Satd. Flow (prot)	0	1857	1883	0	1629	0
Fl _t Permitted		0.986				
Satd. Flow (perm)	0	1857	1883	0	1629	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		90.2	144.8		45.4	
Travel Time (s)		6.5	10.4		3.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	18	2	0	0	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	2	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	16.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
6: Davis Road & Site Access

2025 PM Future Background



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	17	2	0	0	11
Future Volume (Veh/h)	6	17	2	0	0	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	18	2	0	0	12
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	2				34	2
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2				34	2
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1620				975	1082
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	25	2	12			
Volume Left	7	0	0			
Volume Right	0	0	12			
cSH	1620	1700	1082			
Volume to Capacity	0.00	0.00	0.01			
Queue Length 95th (m)	0.1	0.0	0.3			
Control Delay (s)	2.0	0.0	8.4			
Lane LOS	A		A			
Approach Delay (s)	2.0	0.0	8.4			
Approach LOS			A			
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utilization		16.1%		ICU Level of Service		A
Analysis Period (min)			15			

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R>	<	<LT	T	T	T	R	T	T	T	R>
Maximum Queue (m)	53.6	107.7	76.2	94.0	164.7	170.3	178.1	140.0	83.9	224.2	234.2	237.8
Average Queue (m)	7.1	65.8	45.9	65.1	117.0	122.6	123.3	36.2	47.9	84.7	226.5	228.8
95th Queue (m)	36.5	113.8	71.1	92.2	158.1	164.2	165.9	137.0	72.8	200.6	230.4	234.7
Link Distance (m)		112.3	307.7	307.7	275.5	275.5	275.5		222.1	222.1	222.1	222.1
Upstream Blk Time (%)		11								0	39	83
Queuing Penalty (veh)		0								0	0	0
Storage Bay Dist (m)	65.0							80.0				
Storage Blk Time (%)		26		16			23					
Queuing Penalty (veh)		3		48			122					

Intersection: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	<	<	R	T	T	T	R	T	T	T
Maximum Queue (m)	183.3	213.6	167.6	136.4	142.0	153.9	129.8	82.7	78.2	73.8
Average Queue (m)	112.5	136.8	47.8	83.9	93.3	96.6	14.6	45.3	46.0	42.2
95th Queue (m)	164.1	192.1	106.7	120.7	131.6	137.9	82.2	70.8	72.7	67.3
Link Distance (m)		209.2	209.2	295.8	295.8	295.8		275.5	275.5	275.5
Upstream Blk Time (%)		1	0							
Queuing Penalty (veh)		0	0							
Storage Bay Dist (m)	175.0						75.0			
Storage Blk Time (%)	0	2				16			1	
Queuing Penalty (veh)	0	10				80			2	

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	EB	EB	EB	WB	WB	WB	B22	NB	NB	NB	NB	SB
Directions Served	L	L	TR	L	T	R	T	L	T	T	TR	L
Maximum Queue (m)	154.9	184.9	180.2	60.5	57.7	94.2	6.2	65.5	126.6	188.3	175.2	74.9
Average Queue (m)	125.6	153.4	73.9	27.5	22.3	73.0	0.5	30.1	51.7	78.3	93.6	35.2
95th Queue (m)	166.1	199.0	175.5	51.6	44.5	93.0	6.3	53.4	99.9	143.7	152.0	78.9
Link Distance (m)		171.6	171.6		93.4	93.4	173.1		236.4	236.4	236.4	
Upstream Blk Time (%)		12	3			2				0	0	
Queuing Penalty (veh)		0	0			3				0	1	
Storage Bay Dist (m)	130.0			55.0				120.0				55.0
Storage Blk Time (%)	1	24		2	1							0
Queuing Penalty (veh)	4	100		2	1							2

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (m)	134.6	131.9	152.4
Average Queue (m)	82.3	80.6	91.4
95th Queue (m)	120.6	117.0	136.4
Link Distance (m)	295.8	295.8	295.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	14		
Queuing Penalty (veh)	14		

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	T	R	L	T	TR	L
Maximum Queue (m)	94.8	104.7	175.5	133.6	80.2	119.6	96.6	18.5	51.2	114.1	130.8	101.3
Average Queue (m)	75.3	86.8	74.0	59.3	17.1	72.8	59.0	1.8	18.3	64.0	80.3	64.3
95th Queue (m)	108.7	115.4	180.3	139.2	47.6	104.3	89.2	23.0	37.4	102.2	117.5	89.2
Link Distance (m)			249.6	249.6		141.5	141.5					203.7
Upstream Blk Time (%)						0						
Queuing Penalty (veh)						0						
Storage Bay Dist (m)	85.0	85.0			85.0			85.0	40.0	40.0		90.0
Storage Blk Time (%)	6	24	0			4	0	0	2	11	48	0
Queuing Penalty (veh)	12	49	0			3	3	0	5	32	146	1

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	109.0	156.4	97.8
Average Queue (m)	71.1	101.9	49.8
95th Queue (m)	96.2	145.2	82.2
Link Distance (m)	236.4	236.4	236.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	1		
Queuing Penalty (veh)	3		

Intersection: 5: South Service Road East & Davis Road

Movement	EB	WB	SB
Directions Served	LTR	LTR	LT
Maximum Queue (m)	7.2	18.2	12.2
Average Queue (m)	0.8	3.6	0.5
95th Queue (m)	4.6	12.4	4.4
Link Distance (m)	38.3	70.7	206.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Davis Road & Site Access

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	2.6
95th Queue (m)	9.2
Link Distance (m)	36.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 645

Lanes, Volumes, Timings

2030 AM Future Background

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	6	239	125	480	45	264	1915	449	2360	1046	5
Future Volume (vph)	6	239	125	480	45	264	1915	449	2360	1046	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0	0.0				60.0		80.0		0.0	
Storage Lanes	2	1				1		1		1	
Taper Length (m)	15.0										
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Ped Bike Factor						0.99		0.98		0.96	
Frt		0.850				0.850		0.850		0.850	
Flt Protected	0.950			0.950	0.960						
Satd. Flow (prot)	3541	1622	0	1667	1685	1570	5142	1601	5092	1570	0
Flt Permitted	0.950			0.950	0.960						
Satd. Flow (perm)	3541	1622	0	1667	1685	1550	5142	1561	5092	1501	0
Right Turn on Red			No			Yes		Yes			Yes
Satd. Flow (RTOR)						227		449		70	
Link Speed (k/h)					40		60		60		
Link Distance (m)					190.6		330.4		230.9		
Travel Time (s)					17.2		19.8		13.9		
Confl. Peds. (#/hr)						2		2		6	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	1%	0%	4%	4%	4%	2%	2%	3%	4%	0%
Adj. Flow (vph)	6	239	125	480	45	264	1915	449	2360	1046	5
Shared Lane Traffic (%)				46%							
Lane Group Flow (vph)	6	364	0	259	266	264	1915	449	2360	1051	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)					7.4		2.0		2.0		
Link Offset(m)					0.0		0.0		0.0		
Crosswalk Width(m)					4.9		4.9		4.9		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	14	24		14		14		14	14
Number of Detectors	1	1		1	2	1	2	1	2	1	
Detector Template	Left	Right		Left	Thru	Right	Thru	Right	Thru	Right	
Leading Detector (m)	6.1	6.1		6.1	30.5	6.1	30.5	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	6.1		6.1	1.8	6.1	1.8	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)					28.7		28.7		28.7		
Detector 2 Size(m)					1.8		1.8		1.8		
Detector 2 Type					Cl+Ex		Cl+Ex		Cl+Ex		
Detector 2 Channel											
Detector 2 Extend (s)					0.0		0.0		0.0		

Lanes, Volumes, Timings

2030 AM Future Background

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

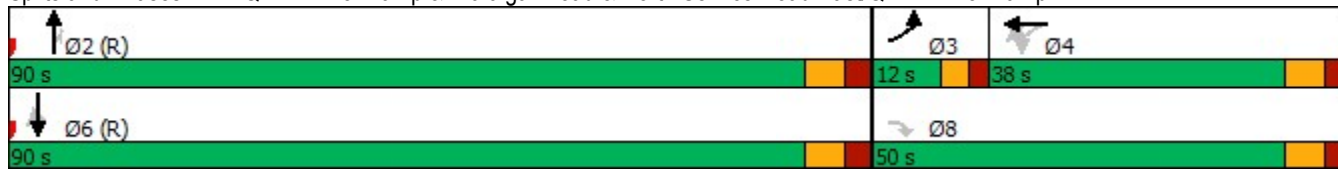


Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Turn Type	Prot	Perm		Perm	NA	Free	NA	Perm	NA	Perm	
Protected Phases	3				4		2		6		
Permitted Phases		8		4		Free		2		6	
Detector Phase	3	8		4	4		2	2	6	6	
Switch Phase											
Minimum Initial (s)	7.0	10.0		5.0	5.0		28.0	28.0	28.0	28.0	
Minimum Split (s)	12.0	22.5		38.0	38.0		35.0	35.0	35.0	35.0	
Total Split (s)	12.0	50.0		38.0	38.0		90.0	90.0	90.0	90.0	
Total Split (%)	8.6%	35.7%		27.1%	27.1%		64.3%	64.3%	64.3%	64.3%	
Maximum Green (s)	7.0	43.0		31.0	31.0		83.0	83.0	83.0	83.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-3.0	-3.0		-3.0	-3.0	-3.0	-3.0	
Total Lost Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
Lead/Lag	Lead			Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	
Walk Time (s)				7.0	7.0		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)				24.0	24.0		21.0	21.0	21.0	21.0	
Pedestrian Calls (#/hr)				0	0		0	0	0	0	
Act Effct Green (s)	9.0	38.9		36.5	36.5	140.0	93.1	93.1	93.1	93.1	
Actuated g/C Ratio	0.06	0.28		0.26	0.26	1.00	0.66	0.66	0.66	0.66	
v/c Ratio	0.03	0.81		0.60	0.61	0.17	0.56	0.38	0.70	1.03	
Control Delay	61.8	61.0		51.5	51.8	0.2	10.3	2.4	16.9	58.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	61.8	61.0		51.5	51.8	0.2	10.3	2.4	16.9	58.9	
LOS	E	E		D	D	A	B	A	B	E	
Approach Delay					34.4		8.8		29.8		
Approach LOS					C		A		C		























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.03
 Intersection Signal Delay: 24.9
 Intersection LOS: C
 Intersection Capacity Utilization 113.5%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

											
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	 				  			  			
Traffic Volume (vph)	901	0	639	0	1464	687	0	2628	492	0	0
Future Volume (vph)	901	0	639	0	1464	687	0	2628	492	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		175.0	0.0	0.0		75.0	0.0		65.0	0.0	0.0
Storage Lanes		1	1	0		1	0		1	0	0
Taper Length (m)		25.0		7.6			7.6			2.5	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor						0.97			0.95		
Frt			0.850			0.850			0.850		
Flt Protected	0.950										
Satd. Flow (prot)	3471	0	1601	0	5142	1601	0	4902	1585	0	0
Flt Permitted	0.950										
Satd. Flow (perm)	3471	0	1601	0	5142	1557	0	4902	1505	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)			23			687			283		
Link Speed (k/h)		40			60			60		40	
Link Distance (m)		226.4			327.5			330.4		203.9	
Travel Time (s)		20.4			19.7			19.8		18.4	
Confl. Peds. (#/hr)						2			8		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	0%	2%	0%	2%	2%	0%	7%	3%	0%	0%
Adj. Flow (vph)	901	0	639	0	1464	687	0	2628	492	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	901	0	639	0	1464	687	0	2628	492	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)		7.4			2.0			2.0		0.0	
Link Offset(m)		0.0			0.0			0.0		0.0	
Crosswalk Width(m)		4.9			4.9			4.9		1.6	
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	24	14	24		14	24		14	24	14
Number of Detectors	1		1		2	1		2	1		
Detector Template	Left		Right		Thru	Right		Thru	Right		
Leading Detector (m)	6.1		6.1		30.5	6.1		30.5	6.1		
Trailing Detector (m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1		6.1		1.8	6.1		1.8	6.1		
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)					28.7			28.7			
Detector 2 Size(m)					1.8			1.8			
Detector 2 Type					Cl+Ex			Cl+Ex			
Detector 2 Channel											
Detector 2 Extend (s)					0.0			0.0			

Lanes, Volumes, Timings
2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2030 AM Future Background

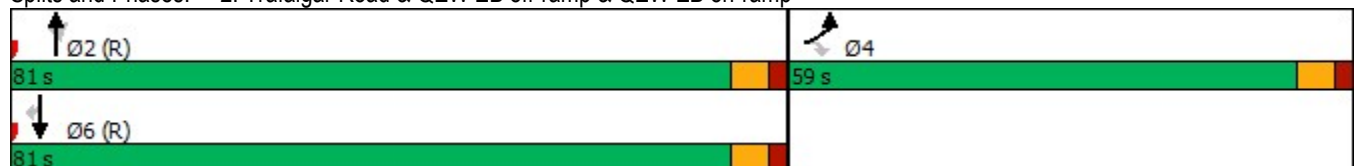


Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Turn Type	Prot		Perm		NA	Perm		NA	Perm		
Protected Phases	4				2			6			
Permitted Phases			4			2			6		
Detector Phase	4		4		2	2		6	6		
Switch Phase											
Minimum Initial (s)	5.0		5.0		5.0	5.0		5.0	5.0		
Minimum Split (s)	24.0		24.0		24.0	24.0		24.0	24.0		
Total Split (s)	59.0		59.0		81.0	81.0		81.0	81.0		
Total Split (%)	42.1%		42.1%		57.9%	57.9%		57.9%	57.9%		
Maximum Green (s)	53.0		53.0		75.0	75.0		75.0	75.0		
Yellow Time (s)	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		
Lost Time Adjust (s)	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Recall Mode	None		None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	7.0		7.0		7.0	7.0		7.0	7.0		
Flash Dont Walk (s)	11.0		11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0		0	0		7	7		
Act Effct Green (s)	56.0		56.0		78.0	78.0		78.0	78.0		
Actuated g/C Ratio	0.40		0.40		0.56	0.56		0.56	0.56		
v/c Ratio	0.65		0.98		0.51	0.59		0.96	0.51		
Control Delay	36.7		70.0		17.1	4.5		33.0	4.9		
Queue Delay	0.0		0.0		0.0	0.0		0.0	0.0		
Total Delay	36.7		70.0		17.1	4.5		33.0	4.9		
LOS	D		E		B	A		C	A		
Approach Delay		50.5			13.1			28.6			
Approach LOS		D			B			C			

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 5.6 (4%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 28.6
 Intersection Capacity Utilization 97.0%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service F

Splits and Phases: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp



































3: Trafalgar Road & Cross Avenue/South Service Road East

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	612	91	142	55	81	85	116	1392	64	263	1662	364
Future Volume (vph)	612	91	142	55	81	85	116	1392	64	263	1662	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		0.0	55.0		0.0	120.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	25.0			30.0			30.0			20.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor		0.99						1.00			1.00	
Frt		0.909				0.850		0.993			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3219	1684	0	1722	1921	1617	1755	5009	0	1807	4905	0
Flt Permitted	0.950			0.950			0.950			0.077		
Satd. Flow (perm)	3219	1684	0	1722	1921	1617	1755	5009	0	146	4905	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56				148		6			46	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		191.2			115.5			274.1			327.5	
Travel Time (s)		13.8			8.3			19.7			23.6	
Confl. Peds. (#/hr)			7						4			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	10%	0%	4%	6%	0%	1%	4%	4%	0%	1%	3%	7%
Adj. Flow (vph)	612	91	142	55	81	85	116	1392	64	263	1662	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	612	233	0	55	81	85	116	1456	0	263	2026	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.4			5.4			5.7			5.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2030 AM Future Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 	 	 	 		 	 	 
Traffic Volume (vph)	416	521	61	31	476	675	80	411	56	719	585	509
Future Volume (vph)	416	521	61	31	476	675	80	411	56	719	585	509
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		0.0	85.0		85.0	40.0		0.0	90.0		0.0
Storage Lanes	2		0	1		1	2		0	1		1
Taper Length (m)	20.0			7.5			85.0			15.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor		1.00				0.99		1.00				0.98
Frt		0.984				0.850		0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3404	3440	0	1825	3510	1541	1789	3484	0	3437	1883	1585
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3404	3440	0	1825	3510	1518	1789	3484	0	3437	1883	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				640		10				388
Link Speed (k/h)		60			60			50				50
Link Distance (m)		267.7			164.8			224.3				274.1
Travel Time (s)		16.1			9.9			16.1				19.7
Confl. Peds. (#/hr)			4			9			5			9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	4%	5%	0%	4%	6%	2%	3%	0%	3%	2%	3%
Adj. Flow (vph)	416	521	61	31	476	675	80	411	56	719	585	509
Shared Lane Traffic (%)												
Lane Group Flow (vph)	416	582	0	31	476	675	80	467	0	719	585	509
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

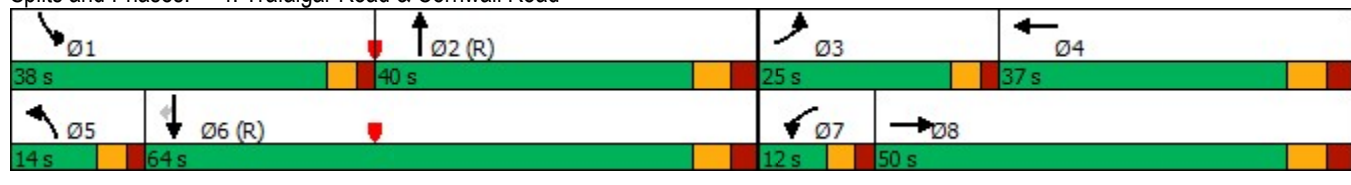
2030 AM Future Background

	↖		→		↗		↖		←		↗		↖		↑		↗		↘		↓		↘		
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR													
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA		Prot	NA	Perm													
Protected Phases	3	8		7	4		5	2		1	6														
Permitted Phases						Free																			6
Detector Phase	3	8		7	4		5	2		1	6														6
Switch Phase																									
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0														20.0
Minimum Split (s)	12.0	37.0		12.0	37.0		12.0	39.0		12.0	39.0														39.0
Total Split (s)	25.0	50.0		12.0	37.0		14.0	40.0		38.0	64.0														64.0
Total Split (%)	17.9%	35.7%		8.6%	26.4%		10.0%	28.6%		27.1%	45.7%														45.7%
Maximum Green (s)	20.0	43.0		7.0	30.0		9.0	33.0		33.0	57.0														57.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0														3.0
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0														-3.0
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag														Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes														Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0														3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max														C-Max
Walk Time (s)		7.0			7.0			7.0			7.0														7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0														25.0
Pedestrian Calls (#/hr)		0			0			0			0														0
Act Effct Green (s)	21.4	44.6		9.0	27.4	140.0	11.8	42.7		34.5	65.4														65.4
Actuated g/C Ratio	0.15	0.32		0.06	0.20	1.00	0.08	0.30		0.25	0.47														0.47
v/c Ratio	0.80	0.53		0.26	0.69	0.44	0.53	0.44		0.85	0.67														0.55
Control Delay	69.6	40.5		68.4	57.7	0.9	74.5	41.2		49.5	15.2														4.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0														0.0
Total Delay	69.6	40.5		68.4	57.7	0.9	74.5	41.2		49.5	15.2														4.9
LOS	E	D		E	E	A	E	D		D	B														A
Approach Delay		52.7			25.6			46.0			25.9														
Approach LOS		D			C			D			C														

Intersection Summary

















Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 34.1
 Intersection Capacity Utilization 88.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 4: Trafalgar Road & Cornwall Road



Lanes, Volumes, Timings
5: South Service Road East & Davis Road

















2030 AM Future Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	2	13	0	3	1	166	20	3	142	2
Future Volume (vph)	2	0	2	13	0	3	1	166	20	3	142	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.932			0.977			0.984			0.998	
Flt Protected		0.976			0.960						0.999	
Satd. Flow (prot)	0	1748	0	0	1544	0	0	3592	0	0	3546	0
Flt Permitted		0.976			0.960						0.999	
Satd. Flow (perm)	0	1748	0	0	1544	0	0	3592	0	0	3546	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	0%	0%	38%	2%	0%
Adj. Flow (vph)	2	0	2	15	0	3	1	191	23	3	163	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	18	0	0	215	0	0	168	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	16.1%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

5: South Service Road East & Davis Road

2030 AM Future Background

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	2	13	0	3	1	166	20	3	142	2
Future Volume (Veh/h)	2	0	2	13	0	3	1	166	20	3	142	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	2	0	2	15	0	3	1	191	23	3	163	2
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	270	386	82	294	376	107	165			214		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	270	386	82	294	376	107	165			214		
tC, single (s)	7.5	6.5	6.9	7.9	6.5	6.9	4.1			4.9		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.6		
p0 queue free %	100	100	100	97	100	100	100			100		
cM capacity (veh/h)	662	549	967	589	557	933	1426			1127		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	4	18	96	118	84	84						
Volume Left	2	15	1	0	3	0						
Volume Right	2	3	0	23	0	2						
cSH	786	627	1426	1700	1127	1700						
Volume to Capacity	0.01	0.03	0.00	0.07	0.00	0.05						
Queue Length 95th (m)	0.1	0.7	0.0	0.0	0.1	0.0						
Control Delay (s)	9.6	10.9	0.1	0.0	0.3	0.0						
Lane LOS	A	B	A		A							
Approach Delay (s)	9.6	10.9	0.0		0.2							
Approach LOS	A	B										
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			16.1%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: Davis Road & Site Access

2030 AM Future Background



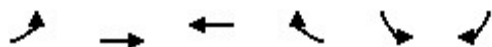
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	12	14	0	0	2
Future Volume (vph)	11	12	14	0	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.865	
Fl _t Protected		0.977				
Satd. Flow (prot)	0	1840	1883	0	1629	0
Fl _t Permitted		0.977				
Satd. Flow (perm)	0	1840	1883	0	1629	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		90.2	144.8		45.4	
Travel Time (s)		6.5	10.4		3.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	13	15	0	0	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	15	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
6: Davis Road & Site Access

2030 AM Future Background



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	12	14	0	0	2
Future Volume (Veh/h)	11	12	14	0	0	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	13	15	0	0	2
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	15				52	15
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	15				52	15
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				100	100
cM capacity (veh/h)	1603				949	1065
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	25	15	2			
Volume Left	12	0	0			
Volume Right	0	0	2			
cSH	1603	1700	1065			
Volume to Capacity	0.01	0.01	0.00			
Queue Length 95th (m)	0.2	0.0	0.0			
Control Delay (s)	3.5	0.0	8.4			
Lane LOS	A		A			
Approach Delay (s)	3.5	0.0	8.4			
Approach LOS			A			
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			17.9%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R>	<	<LT	T	T	T	T	T	T	R>
Maximum Queue (m)	79.8	116.9	94.1	105.1	60.8	65.4	73.8	172.2	226.6	234.5	236.1
Average Queue (m)	7.1	113.4	58.7	59.1	30.7	34.2	34.0	83.4	122.8	225.2	226.9
95th Queue (m)	44.0	115.6	87.6	89.2	55.0	60.0	64.3	132.3	230.8	230.6	232.6
Link Distance (m)		108.5	174.0	174.0	275.8	275.8	275.8	220.2	220.2	220.2	220.2
Upstream Blk Time (%)		98							1	36	68
Queuing Penalty (veh)		0							0	0	0
Storage Bay Dist (m)	65.0										
Storage Blk Time (%)		96		11			0				
Queuing Penalty (veh)		6		28			0				

Intersection: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	<	<	R	T	T	T	T	T	T	R
Maximum Queue (m)	196.9	220.6	223.5	45.2	44.9	50.5	134.4	124.2	114.5	24.0
Average Queue (m)	122.1	181.6	190.7	23.6	25.9	26.1	80.8	80.9	70.3	1.6
95th Queue (m)	196.6	258.1	258.1	39.2	42.9	44.4	117.3	115.5	105.3	24.2
Link Distance (m)		209.2	209.2	295.8	295.8	295.8	275.8	275.8	275.8	
Upstream Blk Time (%)		20	33							
Queuing Penalty (veh)		0	0							
Storage Bay Dist (m)	175.0									65.0
Storage Blk Time (%)	0	7							8	
Queuing Penalty (veh)	1	30							39	

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	TR	L	T
Maximum Queue (m)	154.2	184.3	176.0	49.2	48.9	42.4	86.1	177.3	225.0	254.5	74.9	153.6
Average Queue (m)	121.4	149.3	84.4	19.0	23.5	16.0	29.2	97.8	156.6	181.5	55.1	96.8
95th Queue (m)	163.8	197.0	176.7	43.4	43.0	32.4	57.1	155.1	225.2	251.8	89.3	138.8
Link Distance (m)		171.6	171.6		93.4	93.4		236.4	236.4	236.4		295.8
Upstream Blk Time (%)		15	5						0	5		
Queuing Penalty (veh)		0	0						1	25		
Storage Bay Dist (m)	130.0			55.0			120.0				55.0	
Storage Blk Time (%)	2	27		3	1		0	1			9	32
Queuing Penalty (veh)	5	84		2	0		0	2			48	83

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (m)	149.1	167.4
Average Queue (m)	93.8	105.3
95th Queue (m)	130.7	148.3
Link Distance (m)	295.8	295.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	T	R	L	T	TR	L
Maximum Queue (m)	94.9	104.9	214.5	186.8	47.3	101.4	113.2	71.3	43.9	112.7	133.2	99.4
Average Queue (m)	82.2	93.6	129.7	107.2	7.6	66.5	58.6	9.2	19.9	53.3	73.5	44.5
95th Queue (m)	109.2	119.8	266.9	229.5	26.4	92.9	100.9	53.5	37.0	94.1	107.6	75.7
Link Distance (m)			249.6	249.6		141.5	141.5					203.7
Upstream Blk Time (%)			12	0			1					
Queuing Penalty (veh)			0	0			0					
Storage Bay Dist (m)	85.0	85.0			85.0			85.0	40.0	40.0		90.0
Storage Blk Time (%)	11	42	0			1	0	3	2	5	42	0
Queuing Penalty (veh)	27	110	2			0	1	6	6	14	119	2

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	107.7	97.2	84.4
Average Queue (m)	51.0	45.9	21.4
95th Queue (m)	82.1	88.3	52.9
Link Distance (m)	236.4	236.4	236.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	1		
Queuing Penalty (veh)	2		

Intersection: 5: South Service Road East & Davis Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LT	LT
Maximum Queue (m)	5.7	18.5	1.7	2.8
Average Queue (m)	0.8	5.0	0.1	0.1
95th Queue (m)	4.5	14.8	1.2	2.2
Link Distance (m)	38.3	70.7	102.9	206.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Davis Road & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	1.8	8.8
Average Queue (m)	0.1	0.9
95th Queue (m)	1.3	5.2
Link Distance (m)	70.7	36.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 644

Lanes, Volumes, Timings

2030 PM Future Background

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	13	127	110	462	138	326	3146	600	1440	1119	11
Future Volume (vph)	13	127	110	462	138	326	3146	600	1440	1119	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0	0.0				60.0		80.0		0.0	
Storage Lanes	1	1				1		1		1	
Taper Length (m)	15.0										
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Ped Bike Factor						0.99		0.96		0.94	
Frt		0.850				0.850		0.850		0.850	
Flt Protected	0.950			0.950	0.973						
Satd. Flow (prot)	1825	1608	0	1717	1758	1585	5142	1601	5142	1601	0
Flt Permitted	0.950			0.950	0.973						
Satd. Flow (perm)	1825	1608	0	1717	1758	1563	5142	1538	5142	1506	0
Right Turn on Red			No			Yes		Yes			Yes
Satd. Flow (RTOR)						245		400		70	
Link Speed (k/h)					40		60		60		
Link Distance (m)					324.6		330.4		230.9		
Travel Time (s)					29.2		19.8		13.9		
Confl. Peds. (#/hr)						8		8		10	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	2%	1%	1%	1%	3%	2%	2%	2%	2%	0%
Adj. Flow (vph)	13	127	110	462	138	326	3146	600	1440	1119	11
Shared Lane Traffic (%)				36%							
Lane Group Flow (vph)	13	237	0	296	304	326	3146	600	1440	1130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)					3.7		2.0		2.0		
Link Offset(m)					0.0		0.0		0.0		
Crosswalk Width(m)					4.9		4.9		4.9		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	14	24		14		14		14	14
Number of Detectors	1	1		1	2	1	2	1	2	1	
Detector Template	Left	Right		Left	Thru	Right	Thru	Right	Thru	Right	
Leading Detector (m)	6.1	6.1		6.1	30.5	6.1	30.5	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	6.1		6.1	1.8	6.1	1.8	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)					28.7		28.7		28.7		
Detector 2 Size(m)					1.8		1.8		1.8		
Detector 2 Type					Cl+Ex		Cl+Ex		Cl+Ex		
Detector 2 Channel											
Detector 2 Extend (s)					0.0		0.0		0.0		

Lanes, Volumes, Timings

2030 PM Future Background

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

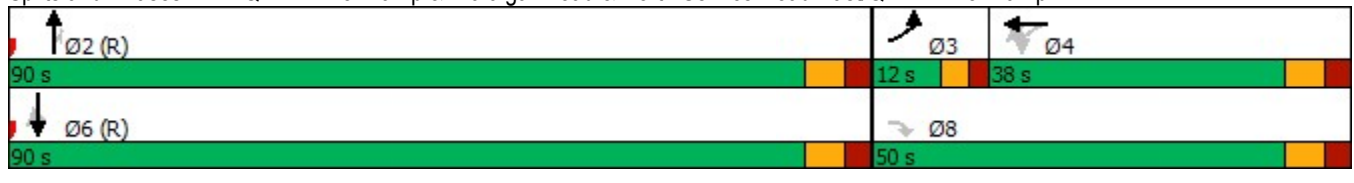


Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Turn Type	Prot	Perm		Perm	NA	Free	NA	Perm	NA	Perm	
Protected Phases	3				4		2		6		
Permitted Phases		8		4		Free		2		6	
Detector Phase	3	8		4	4		2	2	6	6	
Switch Phase											
Minimum Initial (s)	7.0	10.0		5.0	5.0		28.0	28.0	28.0	28.0	
Minimum Split (s)	12.0	22.5		38.0	38.0		35.0	35.0	35.0	35.0	
Total Split (s)	12.0	50.0		38.0	38.0		90.0	90.0	90.0	90.0	
Total Split (%)	8.6%	35.7%		27.1%	27.1%		64.3%	64.3%	64.3%	64.3%	
Maximum Green (s)	7.0	43.0		31.0	31.0		83.0	83.0	83.0	83.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-3.0	-3.0		-3.0	-3.0	-3.0	-3.0	
Total Lost Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
Lead/Lag	Lead			Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	
Walk Time (s)				7.0	7.0		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)				24.0	24.0		21.0	21.0	21.0	21.0	
Pedestrian Calls (#/hr)				0	0		0	0	0	0	
Act Effct Green (s)	9.0	35.8		31.0	31.0	140.0	96.2	96.2	96.2	96.2	
Actuated g/C Ratio	0.06	0.26		0.22	0.22	1.00	0.69	0.69	0.69	0.69	
v/c Ratio	0.11	0.58		0.78	0.78	0.21	0.89	0.51	0.41	1.07	
Control Delay	64.1	49.9		65.8	65.7	0.3	26.2	8.0	10.9	70.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.2	0.0	0.0	0.0	
Total Delay	64.1	49.9		65.8	65.7	0.3	26.4	8.0	10.9	70.4	
LOS	E	D		E	E	A	C	A	B	E	
Approach Delay					42.7		23.5		37.1		
Approach LOS					D		C		D		

Intersection Summary























Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.07
Intersection Signal Delay:	31.4
Intersection LOS:	C
Intersection Capacity Utilization	114.3%
ICU Level of Service	H
Analysis Period (min)	15

Splits and Phases: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lanes, Volumes, Timings
 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2030 PM Future Background

											
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	 				  			  			
Traffic Volume (vph)	1030	0	450	0	2716	560	0	1711	340	0	0
Future Volume (vph)	1030	0	450	0	2716	560	0	1711	340	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		175.0	0.0	0.0		75.0	0.0		65.0	0.0	0.0
Storage Lanes		1	1	0		1	0		1	0	0
Taper Length (m)		25.0		7.6			7.6			2.5	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor			0.98			0.97			0.94		
Frt			0.850			0.850			0.850		
Flt Protected	0.950										
Satd. Flow (prot)	3506	0	1617	0	5142	1601	0	5142	1617	0	0
Flt Permitted	0.950										
Satd. Flow (perm)	3506	0	1590	0	5142	1557	0	5142	1517	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)			23			393			333		
Link Speed (k/h)		40			60			60		40	
Link Distance (m)		226.4			327.5			330.4		203.9	
Travel Time (s)		20.4			19.7			19.8		18.4	
Confl. Peds. (#/hr)			2			2			11		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	1%	0%	2%	2%	0%	2%	1%	0%	0%
Adj. Flow (vph)	1030	0	450	0	2716	560	0	1711	340	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	1030	0	450	0	2716	560	0	1711	340	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)		7.4			2.0			2.0		0.0	
Link Offset(m)		0.0			0.0			0.0		0.0	
Crosswalk Width(m)		4.9			4.9			4.9		1.6	
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	24	14	24		14	24		14	24	14
Number of Detectors	1		1		2	1		2	1		
Detector Template	Left		Right		Thru	Right		Thru	Right		
Leading Detector (m)	6.1		6.1		30.5	6.1		30.5	6.1		
Trailing Detector (m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1		6.1		1.8	6.1		1.8	6.1		
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)					28.7			28.7			
Detector 2 Size(m)					1.8			1.8			
Detector 2 Type					Cl+Ex			Cl+Ex			
Detector 2 Channel											
Detector 2 Extend (s)					0.0			0.0			

Lanes, Volumes, Timings
 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2030 PM Future Background



Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Turn Type	Prot		Perm		NA	Perm		NA	Perm		
Protected Phases	4				2			6			
Permitted Phases			4			2			6		
Detector Phase	4		4		2	2		6	6		
Switch Phase											
Minimum Initial (s)	10.0		10.0		28.0	28.0		28.0	28.0		
Minimum Split (s)	24.0		24.0		34.0	34.0		34.0	34.0		
Total Split (s)	53.0		53.0		87.0	87.0		87.0	87.0		
Total Split (%)	37.9%		37.9%		62.1%	62.1%		62.1%	62.1%		
Maximum Green (s)	47.0		47.0		81.0	81.0		81.0	81.0		
Yellow Time (s)	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		
Lost Time Adjust (s)	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Recall Mode	None		None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	7.0		7.0		7.0	7.0		7.0	7.0		
Flash Dont Walk (s)	11.0		11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0		0	0		0	0		
Act Effct Green (s)	48.1		48.1		85.9	85.9		85.9	85.9		
Actuated g/C Ratio	0.34		0.34		0.61	0.61		0.61	0.61		
v/c Ratio	0.85		0.80		0.86	0.51		0.54	0.32		
Control Delay	50.6		51.2		30.0	9.5		22.1	6.6		
Queue Delay	0.0		0.0		0.6	0.0		0.0	0.0		
Total Delay	50.6		51.2		30.6	9.5		22.1	6.6		
LOS	D		D		C	A		C	A		
Approach Delay		50.8			27.0			19.5			
Approach LOS		D			C			B			




























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 51.8 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 29.9
 Intersection Capacity Utilization 88.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp



3: Trafalgar Road & Cross Avenue/South Service Road East

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							  			  	
Traffic Volume (vph)	915	69	124	117	95	333	155	1743	37	98	1407	250
Future Volume (vph)	915	69	124	117	95	333	155	1743	37	98	1407	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		0.0	55.0		0.0	120.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	25.0			30.0			30.0			20.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor		0.99						1.00			1.00	
Frt		0.904				0.850		0.997			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3372	1619	0	1789	1883	1585	1772	5175	0	1789	5067	0
Flt Permitted	0.950			0.950			0.950			0.074		
Satd. Flow (perm)	3372	1619	0	1789	1883	1585	1772	5175	0	139	5067	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		65				133		3			29	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		191.2			115.5			274.1			327.5	
Travel Time (s)		13.8			8.3			19.7			23.6	
Confl. Peds. (#/hr)			8						5			8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	9%	4%	2%	2%	3%	3%	1%	0%	2%	0%	5%
Adj. Flow (vph)	915	69	124	117	95	333	155	1743	37	98	1407	250
Shared Lane Traffic (%)												
Lane Group Flow (vph)	915	193	0	117	95	333	155	1780	0	98	1657	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.4			5.4			5.7			5.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
3: Trafalgar Road & Cross Avenue/South Service Road East

2030 PM Future Background

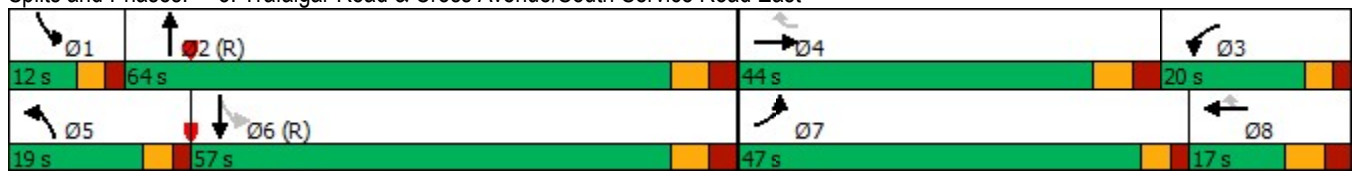


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	custom	Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						4 8				6		
Detector Phase	7	4		3	8	4 8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	9.8		7.0	20.0		7.0	20.0	
Minimum Split (s)	10.0	42.0		10.0	16.8		12.0	34.0		12.0	34.0	
Total Split (s)	47.0	44.0		20.0	17.0		19.0	64.0		12.0	57.0	
Total Split (%)	33.6%	31.4%		14.3%	12.1%		13.6%	45.7%		8.6%	40.7%	
Maximum Green (s)	42.0	37.0		15.0	10.0		14.0	57.0		7.0	50.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0	
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0						7.0			7.0	
Flash Dont Walk (s)		28.0						20.0			20.0	
Pedestrian Calls (#/hr)		8						5			8	
Act Effct Green (s)	42.5	23.9		31.7	13.1	30.9	15.7	61.3		64.9	54.7	
Actuated g/C Ratio	0.30	0.17		0.23	0.09	0.22	0.11	0.44		0.46	0.39	
v/c Ratio	0.89	0.58		0.29	0.54	0.74	0.78	0.79		0.57	0.83	
Control Delay	58.5	40.7		49.7	72.9	29.4	84.3	22.5		37.7	35.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	58.5	40.7		49.7	72.9	29.4	84.3	22.5		37.7	35.9	
LOS	E	D		D	E	C	F	C		D	D	
Approach Delay		55.4			41.3			27.4			36.0	
Approach LOS		E			D			C			D	

Intersection Summary






























Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 98 (70%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 37.5
 Intersection LOS: D
 Intersection Capacity Utilization 93.7%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 3: Trafalgar Road & Cross Avenue/South Service Road East



Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2030 PM Future Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 		 	 	
Traffic Volume (vph)	527	450	74	61	590	854	64	487	56	681	517	407
Future Volume (vph)	527	450	74	61	590	854	64	487	56	681	517	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		0.0	85.0		85.0	40.0		0.0	90.0		0.0
Storage Lanes	2		0	1		1	2		0	1		1
Taper Length (m)	20.0			7.5			85.0			15.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor		0.99				0.98		1.00				0.97
Frt		0.979				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3437	3433	0	1789	3544	1585	1755	3512	0	3471	1883	1570
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3437	3433	0	1789	3544	1553	1755	3512	0	3471	1883	1527
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14				594		8				376
Link Speed (k/h)		60			60			50				50
Link Distance (m)		267.7			164.8			224.3				274.1
Travel Time (s)		16.1			9.9			16.1				19.7
Confl. Peds. (#/hr)			11			29			3			12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	6%	2%	3%	3%	4%	2%	4%	2%	2%	4%
Adj. Flow (vph)	527	450	74	61	590	854	64	487	56	681	517	407
Shared Lane Traffic (%)												
Lane Group Flow (vph)	527	524	0	61	590	854	64	543	0	681	517	407
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2030 PM Future Background

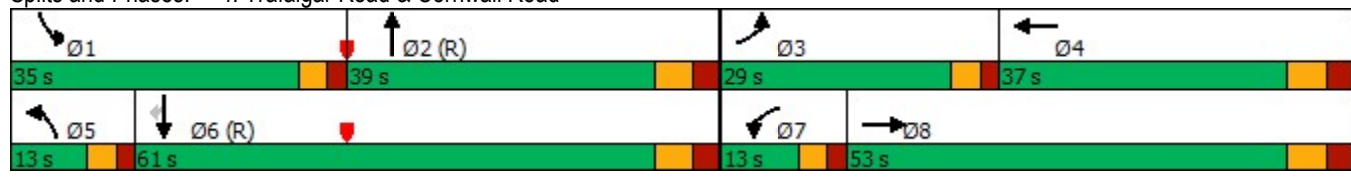


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						Free						6
Detector Phase	3	8		7	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0	20.0
Minimum Split (s)	12.0	37.0		12.0	37.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	29.0	53.0		13.0	37.0		13.0	39.0		35.0	61.0	61.0
Total Split (%)	20.7%	37.9%		9.3%	26.4%		9.3%	27.9%		25.0%	43.6%	43.6%
Maximum Green (s)	24.0	46.0		8.0	30.0		8.0	32.0		30.0	54.0	54.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0	-3.0
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0	25.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	25.4	48.6		9.8	30.6	140.0	10.1	38.5		31.5	62.2	62.2
Actuated g/C Ratio	0.18	0.35		0.07	0.22	1.00	0.07	0.28		0.22	0.44	0.44
v/c Ratio	0.85	0.44		0.49	0.76	0.55	0.50	0.56		0.87	0.62	0.46
Control Delay	68.8	35.6		76.3	58.1	1.4	76.8	46.4		46.8	45.9	23.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	68.8	35.6		76.3	58.1	1.4	76.8	46.4		46.8	45.9	23.7
LOS	E	D		E	E	A	E	D		D	D	C
Approach Delay		52.2			26.7			49.6			40.6	
Approach LOS		D			C			D			D	

Intersection Summary

















Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 39.9
 Intersection LOS: D
 Intersection Capacity Utilization 96.2%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 4: Trafalgar Road & Cornwall Road



















Lanes, Volumes, Timings
5: South Service Road East & Davis Road

2030 PM Future Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	2	10	1	2	0	157	15	8	246	3
Future Volume (vph)	2	0	2	10	1	2	0	157	15	8	246	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.932			0.981			0.987			0.998	
Flt Protected		0.976			0.962						0.998	
Satd. Flow (prot)	0	1748	0	0	1567	0	0	3476	0	0	3527	0
Flt Permitted		0.976			0.962						0.998	
Satd. Flow (perm)	0	1748	0	0	1567	0	0	3476	0	0	3527	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Confl. Peds. (#/hr)										2		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	4%	0%	38%	2%	0%
Adj. Flow (vph)	2	0	2	11	1	2	0	180	17	9	283	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	14	0	0	197	0	0	295	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	22.7%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
5: South Service Road East & Davis Road

2030 PM Future Background

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	2	10	1	2	0	157	15	8	246	3
Future Volume (Veh/h)	2	0	2	10	1	2	0	157	15	8	246	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	2	0	2	11	1	2	0	180	17	9	283	3
Pedestrians					2							
Lane Width (m)					3.7							
Walking Speed (m/s)					1.1							
Percent Blockage					0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	395	502	143	352	494	100	286			199		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	395	502	143	352	494	100	286			199		
tC, single (s)	7.5	6.5	6.9	7.9	6.5	6.9	4.1			4.9		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.6		
p0 queue free %	100	100	100	98	100	100	100			99		
cM capacity (veh/h)	538	470	885	529	474	940	1288			1142		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	4	14	90	107	150	144						
Volume Left	2	11	0	0	9	0						
Volume Right	2	2	0	17	0	3						
cSH	669	560	1288	1700	1142	1700						
Volume to Capacity	0.01	0.03	0.00	0.06	0.01	0.09						
Queue Length 95th (m)	0.1	0.6	0.0	0.0	0.2	0.0						
Control Delay (s)	10.4	11.6	0.0	0.0	0.6	0.0						
Lane LOS	B	B			A							
Approach Delay (s)	10.4	11.6	0.0		0.3							
Approach LOS	B	B										
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			22.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: Davis Road & Site Access

2030 PM Future Background



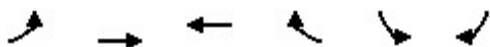
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	17	2	0	0	11
Future Volume (vph)	6	17	2	0	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.865	
Fl _t Protected		0.986				
Satd. Flow (prot)	0	1857	1883	0	1629	0
Fl _t Permitted		0.986				
Satd. Flow (perm)	0	1857	1883	0	1629	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		90.2	144.8		45.4	
Travel Time (s)		6.5	10.4		3.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	18	2	0	0	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	2	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	16.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
6: Davis Road & Site Access

2030 PM Future Background



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	17	2	0	0	11
Future Volume (Veh/h)	6	17	2	0	0	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	18	2	0	0	12
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	2				34	2
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2				34	2
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1620				975	1082
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	25	2	12			
Volume Left	7	0	0			
Volume Right	0	0	12			
cSH	1620	1700	1082			
Volume to Capacity	0.00	0.00	0.01			
Queue Length 95th (m)	0.1	0.0	0.3			
Control Delay (s)	2.0	0.0	8.4			
Lane LOS	A		A			
Approach Delay (s)	2.0	0.0	8.4			
Approach LOS			A			
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utilization			16.1%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R>	<	<LT	R	T	T	T	R	T	T	T
Maximum Queue (m)	65.2	122.2	106.2	122.0	71.4	280.2	271.3	282.7	140.0	79.4	222.4	234.0
Average Queue (m)	8.1	77.3	60.2	78.3	9.5	184.8	188.9	193.0	109.0	48.3	74.3	225.7
95th Queue (m)	41.9	131.6	91.2	116.3	62.4	265.1	269.1	277.6	204.5	72.2	173.4	246.1
Link Distance (m)		112.3	307.7	307.7		275.5	275.5	275.5		222.1	222.1	222.1
Upstream Blk Time (%)		24				0	0	0			0	40
Queuing Penalty (veh)		0				5	4	5			0	0
Storage Bay Dist (m)	65.0				60.0				80.0			
Storage Blk Time (%)		40		24				32				
Queuing Penalty (veh)		5		79				190				

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	SB
Directions Served	R>
Maximum Queue (m)	238.5
Average Queue (m)	228.2
95th Queue (m)	233.5
Link Distance (m)	222.1
Upstream Blk Time (%)	83
Queuing Penalty (veh)	0
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	<	<	R	T	T	T	R	T	T	T
Maximum Queue (m)	196.0	218.6	217.8	176.4	175.6	201.0	130.0	85.6	91.3	84.6
Average Queue (m)	146.5	174.0	112.0	114.3	126.1	131.8	58.7	49.6	52.5	48.3
95th Queue (m)	205.3	239.9	235.4	164.9	172.4	190.5	165.0	76.2	80.0	76.5
Link Distance (m)		209.2	209.2	295.8	295.8	295.8		275.5	275.5	275.5
Upstream Blk Time (%)		14	4							
Queuing Penalty (veh)		0	0							
Storage Bay Dist (m)	175.0						75.0			
Storage Blk Time (%)	0	16				28				2
Queuing Penalty (veh)	2	82				154				8

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	EB	EB	EB	WB	WB	WB	B22	NB	NB	NB	NB	SB
Directions Served	L	L	TR	L	T	R	T	L	T	T	TR	L
Maximum Queue (m)	155.0	185.7	187.0	55.1	55.4	99.3	2.8	97.2	124.6	194.6	161.0	74.9
Average Queue (m)	150.3	176.1	152.9	23.2	24.7	75.2	0.1	46.7	60.2	90.5	106.5	31.9
95th Queue (m)	167.7	193.4	240.8	46.4	50.2	92.5	1.9	83.3	105.9	148.1	152.5	73.4
Link Distance (m)		171.6	171.6		93.4	93.4	173.1		236.4	236.4	236.4	
Upstream Blk Time (%)		57	21			1				0		
Queuing Penalty (veh)		0	0			1				0		
Storage Bay Dist (m)	130.0			55.0				120.0				55.0
Storage Blk Time (%)	8	58		1	2				0			0
Queuing Penalty (veh)	35	267		1	2				0			0

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (m)	138.2	147.2	156.4
Average Queue (m)	89.2	89.5	99.1
95th Queue (m)	129.8	130.4	143.7
Link Distance (m)	295.8	295.8	295.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	16		
Queuing Penalty (veh)	16		

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	T	R	L	T	TR	L
Maximum Queue (m)	94.9	104.9	250.6	225.3	92.0	140.7	135.4	74.0	75.7	117.5	135.2	100.5
Average Queue (m)	89.9	100.9	163.6	127.2	23.6	85.0	73.1	14.1	19.6	65.3	82.4	66.8
95th Queue (m)	105.3	114.0	302.2	253.3	66.5	123.3	117.4	69.0	46.7	102.4	118.2	95.8
Link Distance (m)			249.6	249.6		141.5	141.5					203.7
Upstream Blk Time (%)			15	0		1	1					
Queuing Penalty (veh)			0	0		0	0					
Storage Bay Dist (m)	85.0	85.0			85.0			85.0	40.0	40.0		90.0
Storage Blk Time (%)	13	53	0		0	9	2	0	3	11	48	1
Queuing Penalty (veh)	29	120	0		0	6	20	0	8	34	149	5

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	134.1	158.2	114.3
Average Queue (m)	76.0	99.2	62.8
95th Queue (m)	123.4	141.2	99.4
Link Distance (m)	236.4	236.4	236.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	3		
Queuing Penalty (veh)	10		

Intersection: 5: South Service Road East & Davis Road

Movement	EB	WB	SB
Directions Served	LTR	LTR	LT
Maximum Queue (m)	8.5	16.5	9.7
Average Queue (m)	0.8	3.5	0.4
95th Queue (m)	4.7	11.4	4.2
Link Distance (m)	38.3	70.7	206.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Davis Road & Site Access

Movement	SB
Directions Served	LR
Maximum Queue (m)	8.9
Average Queue (m)	3.5
95th Queue (m)	10.6
Link Distance (m)	36.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1235

Lanes, Volumes, Timings

2035 AM Future Background

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	6	239	138	527	49	291	2102	487	2603	1155	5
Future Volume (vph)	6	239	138	527	49	291	2102	487	2603	1155	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0	0.0				60.0		80.0		0.0	
Storage Lanes	1	1				1		1		1	
Taper Length (m)	15.0										
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Ped Bike Factor						0.99		0.98		0.96	
Frt		0.850				0.850		0.850		0.850	
Flt Protected	0.950			0.950	0.960						
Satd. Flow (prot)	1825	1623	0	1667	1685	1570	5142	1601	5092	1570	0
Flt Permitted	0.950			0.950	0.960						
Satd. Flow (perm)	1825	1623	0	1667	1685	1550	5142	1561	5092	1501	0
Right Turn on Red			No			Yes		Yes			Yes
Satd. Flow (RTOR)						229		437		70	
Link Speed (k/h)					40		60		60		
Link Distance (m)					190.6		330.4		230.9		
Travel Time (s)					17.2		19.8		13.9		
Confl. Peds. (#/hr)						2		2		6	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	1%	0%	4%	4%	4%	2%	2%	3%	4%	0%
Adj. Flow (vph)	6	239	138	527	49	291	2102	487	2603	1155	5
Shared Lane Traffic (%)				46%							
Lane Group Flow (vph)	6	377	0	285	291	291	2102	487	2603	1160	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)					3.7		2.0		2.0		
Link Offset(m)					0.0		0.0		0.0		
Crosswalk Width(m)					4.9		4.9		4.9		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	14	24		14		14		14	14
Number of Detectors	1	1		1	2	1	2	1	2	1	
Detector Template	Left	Right		Left	Thru	Right	Thru	Right	Thru	Right	
Leading Detector (m)	6.1	6.1		6.1	30.5	6.1	30.5	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	6.1		6.1	1.8	6.1	1.8	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)					28.7		28.7		28.7		
Detector 2 Size(m)					1.8		1.8		1.8		
Detector 2 Type					Cl+Ex		Cl+Ex		Cl+Ex		
Detector 2 Channel											
Detector 2 Extend (s)					0.0		0.0		0.0		

Lanes, Volumes, Timings

2035 AM Future Background

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

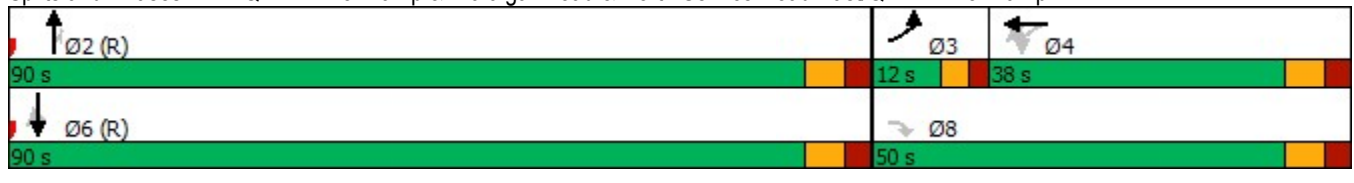


Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Turn Type	Prot	Perm		Perm	NA	Free	NA	Perm	NA	Perm	
Protected Phases	3				4		2		6		
Permitted Phases		8		4		Free		2		6	
Detector Phase	3	8		4	4		2	2	6	6	
Switch Phase											
Minimum Initial (s)	7.0	10.0		5.0	5.0		28.0	28.0	28.0	28.0	
Minimum Split (s)	12.0	22.5		38.0	38.0		35.0	35.0	35.0	35.0	
Total Split (s)	12.0	50.0		38.0	38.0		90.0	90.0	90.0	90.0	
Total Split (%)	8.6%	35.7%		27.1%	27.1%		64.3%	64.3%	64.3%	64.3%	
Maximum Green (s)	7.0	43.0		31.0	31.0		83.0	83.0	83.0	83.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-3.0	-3.0		-3.0	3.0	-3.0	-3.0	
Total Lost Time (s)	3.0	4.0		4.0	4.0		4.0	10.0	4.0	4.0	
Lead/Lag	Lead			Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	
Walk Time (s)				7.0	7.0		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)				24.0	24.0		21.0	21.0	21.0	21.0	
Pedestrian Calls (#/hr)				0	0		0	0	0	0	
Act Effct Green (s)	9.0	39.7		37.3	37.3	140.0	92.3	86.3	92.3	92.3	
Actuated g/C Ratio	0.06	0.28		0.27	0.27	1.00	0.66	0.62	0.66	0.66	
v/c Ratio	0.05	0.82		0.64	0.65	0.19	0.62	0.43	0.78	1.14	
Control Delay	62.7	61.5		52.8	53.0	0.3	10.9	2.2	19.6	100.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	62.7	61.5		52.8	53.0	0.3	10.9	2.2	19.7	100.6	
LOS	E	E		D	D	A	B	A	B	F	
Approach Delay					35.3		9.3		44.6		
Approach LOS					D		A		D		























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 32.4
 Intersection LOS: C
 Intersection Capacity Utilization 122.3%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

											
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	 				  			  			
Traffic Volume (vph)	922	0	405	0	1595	749	0	2896	543	0	0
Future Volume (vph)	922	0	405	0	1595	749	0	2896	543	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		175.0	0.0	0.0		75.0	0.0		65.0	0.0	0.0
Storage Lanes		1	1	0		1	0		1	0	0
Taper Length (m)		25.0		7.6			7.6			2.5	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor						0.97			0.95		
Frt			0.850			0.850			0.850		
Flt Protected	0.950										
Satd. Flow (prot)	3471	0	1601	0	5142	1601	0	4902	1585	0	0
Flt Permitted	0.950										
Satd. Flow (perm)	3471	0	1601	0	5142	1557	0	4902	1505	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)			23			749			359		
Link Speed (k/h)		40			60			60		40	
Link Distance (m)		226.4			327.5			330.4		203.9	
Travel Time (s)		20.4			19.7			19.8		18.4	
Confl. Peds. (#/hr)						2			8		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	0%	2%	0%	2%	2%	0%	7%	3%	0%	0%
Adj. Flow (vph)	922	0	405	0	1595	749	0	2896	543	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	922	0	405	0	1595	749	0	2896	543	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)		7.4			2.0			2.0		0.0	
Link Offset(m)		0.0			0.0			0.0		0.0	
Crosswalk Width(m)		4.9			4.9			4.9		1.6	
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	24	14	24		14	24		14	24	14
Number of Detectors	1		1		2	1		2	1		
Detector Template	Left		Right		Thru	Right		Thru	Right		
Leading Detector (m)	6.1		6.1		30.5	6.1		30.5	6.1		
Trailing Detector (m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1		6.1		1.8	6.1		1.8	6.1		
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)					28.7			28.7			
Detector 2 Size(m)					1.8			1.8			
Detector 2 Type					Cl+Ex			Cl+Ex			
Detector 2 Channel											
Detector 2 Extend (s)					0.0			0.0			

Lanes, Volumes, Timings
 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2035 AM Future Background



Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Turn Type	Prot		Perm		NA	Perm		NA	Perm		
Protected Phases	4				2			6			
Permitted Phases			4			2			6		
Detector Phase	4		4		2	2		6	6		
Switch Phase											
Minimum Initial (s)	5.0		5.0		5.0	5.0		5.0	5.0		
Minimum Split (s)	24.0		24.0		24.0	24.0		24.0	24.0		
Total Split (s)	46.0		46.0		94.0	94.0		94.0	94.0		
Total Split (%)	32.9%		32.9%		67.1%	67.1%		67.1%	67.1%		
Maximum Green (s)	40.0		40.0		88.0	88.0		88.0	88.0		
Yellow Time (s)	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		
Lost Time Adjust (s)	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Recall Mode	None		None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	7.0		7.0		7.0	7.0		7.0	7.0		
Flash Dont Walk (s)	11.0		11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0		0	0		0	0		
Act Effct Green (s)	42.3		42.3		91.7	91.7		91.7	91.7		
Actuated g/C Ratio	0.30		0.30		0.66	0.66		0.66	0.66		
v/c Ratio	0.88		0.81		0.47	0.59		0.90	0.49		
Control Delay	57.1		56.4		9.3	3.1		19.5	2.8		
Queue Delay	0.0		0.0		0.0	0.0		0.1	0.0		
Total Delay	57.1		56.4		9.3	3.1		19.5	2.8		
LOS	E		E		A	A		B	A		
Approach Delay		56.9			7.3			16.9			
Approach LOS		E			A			B			



































Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 5.6 (4%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 21.2
 Intersection LOS: C
 Intersection Capacity Utilization 88.9%
 ICU Level of Service E
 Analysis Period (min) 15

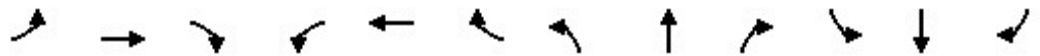
Splits and Phases: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp



3: Trafalgar Road & Cross Avenue/South Service Road East

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 		 	 	   		   	   	
Traffic Volume (vph)	612	91	142	55	81	85	116	1533	64	263	1854	364
Future Volume (vph)	612	91	142	55	81	85	116	1533	64	263	1854	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		0.0	55.0		0.0	120.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	25.0			30.0			30.0			20.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor		0.99						1.00			1.00	
Frt		0.909				0.850		0.994			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3219	1684	0	1722	1921	1617	1755	5014	0	1807	4920	0
Flt Permitted	0.950			0.950			0.950			0.064		
Satd. Flow (perm)	3219	1684	0	1722	1921	1617	1755	5014	0	122	4920	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55				148		5			41	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		191.2			115.5			274.1			327.5	
Travel Time (s)		13.8			8.3			19.7			23.6	
Confl. Peds. (#/hr)			7						4			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	10%	0%	4%	6%	0%	1%	4%	4%	0%	1%	3%	7%
Adj. Flow (vph)	612	91	142	55	81	85	116	1533	64	263	1854	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	612	233	0	55	81	85	116	1597	0	263	2218	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.4			5.4			5.7			5.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

3: Trafalgar Road & Cross Avenue/South Service Road East

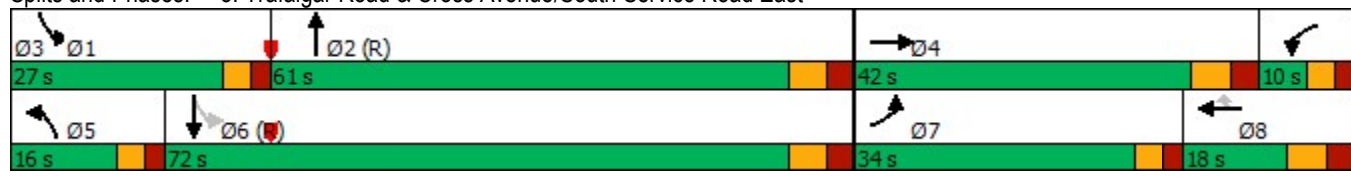


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8				6		
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	9.8	9.8	7.0	20.0		7.0	20.0	
Minimum Split (s)	10.0	42.0		10.0	16.8	16.8	12.0	34.0		12.0	34.0	
Total Split (s)	34.0	42.0		10.0	18.0	18.0	16.0	61.0		27.0	72.0	
Total Split (%)	24.3%	30.0%		7.1%	12.9%	12.9%	11.4%	43.6%		19.3%	51.4%	
Maximum Green (s)	29.0	35.0		5.0	11.0	11.0	11.0	54.0		22.0	65.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	3.0		2.0	3.0	3.0	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0	-3.0	-2.0	-3.0		-2.0	-3.0	
Total Lost Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		7.0						7.0			7.0	
Flash Dont Walk (s)		28.0						20.0			20.0	
Pedestrian Calls (#/hr)		0						0			0	
Act Effct Green (s)	30.3	29.2		16.9	13.5	13.5	12.9	61.3		86.2	69.3	
Actuated g/C Ratio	0.22	0.21		0.12	0.10	0.10	0.09	0.44		0.62	0.50	
v/c Ratio	0.88	0.59		0.27	0.44	0.29	0.72	0.73		0.81	0.90	
Control Delay	68.0	45.4		59.5	67.4	2.6	65.4	48.0		50.3	37.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	68.0	45.4		59.5	67.4	2.6	65.4	48.0		50.3	37.2	
LOS	E	D		E	E	A	E	D		D	D	
Approach Delay		61.8			40.5			49.1			38.6	
Approach LOS		E			D			D			D	

Intersection Summary































Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 8.4 (6%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 45.8
 Intersection LOS: D
 Intersection Capacity Utilization 89.4%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 3: Trafalgar Road & Cross Avenue/South Service Road East



Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2035 AM Future Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Traffic Volume (vph)	459	574	61	31	525	744	80	411	56	789	585	557
Future Volume (vph)	459	574	61	31	525	744	80	411	56	789	585	557
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		0.0	85.0		85.0	40.0		0.0	90.0		0.0
Storage Lanes	2		0	1		1	2		0	1		1
Taper Length (m)	20.0			7.5			85.0			15.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor		1.00				0.99		1.00				0.98
Frt		0.986				0.850		0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3404	3448	0	1825	3510	1541	1789	3484	0	3437	1883	1585
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3404	3448	0	1825	3510	1518	1789	3484	0	3437	1883	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				645		10				383
Link Speed (k/h)		60			60			50				50
Link Distance (m)		267.7			164.8			224.3				274.1
Travel Time (s)		16.1			9.9			16.1				19.7
Confl. Peds. (#/hr)			4			9			5			9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	4%	5%	0%	4%	6%	2%	3%	0%	3%	2%	3%
Adj. Flow (vph)	459	574	61	31	525	744	80	411	56	789	585	557
Shared Lane Traffic (%)												
Lane Group Flow (vph)	459	635	0	31	525	744	80	467	0	789	585	557
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2035 AM Future Background

	↖		→		↗		↖		↗		↘	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						Free						6
Detector Phase	3	8		7	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0	20.0
Minimum Split (s)	12.0	37.0		12.0	37.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	25.0	50.0		12.0	37.0		15.0	39.0		39.0	63.0	63.0
Total Split (%)	17.9%	35.7%		8.6%	26.4%		10.7%	27.9%		27.9%	45.0%	45.0%
Maximum Green (s)	20.0	43.0		7.0	30.0		10.0	32.0		34.0	56.0	56.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0	-3.0
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0	25.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	21.8	46.6		9.0	29.0	140.0	11.8	38.9		36.3	63.3	63.3
Actuated g/C Ratio	0.16	0.33		0.06	0.21	1.00	0.08	0.28		0.26	0.45	0.45
v/c Ratio	0.87	0.55		0.26	0.72	0.49	0.53	0.48		0.89	0.69	0.61
Control Delay	75.0	40.0		68.4	57.6	1.1	74.4	44.1		53.6	14.1	4.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	75.0	40.0		68.4	57.6	1.1	74.4	44.1		53.6	14.1	4.9
LOS	E	D		E	E	A	E	D		D	B	A
Approach Delay		54.7			25.5			48.6			27.6	
Approach LOS		D			C			D			C	

















Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 35.5 Intersection LOS: D
 Intersection Capacity Utilization 92.8% ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 4: Trafalgar Road & Cornwall Road



5: South Service Road East & QEW EB off-ramp/Davis Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	288	0	223	13	0	3	0	166	20	3	142	0
Future Volume (vph)	288	0	223	13	0	3	0	166	20	3	142	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Fr _t		0.941			0.977			0.984				
Fl _t Protected		0.973			0.960						0.999	
Satd. Flow (prot)	0	1759	0	0	1544	0	0	3592	0	0	3552	0
Fl _t Permitted		0.815			0.674						0.943	
Satd. Flow (perm)	0	1473	0	0	1084	0	0	3592	0	0	3353	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		87			73			22				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	0%	0%	38%	2%	0%
Adj. Flow (vph)	331	0	256	15	0	3	0	191	23	3	163	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	587	0	0	18	0	0	214	0	0	166	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2			2		1	2	
Detector Template	Left	Thru		Left	Thru			Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5			30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8			1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8						6		
Detector Phase	4	4		8	8			2		6	6	
Switch Phase												

Lanes, Volumes, Timings
5: South Service Road East & QEW EB off-ramp/Davis Road

2035 AM Future Background

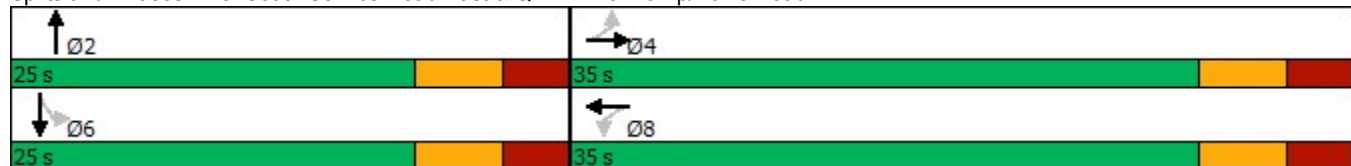


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0			25.0		25.0	25.0	
Total Split (s)	35.0	35.0		35.0	35.0			25.0		25.0	25.0	
Total Split (%)	58.3%	58.3%		58.3%	58.3%			41.7%		41.7%	41.7%	
Maximum Green (s)	28.0	28.0		28.0	28.0			18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		7.0			7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)		21.0			21.0			7.9			7.9	
Actuated g/C Ratio		0.48			0.48			0.18			0.18	
v/c Ratio		0.78			0.03			0.32			0.27	
Control Delay		16.0			0.1			16.7			18.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		16.0			0.1			16.7			18.2	
LOS		B			A			B			B	
Approach Delay		16.0			0.1			16.7			18.2	
Approach LOS		B			A			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	43.4
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	16.2
Intersection LOS:	B
Intersection Capacity Utilization:	47.2%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 5: South Service Road East & QEW EB off-ramp/Davis Road



Lanes, Volumes, Timings
6: Davis Road & Site Access

2035 AM Future Background



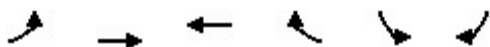
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	12	14	0	0	2
Future Volume (vph)	11	12	14	0	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.865	
Fl _t Protected		0.977				
Satd. Flow (prot)	0	1840	1883	0	1629	0
Fl _t Permitted		0.977				
Satd. Flow (perm)	0	1840	1883	0	1629	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		90.2	144.8		45.4	
Travel Time (s)		6.5	10.4		3.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	13	15	0	0	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	15	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
6: Davis Road & Site Access

2035 AM Future Background



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	11	12	14	0	0	2
Future Volume (Veh/h)	11	12	14	0	0	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	13	15	0	0	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)		90				
pX, platoon unblocked						
vC, conflicting volume	15				52	15
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	15				52	15
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				100	100
cM capacity (veh/h)	1603				949	1065
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	25	15	2			
Volume Left	12	0	0			
Volume Right	0	0	2			
cSH	1603	1700	1065			
Volume to Capacity	0.01	0.01	0.00			
Queue Length 95th (m)	0.2	0.0	0.0			
Control Delay (s)	3.5	0.0	8.4			
Lane LOS	A		A			
Approach Delay (s)	3.5	0.0	8.4			
Approach LOS			A			
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			17.9%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings
 23: South Service Road East & Access

2035 AM Future Background



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	2	1	185	376	2
Future Volume (vph)	2	2	1	185	376	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt	0.932				0.999	
Flt Protected	0.976					
Satd. Flow (prot)	1713	0	0	3579	3575	0
Flt Permitted	0.976					
Satd. Flow (perm)	1713	0	0	3579	3575	0
Link Speed (k/h)	48			50	48	
Link Distance (m)	47.0			96.9	23.0	
Travel Time (s)	3.5			7.0	1.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	2	1	201	409	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	202	411	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.5%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis

















23: South Service Road East & Access

2035 AM Future Background























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	2	1	185	376	2
Future Volume (Veh/h)	2	2	1	185	376	2
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)	2	2	1	201	409	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				401	23	
pX, platoon unblocked	0.98	0.98	0.98			
vC, conflicting volume	512	206	411			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	454	140	351			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	522	862	1177			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	4	68	134	273	138	
Volume Left	2	1	0	0	0	
Volume Right	2	0	0	0	2	
cSH	650	1177	1700	1700	1700	
Volume to Capacity	0.01	0.00	0.08	0.16	0.08	
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	
Control Delay (s)	10.6	0.1	0.0	0.0	0.0	
Lane LOS	B	A				
Approach Delay (s)	10.6	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay	0.1					
Intersection Capacity Utilization	20.5%			ICU Level of Service	A	
Analysis Period (min)	15					

5: South Service Road East & QEW EB off-ramp/Davis Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	288	0	223	13	0	3	0	166	20	3	142	0
Future Volume (vph)	288	0	223	13	0	3	0	166	20	3	142	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Fr _t		0.941			0.977			0.984				
Fl _t Protected		0.973			0.960						0.999	
Satd. Flow (prot)	0	1759	0	0	1544	0	0	3592	0	0	3552	0
Fl _t Permitted		0.973			0.960						0.999	
Satd. Flow (perm)	0	1759	0	0	1544	0	0	3592	0	0	3552	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	0%	0%	38%	2%	0%
Adj. Flow (vph)	331	0	256	15	0	3	0	191	23	3	163	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	587	0	0	18	0	0	214	0	0	166	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	42.2%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
5: South Service Road East & QEW EB off-ramp/Davis Road

2035 AM Future Background

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (veh/h)	288	0	223	13	0	3	0	166	20	3	142	0
Future Volume (Veh/h)	288	0	223	13	0	3	0	166	20	3	142	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	331	0	256	15	0	3	0	191	23	3	163	0
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	268	383	82	546	372	107	163			214		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	268	383	82	546	372	107	163			214		
tC, single (s)	7.5	6.5	6.9	7.9	6.5	6.9	4.1			4.9		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.6		
p0 queue free %	50	100	74	95	100	100	100			100		
cM capacity (veh/h)	666	552	968	282	560	933	1428			1127		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	587	18	127	87	57	109						
Volume Left	331	15	0	0	3	0						
Volume Right	256	3	0	23	0	0						
cSH	771	319	1700	1700	1127	1700						
Volume to Capacity	0.76	0.06	0.07	0.05	0.00	0.06						
Queue Length 95th (m)	55.3	1.4	0.0	0.0	0.1	0.0						
Control Delay (s)	23.0	17.0	0.0	0.0	0.5	0.0						
Lane LOS	C	C			A							
Approach Delay (s)	23.0	17.0	0.0		0.2							
Approach LOS	C	C										
Intersection Summary												
Average Delay			14.0									
Intersection Capacity Utilization			42.2%		ICU Level of Service				A			
Analysis Period (min)			15									

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R>	<	<LT	R	T	T	T	T	T	T	R>
Maximum Queue (m)	65.1	123.2	103.3	106.8	47.2	54.6	65.6	64.7	166.4	223.8	236.0	237.8
Average Queue (m)	5.1	117.1	64.3	66.9	1.6	22.6	27.6	21.1	88.6	130.6	227.0	228.8
95th Queue (m)	36.3	120.2	94.8	96.1	23.9	46.1	54.5	51.2	137.7	236.0	232.0	234.6
Link Distance (m)		112.3	173.7	173.7		275.5	275.5	275.5	222.0	222.0	222.0	222.0
Upstream Blk Time (%)		98								1	34	63
Queuing Penalty (veh)		0								0	0	0
Storage Bay Dist (m)	65.0				60.0							
Storage Blk Time (%)		97		16				0				
Queuing Penalty (veh)		6		46				0				

Intersection: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	<	<	R	T	T	T	T	T	T
Maximum Queue (m)	199.6	220.8	216.2	41.9	45.1	54.1	96.9	139.0	109.4
Average Queue (m)	149.4	176.8	124.0	20.4	24.4	22.8	60.7	61.1	50.4
95th Queue (m)	206.2	237.5	232.4	35.3	40.8	42.5	92.1	103.7	84.3
Link Distance (m)		209.2	209.2	295.8	295.8	295.8	275.5	275.5	275.5
Upstream Blk Time (%)		12	4					0	
Queuing Penalty (veh)		0	0					0	
Storage Bay Dist (m)	175.0								
Storage Blk Time (%)	0	16				0		2	
Queuing Penalty (veh)	2	76				0		12	

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	TR	L	T
Maximum Queue (m)	154.8	186.2	172.5	42.0	47.5	33.2	80.0	215.1	232.5	263.7	74.9	159.2
Average Queue (m)	122.0	148.7	71.4	14.9	20.2	15.3	27.6	131.2	194.8	227.4	51.6	96.8
95th Queue (m)	166.2	195.3	160.4	32.5	39.4	29.2	58.8	202.7	245.5	291.0	86.9	148.5
Link Distance (m)		171.6	171.6		93.4	93.4		236.4	236.4	236.4		295.8
Upstream Blk Time (%)		12	5					0	1	24		
Queuing Penalty (veh)		0	0					0	3	130		
Storage Bay Dist (m)	130.0			55.0			120.0				55.0	
Storage Blk Time (%)	1	29			0			3			6	29
Queuing Penalty (veh)	3	88			0			4			35	76

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (m)	151.8	174.8
Average Queue (m)	95.2	105.2
95th Queue (m)	138.2	155.9
Link Distance (m)	295.8	295.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	T	R	L	T	TR	L
Maximum Queue (m)	94.9	105.0	263.8	254.2	65.2	122.8	150.7	92.5	38.3	121.6	132.7	87.7
Average Queue (m)	92.5	104.2	234.6	187.1	9.0	78.1	92.8	43.1	19.9	62.5	84.3	48.1
95th Queue (m)	105.5	108.4	315.6	303.3	33.9	117.2	164.2	117.6	35.7	105.6	118.8	78.2
Link Distance (m)			249.6	249.6		141.5	141.5					203.7
Upstream Blk Time (%)			57	0		0	17					
Queuing Penalty (veh)			0	0		0	0					
Storage Bay Dist (m)	85.0	85.0			85.0			85.0	40.0	40.0		90.0
Storage Blk Time (%)	26	80	1			5	1	18	0	9	53	0
Queuing Penalty (veh)	75	229	2			1	6	47	1	24	151	1

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	104.7	92.6	71.1
Average Queue (m)	54.3	37.0	18.5
95th Queue (m)	86.0	74.0	47.8
Link Distance (m)	236.4	236.4	236.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	1		
Queuing Penalty (veh)	3		

Intersection: 5: South Service Road East & QEW EB off-ramp/Davis Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	T	TR	LT	T
Maximum Queue (m)	45.3	18.6	18.9	24.2	30.0	19.4
Average Queue (m)	42.1	2.8	7.2	10.1	11.8	5.1
95th Queue (m)	51.9	11.5	16.7	21.5	23.5	14.3
Link Distance (m)	40.7	70.7	102.9	102.9	211.2	211.2
Upstream Blk Time (%)	17					
Queuing Penalty (veh)	0					
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: Davis Road & Site Access

Movement	SB
Directions Served	LR
Maximum Queue (m)	8.7
Average Queue (m)	0.8
95th Queue (m)	4.8
Link Distance (m)	36.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1021

Lanes, Volumes, Timings

2035 PM Future Background























1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	13	127	122	503	153	360	3469	659	1581	1235	11
Future Volume (vph)	13	127	122	503	153	360	3469	659	1581	1235	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0	0.0				60.0		80.0		0.0	
Storage Lanes	1	1				1		1		1	
Taper Length (m)	15.0										
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Ped Bike Factor						0.99		0.96		0.94	
Frt		0.850				0.850		0.850		0.850	
Flt Protected	0.950			0.950	0.974						
Satd. Flow (prot)	1825	1609	0	1717	1760	1585	5142	1601	5142	1601	0
Flt Permitted	0.950			0.950	0.974						
Satd. Flow (perm)	1825	1609	0	1717	1760	1563	5142	1538	5142	1506	0
Right Turn on Red			No			Yes		Yes			Yes
Satd. Flow (RTOR)						247		398		70	
Link Speed (k/h)					40		60		60		
Link Distance (m)					324.6		330.4		230.9		
Travel Time (s)					29.2		19.8		13.9		
Confl. Peds. (#/hr)						8		8		10	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	2%	1%	1%	1%	3%	2%	2%	2%	2%	0%
Adj. Flow (vph)	13	127	122	503	153	360	3469	659	1581	1235	11
Shared Lane Traffic (%)				36%							
Lane Group Flow (vph)	13	249	0	322	334	360	3469	659	1581	1246	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)					3.7		2.0		2.0		
Link Offset(m)					0.0		0.0		0.0		
Crosswalk Width(m)					4.9		4.9		4.9		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	14	24		14		14		14	14
Number of Detectors	1	1		1	2	1	2	1	2	1	
Detector Template	Left	Right		Left	Thru	Right	Thru	Right	Thru	Right	
Leading Detector (m)	6.1	6.1		6.1	30.5	6.1	30.5	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	6.1		6.1	1.8	6.1	1.8	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)					28.7		28.7		28.7		
Detector 2 Size(m)					1.8		1.8		1.8		
Detector 2 Type					Cl+Ex		Cl+Ex		Cl+Ex		
Detector 2 Channel											
Detector 2 Extend (s)					0.0		0.0		0.0		

Lanes, Volumes, Timings
2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2035 PM Future Background

											
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	 				  			  			
Traffic Volume (vph)	1053	0	725	0	2991	614	0	1873	375	0	0
Future Volume (vph)	1053	0	725	0	2991	614	0	1873	375	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		175.0	0.0	0.0		75.0	0.0		65.0	0.0	0.0
Storage Lanes		1	1	0		1	0		1	0	0
Taper Length (m)		25.0		7.6			7.6			2.5	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor			0.98			0.97			0.94		
Frt			0.850			0.850			0.850		
Flt Protected	0.950										
Satd. Flow (prot)	3506	0	1617	0	5142	1601	0	5142	1617	0	0
Flt Permitted	0.950										
Satd. Flow (perm)	3506	0	1590	0	5142	1557	0	5142	1517	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)			23			348			298		
Link Speed (k/h)		40			60			60		40	
Link Distance (m)		226.4			327.5			330.4		203.9	
Travel Time (s)		20.4			19.7			19.8		18.4	
Confl. Peds. (#/hr)			2			2			11		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	1%	0%	2%	2%	0%	2%	1%	0%	0%
Adj. Flow (vph)	1053	0	725	0	2991	614	0	1873	375	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	1053	0	725	0	2991	614	0	1873	375	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)		7.4			2.0			2.0		0.0	
Link Offset(m)		0.0			0.0			0.0		0.0	
Crosswalk Width(m)		4.9			4.9			4.9		1.6	
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	24	14	24		14	24		14	24	14
Number of Detectors	1		1		2	1		2	1		
Detector Template	Left		Right		Thru	Right		Thru	Right		
Leading Detector (m)	6.1		6.1		30.5	6.1		30.5	6.1		
Trailing Detector (m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1		6.1		1.8	6.1		1.8	6.1		
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)					28.7			28.7			
Detector 2 Size(m)					1.8			1.8			
Detector 2 Type					Cl+Ex			Cl+Ex			
Detector 2 Channel											
Detector 2 Extend (s)					0.0			0.0			

Lanes, Volumes, Timings
 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2035 PM Future Background

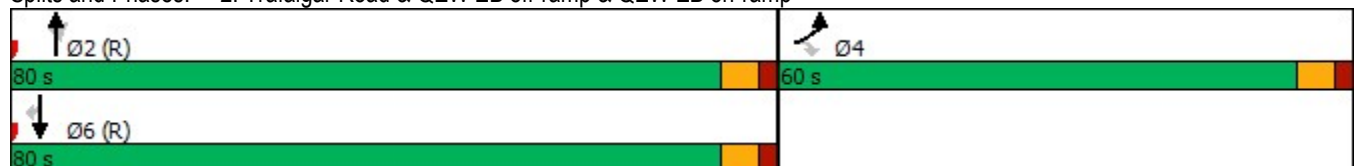


Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Turn Type	Prot		Perm		NA	Perm		NA	Perm		
Protected Phases	4				2			6			
Permitted Phases			4			2			6		
Detector Phase	4		4		2	2		6	6		
Switch Phase											
Minimum Initial (s)	10.0		10.0		28.0	28.0		28.0	28.0		
Minimum Split (s)	24.0		24.0		34.0	34.0		34.0	34.0		
Total Split (s)	60.0		60.0		80.0	80.0		80.0	80.0		
Total Split (%)	42.9%		42.9%		57.1%	57.1%		57.1%	57.1%		
Maximum Green (s)	54.0		54.0		74.0	74.0		74.0	74.0		
Yellow Time (s)	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		
Lost Time Adjust (s)	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Recall Mode	None		None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	7.0		7.0		7.0	7.0		7.0	7.0		
Flash Dont Walk (s)	11.0		11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0		0	0		0	0		
Act Effct Green (s)	57.0		57.0		77.0	77.0		77.0	77.0		
Actuated g/C Ratio	0.41		0.41		0.55	0.55		0.55	0.55		
v/c Ratio	0.74		1.10		1.06	0.61		0.66	0.39		
Control Delay	39.0		103.0		69.8	17.7		28.6	9.8		
Queue Delay	0.9		0.0		18.1	0.0		0.0	0.0		
Total Delay	39.9		103.0		87.8	17.7		28.6	9.8		
LOS	D		F		F	B		C	A		
Approach Delay		65.6			75.9			25.5			
Approach LOS		E			E			C			

Intersection Summary



























Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 51.8 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 58.7
 Intersection LOS: E
 Intersection Capacity Utilization 94.5%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp



Lanes, Volumes, Timings
3: Trafalgar Road & Cross Avenue/South Service Road East

2035 PM Future Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							  			  	
Traffic Volume (vph)	915	69	124	117	95	333	155	1923	37	98	1555	250
Future Volume (vph)	915	69	124	117	95	333	155	1923	37	98	1555	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		0.0	55.0		0.0	120.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	25.0			30.0			30.0			20.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor		0.99						1.00			1.00	
Frt		0.904				0.850		0.997			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3372	1619	0	1789	1883	1585	1772	5175	0	1789	5082	0
Flt Permitted	0.950			0.950			0.950			0.073		
Satd. Flow (perm)	3372	1619	0	1789	1883	1585	1772	5175	0	137	5082	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		64				129		2			25	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		191.2			115.5			274.1			327.5	
Travel Time (s)		13.8			8.3			19.7			23.6	
Confl. Peds. (#/hr)			8						5			8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	9%	4%	2%	2%	3%	3%	1%	0%	2%	0%	5%
Adj. Flow (vph)	915	69	124	117	95	333	155	1923	37	98	1555	250
Shared Lane Traffic (%)												
Lane Group Flow (vph)	915	193	0	117	95	333	155	1960	0	98	1805	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.4			5.4			5.7			5.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
3: Trafalgar Road & Cross Avenue/South Service Road East

2035 PM Future Background

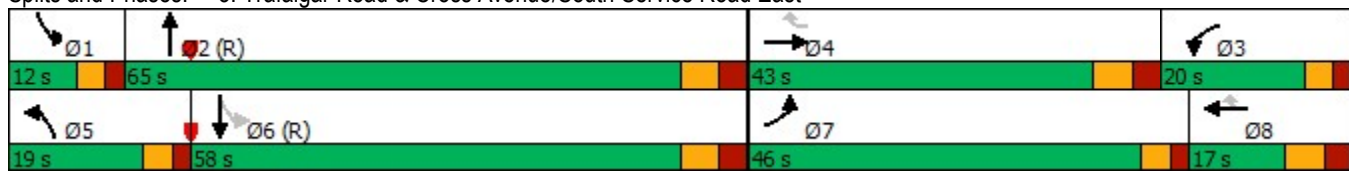


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	custom	Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						4 8				6		
Detector Phase	7	4		3	8	4 8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	9.8		7.0	20.0		7.0	20.0	
Minimum Split (s)	10.0	42.0		10.0	16.8		12.0	34.0		12.0	34.0	
Total Split (s)	46.0	43.0		20.0	17.0		19.0	65.0		12.0	58.0	
Total Split (%)	32.9%	30.7%		14.3%	12.1%		13.6%	46.4%		8.6%	41.4%	
Maximum Green (s)	41.0	36.0		15.0	10.0		14.0	58.0		7.0	51.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0	
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0						7.0			7.0	
Flash Dont Walk (s)		28.0						20.0			20.0	
Pedestrian Calls (#/hr)		0						0			0	
Act Effct Green (s)	41.9	22.9		32.0	13.0	35.9	15.6	62.1		65.5	55.5	
Actuated g/C Ratio	0.30	0.16		0.23	0.09	0.26	0.11	0.44		0.47	0.40	
v/c Ratio	0.91	0.61		0.29	0.55	0.66	0.79	0.85		0.58	0.89	
Control Delay	60.3	42.8		48.9	73.1	25.2	84.0	24.5		35.8	37.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	60.3	42.8		48.9	73.1	25.2	84.0	24.5		35.8	37.2	
LOS	E	D		D	E	C	F	C		D	D	
Approach Delay		57.3			38.7			28.9			37.1	
Approach LOS		E			D			C			D	

Intersection Summary






























Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 98 (70%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 38.1 Intersection LOS: D
 Intersection Capacity Utilization 94.7% ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 3: Trafalgar Road & Cross Avenue/South Service Road East



Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2035 PM Future Background

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 		 	 	
Traffic Volume (vph)	580	496	74	61	651	942	64	487	56	746	517	449
Future Volume (vph)	580	496	74	61	651	942	64	487	56	746	517	449
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		0.0	85.0		85.0	40.0		0.0	90.0		0.0
Storage Lanes	2		0	1		1	2		0	1		1
Taper Length (m)	20.0			7.5			85.0			15.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor		0.99				0.98		1.00				0.97
Frt		0.981				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3437	3443	0	1789	3544	1585	1755	3512	0	3471	1883	1570
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3437	3443	0	1789	3544	1553	1755	3512	0	3471	1883	1527
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				595		8				409
Link Speed (k/h)		60			60			50				50
Link Distance (m)		267.7			164.8			224.3				274.1
Travel Time (s)		16.1			9.9			16.1				19.7
Confl. Peds. (#/hr)			11			29			3			12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	6%	2%	3%	3%	4%	2%	4%	2%	2%	4%
Adj. Flow (vph)	580	496	74	61	651	942	64	487	56	746	517	449
Shared Lane Traffic (%)												
Lane Group Flow (vph)	580	570	0	61	651	942	64	543	0	746	517	449
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2035 PM Future Background

	↖		→		↗		↖		←		↗		↖		↑		↗		↘		↓		↘			
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR														
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA		Prot	NA	Perm														
Protected Phases	3	8		7	4		5	2		1	6															
Permitted Phases						Free																			6	
Detector Phase	3	8		7	4		5	2		1	6														6	
Switch Phase																										
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0														20.0	
Minimum Split (s)	12.0	37.0		12.0	37.0		12.0	39.0		12.0	39.0														39.0	
Total Split (s)	28.0	52.0		13.0	37.0		13.0	40.0		35.0	62.0														62.0	
Total Split (%)	20.0%	37.1%		9.3%	26.4%		9.3%	28.6%		25.0%	44.3%														44.3%	
Maximum Green (s)	23.0	45.0		8.0	30.0		8.0	33.0		30.0	55.0														55.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0	
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0														3.0	
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0														-3.0	
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag														Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes														Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0														3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max														C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0														7.0	
Flash Dont Walk (s)		23.0			23.0			25.0			25.0															25.0
Pedestrian Calls (#/hr)		0			0			0			0															0
Act Effct Green (s)	25.0	49.2		9.8	31.6	140.0	10.0	37.1		32.2	61.8														61.8	
Actuated g/C Ratio	0.18	0.35		0.07	0.23	1.00	0.07	0.26		0.23	0.44														0.44	
v/c Ratio	0.95	0.47		0.49	0.81	0.61	0.52	0.58		0.93	0.62														0.50	
Control Delay	81.9	36.3		76.3	60.3	1.8	77.7	47.2		51.4	46.1														24.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0														0.0	
Total Delay	81.9	36.3		76.3	60.3	1.8	77.7	47.2		51.4	46.1														24.4	
LOS	F	D		E	E	A	E	D		D	D														C	
Approach Delay		59.3			27.6			50.4			42.7															
Approach LOS		E			C			D			D															

















Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 42.5 Intersection LOS: D
 Intersection Capacity Utilization 100.2% ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 4: Trafalgar Road & Cornwall Road



5: South Service Road East & QEW EB off-ramp/Davis Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	0	28	10	0	2	0	157	15	8	246	0
Future Volume (vph)	56	0	28	10	0	2	0	157	15	8	246	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor	1.00											
Frt	0.955				0.979				0.987			
Flt Protected	0.968				0.959						0.998	
Satd. Flow (prot)	0	1776	0	0	1543	0	0	3469	0	0	3533	0
Flt Permitted	0.792				0.835						0.948	
Satd. Flow (perm)	0	1453	0	0	1343	0	0	3469	0	0	3356	0
Right Turn on Red			Yes				Yes				Yes	
Satd. Flow (RTOR)	36				36				17			
Link Speed (k/h)	50				50				50			
Link Distance (m)	53.3				90.2				119.9		218.3	
Travel Time (s)	3.8				6.5				8.6		15.7	
Confl. Peds. (#/hr)										2		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	4%	0%	38%	2%	0%
Adj. Flow (vph)	64	0	32	11	0	2	0	180	17	9	283	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	96	0	0	13	0	0	197	0	0	292	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0				0.0		0.0	
Link Offset(m)	0.0				0.0				0.0		0.0	
Crosswalk Width(m)	4.9				4.9				4.9		4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		24	14		24	14		24	14	
Number of Detectors	1	2	1		2	2		1	2	2		
Detector Template	Left	Thru	Left		Thru	Thru		Left	Thru	Thru		
Leading Detector (m)	6.1	30.5	6.1		30.5	30.5		6.1	30.5	30.5		
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		
Detector 1 Size(m)	6.1	1.8	6.1		1.8	1.8		6.1	1.8	1.8		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		
Detector 2 Position(m)	28.7				28.7				28.7		28.7	
Detector 2 Size(m)	1.8				1.8				1.8		1.8	
Detector 2 Type	Cl+Ex				Cl+Ex				Cl+Ex		Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0				0.0				0.0		0.0	
Turn Type	Perm	NA	Perm		NA	NA		Perm	NA	NA		
Protected Phases	4				8				2		6	
Permitted Phases	4				8				6			

Lanes, Volumes, Timings
5: South Service Road East & QEW EB off-ramp/Davis Road

2035 PM Future Background

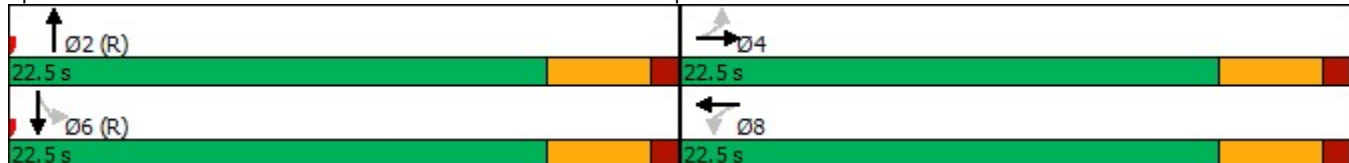


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8			2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5			22.5		22.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5			22.5		22.5	22.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%			50.0%		50.0%	50.0%	
Maximum Green (s)	18.0	18.0		18.0	18.0			18.0		18.0	18.0	
Yellow Time (s)	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	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)		7.5			7.4			34.4			34.4	
Actuated g/C Ratio		0.17			0.16			0.76			0.76	
v/c Ratio		0.36			0.05			0.07			0.11	
Control Delay		14.8			2.9			3.1			3.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.8			2.9			3.1			3.3	
LOS		B			A			A			A	
Approach Delay		14.8			2.9			3.1			3.3	
Approach LOS		B			A			A			A	

Intersection Summary

Area Type: Other
 Cycle Length: 45
 Actuated Cycle Length: 45
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.36
 Intersection Signal Delay: 5.1
 Intersection Capacity Utilization 27.4%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 5: South Service Road East & QEW EB off-ramp/Davis Road



Lanes, Volumes, Timings
6: Davis Road & Site Access

2035 PM Future Background



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	17	2	0	0	11
Future Volume (vph)	6	17	2	0	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.865	
Fl _t Protected		0.986				
Satd. Flow (prot)	0	1857	1883	0	1629	0
Fl _t Permitted		0.986				
Satd. Flow (perm)	0	1857	1883	0	1629	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		90.2	144.8		45.4	
Travel Time (s)		6.5	10.4		3.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	18	2	0	0	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	2	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	16.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
6: Davis Road & Site Access

2035 PM Future Background



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	17	2	0	0	11
Future Volume (Veh/h)	6	17	2	0	0	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	18	2	0	0	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)		90				
pX, platoon unblocked						
vC, conflicting volume	2				34	2
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2				34	2
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1620				975	1082
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	25	2	12			
Volume Left	7	0	0			
Volume Right	0	0	12			
cSH	1620	1700	1082			
Volume to Capacity	0.00	0.00	0.01			
Queue Length 95th (m)	0.1	0.0	0.3			
Control Delay (s)	2.0	0.0	8.4			
Lane LOS	A		A			
Approach Delay (s)	2.0	0.0	8.4			
Approach LOS			A			
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utilization			16.1%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings
 23: South Service Road East & Access

2035 PM Future Background



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	2	0	172	281	3
Future Volume (vph)	2	2	0	172	281	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.932			0.999		
Flt Protected	0.976					
Satd. Flow (prot)	1713	0	0	3579	3575	0
Flt Permitted	0.976					
Satd. Flow (perm)	1713	0	0	3579	3575	0
Link Speed (k/h)	48			50	48	
Link Distance (m)	41.3			96.9	23.0	
Travel Time (s)	3.1			7.0	1.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	2	0	187	305	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	187	308	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
 23: South Service Road East & Access

2035 PM Future Background



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	2	0	172	281	3
Future Volume (Veh/h)	2	2	0	172	281	3
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)	2	2	0	187	305	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				401	23	
pX, platoon unblocked	0.98	0.98	0.98			
vC, conflicting volume	400	154	308			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	360	110	266			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	603	909	1275			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	4	94	94	203	105	
Volume Left	2	0	0	0	0	
Volume Right	2	0	0	0	3	
cSH	725	1700	1700	1700	1700	
Volume to Capacity	0.01	0.06	0.06	0.12	0.06	
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	
Control Delay (s)	10.0	0.0	0.0	0.0	0.0	
Lane LOS						
Approach Delay (s)	10.0	0.0		0.0		
Approach LOS						
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			17.9%	ICU Level of Service		A
Analysis Period (min)			15			

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R>	<	<LT	R	T	T	T	R	T	T	T
Maximum Queue (m)	79.9	119.8	176.8	159.3	95.9	281.6	281.6	282.6	140.0	113.9	222.7	235.4
Average Queue (m)	9.9	89.6	68.4	84.3	13.5	228.0	232.6	236.9	133.3	51.1	77.7	226.3
95th Queue (m)	47.2	136.1	120.9	128.8	75.6	294.0	292.4	298.2	182.0	85.1	176.9	234.4
Link Distance (m)		112.3	307.7	307.7		275.5	275.5	275.5		222.1	222.1	222.1
Upstream Blk Time (%)		22	0			1	1	1			0	38
Queuing Penalty (veh)		0	0			8	8	12			0	0
Storage Bay Dist (m)	65.0				60.0				80.0			
Storage Blk Time (%)		51		30				35				
Queuing Penalty (veh)		7		106				229				

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	SB
Directions Served	R>
Maximum Queue (m)	237.5
Average Queue (m)	228.0
95th Queue (m)	232.7
Link Distance (m)	222.1
Upstream Blk Time (%)	83
Queuing Penalty (veh)	0
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	<	<	R	T	T	T	R	T	T	T
Maximum Queue (m)	199.4	223.2	218.0	289.3	294.4	298.2	130.0	101.6	111.5	100.5
Average Queue (m)	150.4	206.9	207.0	231.9	242.7	259.3	124.7	65.4	66.7	61.7
95th Queue (m)	216.8	246.3	240.6	289.4	300.9	310.6	166.7	96.0	97.8	94.2
Link Distance (m)		209.2	209.2	295.8	295.8	295.8		275.5	275.5	275.5
Upstream Blk Time (%)		27	35	0	0	1				
Queuing Penalty (veh)		0	0	2	2	12				
Storage Bay Dist (m)	175.0						75.0			
Storage Blk Time (%)	0	12				47				6
Queuing Penalty (veh)	1	63				286				22

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	EB	EB	EB	WB	WB	WB	B22	NB	NB	NB	NB	SB
Directions Served	L	L	TR	L	T	R	T	L	T	T	TR	L
Maximum Queue (m)	154.9	188.7	187.2	51.2	60.5	106.0	33.0	119.7	183.8	216.4	241.1	74.9
Average Queue (m)	152.7	179.5	163.6	22.5	27.1	83.5	5.0	49.8	95.4	132.8	147.4	34.6
95th Queue (m)	161.3	186.3	231.8	44.5	51.9	107.6	25.5	96.9	169.7	212.4	224.3	80.1
Link Distance (m)		171.6	171.6		93.4	93.4	173.1		236.4	236.4	236.4	
Upstream Blk Time (%)		68	27			17			0	0	2	
Queuing Penalty (veh)		0	0			24			0	0	11	
Storage Bay Dist (m)	130.0			55.0				120.0				55.0
Storage Blk Time (%)	9	64		1	1			0	2			0
Queuing Penalty (veh)	41	294		1	2			1	3			1

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (m)	136.7	132.7	161.4
Average Queue (m)	89.9	87.9	99.2
95th Queue (m)	125.2	122.4	139.6
Link Distance (m)	295.8	295.8	295.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	17		
Queuing Penalty (veh)	17		

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	T	R	L	T	TR	L
Maximum Queue (m)	95.0	105.0	265.3	253.1	92.4	145.2	147.2	92.5	42.9	119.1	133.4	100.0
Average Queue (m)	93.8	104.6	252.5	191.2	31.3	99.0	88.3	28.2	17.2	64.7	83.1	66.8
95th Queue (m)	99.4	106.0	279.8	302.8	85.2	142.9	142.4	98.2	33.5	102.9	120.0	92.7
Link Distance (m)			249.6	249.6		141.5	141.5					203.7
Upstream Blk Time (%)			68	0		3	3					
Queuing Penalty (veh)			0	0		0	0					
Storage Bay Dist (m)	85.0	85.0			85.0			85.0	40.0	40.0		90.0
Storage Blk Time (%)	36	77	0		0	18	5	1	0	11	51	0
Queuing Penalty (veh)	90	191	2		0	11	47	2	0	34	158	2

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	101.1	155.8	107.0
Average Queue (m)	72.5	100.4	65.8
95th Queue (m)	97.8	144.0	98.7
Link Distance (m)	236.4	236.4	236.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	1		
Queuing Penalty (veh)	5		

Intersection: 5: South Service Road East & QEW EB off-ramp/Davis Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	T	TR	LT	T
Maximum Queue (m)	31.5	20.6	13.8	19.3	20.6	18.3
Average Queue (m)	13.2	4.3	2.3	3.8	4.1	5.3
95th Queue (m)	24.8	14.9	9.0	13.2	14.4	14.9
Link Distance (m)	40.7	70.7	102.9	102.9	211.2	211.2
Upstream Blk Time (%)	0					
Queuing Penalty (veh)	0					
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: Davis Road & Site Access

Movement	SB
Directions Served	LR
Maximum Queue (m)	8.8
Average Queue (m)	2.9
95th Queue (m)	9.8
Link Distance (m)	36.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1694

Lanes, Volumes, Timings

2025 AM Future Total

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	6	239	114	437	40	239	1657	356	2138	948	5
Future Volume (vph)	6	239	114	437	40	239	1657	356	2138	948	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0	0.0				60.0		80.0		0.0	
Storage Lanes	1	1				1		1		1	
Taper Length (m)	15.0										
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Ped Bike Factor						0.99		0.98		0.96	
Frt		0.850				0.850		0.850		0.850	
Flt Protected	0.950			0.950	0.960						
Satd. Flow (prot)	1825	1622	0	1667	1685	1570	5142	1601	5092	1570	0
Flt Permitted	0.950			0.950	0.960						
Satd. Flow (perm)	1825	1622	0	1667	1685	1550	5142	1561	5092	1501	0
Right Turn on Red			No			Yes		Yes			Yes
Satd. Flow (RTOR)						227		356		70	
Link Speed (k/h)					40		60		60		
Link Distance (m)					190.6		330.4		230.9		
Travel Time (s)					17.2		19.8		13.9		
Confl. Peds. (#/hr)						2		2		6	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	1%	0%	4%	4%	4%	2%	2%	3%	4%	0%
Adj. Flow (vph)	6	239	114	437	40	239	1657	356	2138	948	5
Shared Lane Traffic (%)				46%							
Lane Group Flow (vph)	6	353	0	236	241	239	1657	356	2138	953	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)					3.7		2.0		2.0		
Link Offset(m)					0.0		0.0		0.0		
Crosswalk Width(m)					4.9		4.9		4.9		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	14	24		14		14		14	14
Number of Detectors	1	1		1	2	1	2	1	2	1	
Detector Template	Left	Right		Left	Thru	Right	Thru	Right	Thru	Right	
Leading Detector (m)	6.1	6.1		6.1	30.5	6.1	30.5	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	6.1		6.1	1.8	6.1	1.8	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)					28.7		28.7		28.7		
Detector 2 Size(m)					1.8		1.8		1.8		
Detector 2 Type					Cl+Ex		Cl+Ex		Cl+Ex		
Detector 2 Channel											
Detector 2 Extend (s)					0.0		0.0		0.0		

Lanes, Volumes, Timings

2025 AM Future Total

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

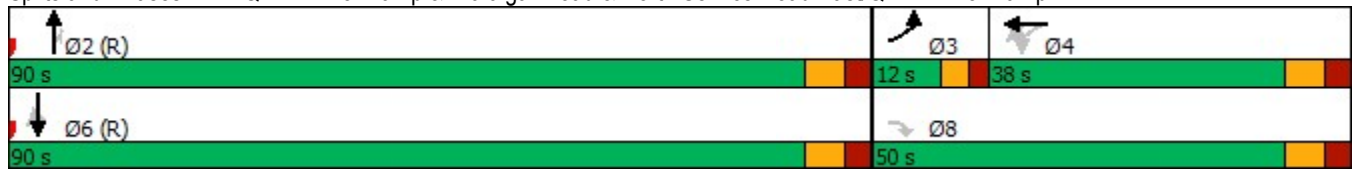


Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Turn Type	Prot	Perm		Perm	NA	Free	NA	Perm	NA	Perm	
Protected Phases	3				4		2		6		
Permitted Phases		8		4		Free		2		6	
Detector Phase	3	8		4	4		2	2	6	6	
Switch Phase											
Minimum Initial (s)	7.0	10.0		5.0	5.0		28.0	28.0	28.0	28.0	
Minimum Split (s)	12.0	22.5		38.0	38.0		35.0	35.0	35.0	35.0	
Total Split (s)	12.0	50.0		38.0	38.0		90.0	90.0	90.0	90.0	
Total Split (%)	8.6%	35.7%		27.1%	27.1%		64.3%	64.3%	64.3%	64.3%	
Maximum Green (s)	7.0	43.0		31.0	31.0		83.0	83.0	83.0	83.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-3.0	-3.0		-3.0	-3.0	-3.0	-3.0	
Total Lost Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
Lead/Lag	Lead			Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	
Walk Time (s)				7.0	7.0		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)				24.0	24.0		21.0	21.0	21.0	21.0	
Pedestrian Calls (#/hr)				0	0		0	0	0	0	
Act Effct Green (s)	9.0	38.2		35.8	35.8	140.0	93.8	93.8	93.8	93.8	
Actuated g/C Ratio	0.06	0.27		0.26	0.26	1.00	0.67	0.67	0.67	0.67	
v/c Ratio	0.05	0.80		0.55	0.56	0.15	0.48	0.31	0.63	0.93	
Control Delay	62.7	60.7		50.4	50.5	0.2	10.6	3.1	15.0	35.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	62.7	60.7		50.4	50.5	0.2	10.6	3.1	15.0	35.9	
LOS	E	E		D	D	A	B	A	B	D	
Approach Delay					33.7		9.3		21.4		
Approach LOS					C		A		C		























Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	135
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.93
Intersection Signal Delay:	21.2
Intersection LOS:	C
Intersection Capacity Utilization	105.5%
ICU Level of Service	G
Analysis Period (min)	15

Splits and Phases: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

											
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	 				  			  			
Traffic Volume (vph)	816	0	580	0	1197	574	0	2383	446	0	0
Future Volume (vph)	816	0	580	0	1197	574	0	2383	446	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		175.0	0.0	0.0		75.0	0.0		65.0	0.0	0.0
Storage Lanes		1	1	0		1	0		1	0	0
Taper Length (m)		25.0		7.6			7.6			2.5	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor						0.97			0.95		
Frt			0.850			0.850			0.850		
Flt Protected	0.950										
Satd. Flow (prot)	3471	0	1601	0	5142	1601	0	4902	1585	0	0
Flt Permitted	0.950										
Satd. Flow (perm)	3471	0	1601	0	5142	1557	0	4902	1505	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)			23			574			275		
Link Speed (k/h)		40			60			60		40	
Link Distance (m)		226.4			327.5			330.4		203.9	
Travel Time (s)		20.4			19.7			19.8		18.4	
Confl. Peds. (#/hr)						2			8		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	0%	2%	0%	2%	2%	0%	7%	3%	0%	0%
Adj. Flow (vph)	816	0	580	0	1197	574	0	2383	446	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	816	0	580	0	1197	574	0	2383	446	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)		7.4			2.0			2.0		0.0	
Link Offset(m)		0.0			0.0			0.0		0.0	
Crosswalk Width(m)		4.9			4.9			4.9		1.6	
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	24	14	24		14	24		14	24	14
Number of Detectors	1		1		2	1		2	1		
Detector Template	Left		Right		Thru	Right		Thru	Right		
Leading Detector (m)	6.1		6.1		30.5	6.1		30.5	6.1		
Trailing Detector (m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1		6.1		1.8	6.1		1.8	6.1		
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)					28.7			28.7			
Detector 2 Size(m)					1.8			1.8			
Detector 2 Type					Cl+Ex			Cl+Ex			
Detector 2 Channel											
Detector 2 Extend (s)					0.0			0.0			

Lanes, Volumes, Timings
 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2025 AM Future Total

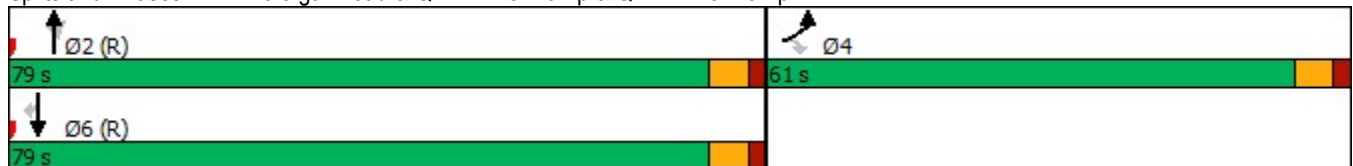


Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Turn Type	Prot		Perm		NA	Perm		NA	Perm		
Protected Phases	4				2			6			
Permitted Phases			4			2			6		
Detector Phase	4		4		2	2		6	6		
Switch Phase											
Minimum Initial (s)	5.0		5.0		5.0	5.0		5.0	5.0		
Minimum Split (s)	24.0		24.0		24.0	24.0		24.0	24.0		
Total Split (s)	61.0		61.0		79.0	79.0		79.0	79.0		
Total Split (%)	43.6%		43.6%		56.4%	56.4%		56.4%	56.4%		
Maximum Green (s)	55.0		55.0		73.0	73.0		73.0	73.0		
Yellow Time (s)	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		
Lost Time Adjust (s)	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Recall Mode	None		None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	7.0		7.0		7.0	7.0		7.0	7.0		
Flash Dont Walk (s)	11.0		11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0		0	0		0	0		
Act Effct Green (s)	55.4		55.4		78.6	78.6		78.6	78.6		
Actuated g/C Ratio	0.40		0.40		0.56	0.56		0.56	0.56		
v/c Ratio	0.59		0.90		0.41	0.51		0.87	0.46		
Control Delay	35.2		55.7		14.0	3.7		25.8	4.6		
Queue Delay	0.0		0.0		0.0	0.0		0.0	0.0		
Total Delay	35.2		55.7		14.0	3.7		25.8	4.6		
LOS	D		E		B	A		C	A		
Approach Delay		43.7			10.7			22.4			
Approach LOS		D			B			C			



























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 5.6 (4%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 23.9
 Intersection LOS: C
 Intersection Capacity Utilization 88.6%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp



3: Trafalgar Road & Cross Avenue/South Service Road East

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 		 	 	
Traffic Volume (vph)	385	77	120	60	80	108	110	1264	69	289	1509	364
Future Volume (vph)	385	77	120	60	80	108	110	1264	69	289	1509	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		0.0	55.0		0.0	120.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	25.0			30.0			30.0			20.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor		0.99						1.00			1.00	
Frt		0.909				0.850		0.992			0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3219	1684	0	1722	1921	1617	1755	5005	0	1807	4891	0
Flt Permitted	0.950			0.950			0.950			0.112		
Satd. Flow (perm)	3219	1684	0	1722	1921	1617	1755	5005	0	213	4891	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55				148		7			54	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		191.2			115.5			274.1			327.5	
Travel Time (s)		13.8			8.3			19.7			23.6	
Confl. Peds. (#/hr)			7						4			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	10%	0%	4%	6%	0%	1%	4%	4%	0%	1%	3%	7%
Adj. Flow (vph)	385	77	120	60	80	108	110	1264	69	289	1509	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	385	197	0	60	80	108	110	1333	0	289	1873	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.4			5.4			5.7			5.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

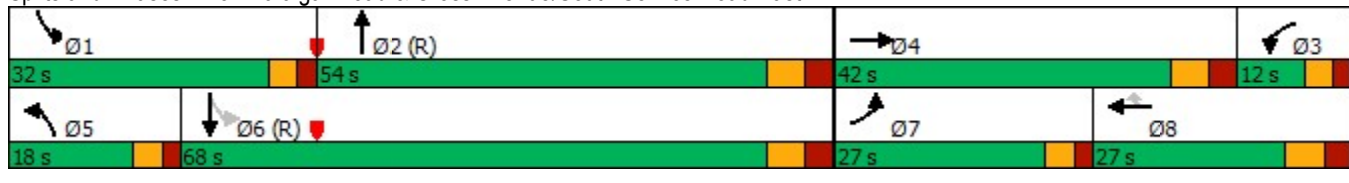
3: Trafalgar Road & Cross Avenue/South Service Road East

	↖		→		↗		↖		↗		↘	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8				6		
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	9.8	9.8	7.0	20.0		7.0	20.0	
Minimum Split (s)	10.0	42.0		10.0	16.8	16.8	12.0	34.0		12.0	34.0	
Total Split (s)	27.0	42.0		12.0	27.0	27.0	18.0	54.0		32.0	68.0	
Total Split (%)	19.3%	30.0%		8.6%	19.3%	19.3%	12.9%	38.6%		22.9%	48.6%	
Maximum Green (s)	22.0	35.0		7.0	20.0	20.0	13.0	47.0		27.0	61.0	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	3.0		2.0	3.0	3.0	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0	-3.0	-2.0	-3.0		-2.0	-3.0	
Total Lost Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		7.0						7.0			7.0	
Flash Dont Walk (s)		28.0						20.0			20.0	
Pedestrian Calls (#/hr)		0						0			0	
Act Effct Green (s)	22.4	24.8		15.0	15.2	15.2	15.3	64.3		92.4	73.1	
Actuated g/C Ratio	0.16	0.18		0.11	0.11	0.11	0.11	0.46		0.66	0.52	
v/c Ratio	0.75	0.57		0.33	0.38	0.35	0.58	0.58		0.70	0.73	
Control Delay	65.7	45.3		62.0	62.7	5.8	62.5	40.4		36.1	30.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.7	45.3		62.0	62.7	5.8	62.5	40.4		36.1	30.4	
LOS	E	D		E	E	A	E	D		D	C	
Approach Delay		58.8			37.7			42.1			31.2	
Approach LOS		E			D			D			C	

Intersection Summary























Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 8.4 (6%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 38.7
 Intersection LOS: D
 Intersection Capacity Utilization 76.4%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 3: Trafalgar Road & Cross Avenue/South Service Road East



Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2025 AM Future Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	377	472	61	31	432	612	80	411	56	650	580	434
Future Volume (vph)	377	472	61	31	432	612	80	411	56	650	580	434
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		0.0	85.0		85.0	40.0		0.0	90.0		0.0
Storage Lanes	2		0	1		1	2		0	1		1
Taper Length (m)	20.0			7.5			85.0			15.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor		1.00				0.99		1.00				0.98
Frt		0.983				0.850		0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3404	3435	0	1825	3510	1541	1789	3484	0	3437	1883	1585
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3404	3435	0	1825	3510	1518	1789	3484	0	3437	1883	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				612		10				361
Link Speed (k/h)		60			60			50				50
Link Distance (m)		267.7			164.8			224.3				274.1
Travel Time (s)		16.1			9.9			16.1				19.7
Confl. Peds. (#/hr)			4			9			5			9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	4%	5%	0%	4%	6%	2%	3%	0%	3%	2%	3%
Adj. Flow (vph)	377	472	61	31	432	612	80	411	56	650	580	434
Shared Lane Traffic (%)												
Lane Group Flow (vph)	377	533	0	31	432	612	80	467	0	650	580	434
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2025 AM Future Total

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						Free						6
Detector Phase	3	8		7	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0	20.0
Minimum Split (s)	12.0	37.0		12.0	37.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	26.0	51.0		12.0	37.0		15.0	39.0		38.0	62.0	62.0
Total Split (%)	18.6%	36.4%		8.6%	26.4%		10.7%	27.9%		27.1%	44.3%	44.3%
Maximum Green (s)	21.0	44.0		7.0	30.0		10.0	32.0		33.0	55.0	55.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0	-3.0
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0	25.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	21.4	42.8		9.0	25.6	140.0	12.7	46.3		32.8	66.4	66.4
Actuated g/C Ratio	0.15	0.31		0.06	0.18	1.00	0.09	0.33		0.23	0.47	0.47
v/c Ratio	0.73	0.50		0.26	0.67	0.40	0.50	0.40		0.81	0.65	0.47
Control Delay	65.1	40.9		68.4	58.4	0.8	71.0	38.6		49.1	19.2	6.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	65.1	40.9		68.4	58.4	0.8	71.0	38.6		49.1	19.2	6.4
LOS	E	D		E	E	A	E	D		D	B	A
Approach Delay		50.9			25.9			43.4			27.6	
Approach LOS		D			C			D			C	

Intersection Summary

















Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 34.3 Intersection LOS: C
 Intersection Capacity Utilization 84.6% ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 4: Trafalgar Road & Cornwall Road



















Lanes, Volumes, Timings
5: South Service Road East & Davis Road

2025 AM Future Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	2	42	0	5	1	151	52	5	140	2
Future Volume (vph)	2	0	2	42	0	5	1	151	52	5	140	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Fr _t		0.932			0.985			0.962			0.998	
Fl _t Protected		0.976			0.957						0.998	
Satd. Flow (prot)	0	1748	0	0	1538	0	0	3511	0	0	3521	0
Fl _t Permitted		0.976			0.957						0.998	
Satd. Flow (perm)	0	1748	0	0	1538	0	0	3511	0	0	3521	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	0%	0%	38%	2%	0%
Adj. Flow (vph)	2	0	2	48	0	6	1	174	60	6	161	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	54	0	0	235	0	0	169	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	18.6%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
5: South Service Road East & Davis Road

2025 AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	2	42	0	5	1	151	52	5	140	2
Future Volume (Veh/h)	2	0	2	42	0	5	1	151	52	5	140	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	2	0	2	48	0	6	1	174	60	6	161	2
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	269	410	82	300	381	117	163			234		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	269	410	82	300	381	117	163			234		
tC, single (s)	7.5	6.5	6.9	7.9	6.5	6.9	4.1			4.9		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.6		
p0 queue free %	100	100	100	92	100	99	100			99		
cM capacity (veh/h)	660	531	968	581	551	919	1428			1105		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	4	54	88	147	86	82						
Volume Left	2	48	1	0	6	0						
Volume Right	2	6	0	60	0	2						
cSH	785	606	1428	1700	1105	1700						
Volume to Capacity	0.01	0.09	0.00	0.09	0.01	0.05						
Queue Length 95th (m)	0.1	2.2	0.0	0.0	0.1	0.0						
Control Delay (s)	9.6	11.5	0.1	0.0	0.6	0.0						
Lane LOS	A	B	A		A							
Approach Delay (s)	9.6	11.5	0.0		0.3							
Approach LOS	A	B										
Intersection Summary												
Average Delay				1.6								
Intersection Capacity Utilization			18.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: Davis Road & Site Access

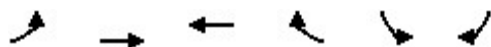
2025 AM Future Total



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	34	23	16	0	0	31
Future Volume (vph)	34	23	16	0	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.865	
Fl _t Protected		0.971				
Satd. Flow (prot)	0	1829	1883	0	1629	0
Fl _t Permitted		0.971				
Satd. Flow (perm)	0	1829	1883	0	1629	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		90.2	144.8		45.4	
Travel Time (s)		6.5	10.4		3.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	25	17	0	0	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	62	17	0	34	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	19.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
6: Davis Road & Site Access

2025 AM Future Total



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	23	16	0	0	31
Future Volume (Veh/h)	34	23	16	0	0	31
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	25	17	0	0	34
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	17				116	17
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	17				116	17
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				100	97
cM capacity (veh/h)	1600				860	1062
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	62	17	34			
Volume Left	37	0	0			
Volume Right	0	0	34			
cSH	1600	1700	1062			
Volume to Capacity	0.02	0.01	0.03			
Queue Length 95th (m)	0.5	0.0	0.8			
Control Delay (s)	4.4	0.0	8.5			
Lane LOS	A		A			
Approach Delay (s)	4.4	0.0	8.5			
Approach LOS			A			
Intersection Summary						
Average Delay			5.0			
Intersection Capacity Utilization			19.8%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R>	<	<LT	T	T	T	T	T	T	R>
Maximum Queue (m)	79.9	118.7	87.3	89.5	48.8	53.6	63.3	190.7	226.0	236.2	239.6
Average Queue (m)	8.8	116.9	50.6	53.2	25.8	26.9	30.7	89.5	131.2	227.2	229.0
95th Queue (m)	49.3	118.0	78.1	80.8	47.1	48.8	57.2	149.5	242.7	232.9	235.1
Link Distance (m)		112.3	173.7	173.7	275.5	275.5	275.5	222.0	222.0	222.0	222.0
Upstream Blk Time (%)		97						0	1	33	64
Queuing Penalty (veh)		0						0	0	0	0
Storage Bay Dist (m)	65.0										
Storage Blk Time (%)		95		7			0				
Queuing Penalty (veh)		6		18			0				

Intersection: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	<	<	R	T	T	T	T	T	T	R
Maximum Queue (m)	166.3	214.5	214.9	28.9	30.8	36.6	180.3	211.2	181.6	120.0
Average Queue (m)	89.2	129.2	150.4	9.4	13.2	14.9	91.4	91.2	80.9	6.4
95th Queue (m)	143.0	214.8	231.3	22.8	27.3	32.0	143.9	154.1	137.7	50.9
Link Distance (m)		209.2	209.2	295.8	295.8	295.8	275.5	275.5	275.5	
Upstream Blk Time (%)		4	8				0	0		
Queuing Penalty (veh)		0	0				0	0		
Storage Bay Dist (m)	175.0									65.0
Storage Blk Time (%)	0	1							11	
Queuing Penalty (veh)	0	4							51	

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	TR	L	T
Maximum Queue (m)	118.2	137.7	111.4	42.6	39.4	40.4	79.4	175.9	214.8	251.6	75.0	158.1
Average Queue (m)	69.0	88.3	40.0	18.0	18.9	18.5	29.3	85.2	145.7	169.1	65.2	103.6
95th Queue (m)	110.3	126.3	74.7	36.9	35.7	33.7	60.2	145.2	220.0	238.9	89.4	150.1
Link Distance (m)		171.6	171.6		93.4	93.4		236.4	236.4	236.4		295.8
Upstream Blk Time (%)									0	2		
Queuing Penalty (veh)									1	11		
Storage Bay Dist (m)	130.0			55.0			120.0				55.0	
Storage Blk Time (%)	0	1			0			0			18	31
Queuing Penalty (veh)	0	1			0			0			90	88

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (m)	190.4	208.5
Average Queue (m)	102.4	119.1
95th Queue (m)	155.2	179.5
Link Distance (m)	295.8	295.8
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	T	R	L	T	TR	L
Maximum Queue (m)	94.5	102.9	153.2	127.1	24.0	107.2	93.6	36.2	47.6	87.0	109.3	100.4
Average Queue (m)	61.4	76.0	63.8	58.6	6.8	61.1	47.8	3.7	19.7	52.6	72.4	43.9
95th Queue (m)	99.4	109.3	137.4	112.8	17.7	89.0	85.2	33.4	35.6	83.9	102.0	77.9
Link Distance (m)			249.6	249.6		141.5	141.5					203.7
Upstream Blk Time (%)						0	1					
Queuing Penalty (veh)						0	0					
Storage Bay Dist (m)	85.0	85.0			85.0			85.0	40.0	40.0		90.0
Storage Blk Time (%)	1	13	0			1	0	1	1	5	44	0
Queuing Penalty (veh)	3	30	0			0	0	3	1	14	126	1

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	117.6	155.4	76.6
Average Queue (m)	50.5	71.3	24.7
95th Queue (m)	88.7	132.6	56.5
Link Distance (m)	236.4	236.4	236.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	1		
Queuing Penalty (veh)	2		

Intersection: 5: South Service Road East & Davis Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LT	LT
Maximum Queue (m)	7.2	23.4	1.3	2.9
Average Queue (m)	0.9	8.6	0.0	0.1
95th Queue (m)	4.9	19.0	0.9	1.5
Link Distance (m)	38.3	70.7	102.9	206.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Davis Road & Site Access

Movement	SB
Directions Served	LR
Maximum Queue (m)	13.5
Average Queue (m)	6.4
95th Queue (m)	13.6
Link Distance (m)	36.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 452

Lanes, Volumes, Timings

2025 PM Future Total

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	13	127	100	391	125	295	2840	538	1257	1013	11
Future Volume (vph)	13	127	100	391	125	295	2840	538	1257	1013	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0	0.0				60.0		80.0		0.0	
Storage Lanes	1	1				1		1		1	
Taper Length (m)	15.0										
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Ped Bike Factor						0.99		0.96		0.94	
Frt		0.850				0.850		0.850		0.850	
Flt Protected	0.950			0.950	0.975						
Satd. Flow (prot)	1825	1608	0	1717	1762	1585	5142	1601	5142	1601	0
Flt Permitted	0.950			0.950	0.975						
Satd. Flow (perm)	1825	1608	0	1717	1762	1563	5142	1538	5142	1506	0
Right Turn on Red			No			Yes		Yes			Yes
Satd. Flow (RTOR)						258		398		70	
Link Speed (k/h)					40		60		60		
Link Distance (m)					324.6		330.4		230.9		
Travel Time (s)					29.2		19.8		13.9		
Confl. Peds. (#/hr)						8		8		10	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	2%	1%	1%	1%	3%	2%	2%	2%	2%	0%
Adj. Flow (vph)	13	127	100	391	125	295	2840	538	1257	1013	11
Shared Lane Traffic (%)				35%							
Lane Group Flow (vph)	13	227	0	254	262	295	2840	538	1257	1024	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)					3.7		2.0		2.0		
Link Offset(m)					0.0		0.0		0.0		
Crosswalk Width(m)					4.9		4.9		4.9		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	14	24		14		14		14	14
Number of Detectors	1	1		1	2	1	2	1	2	1	
Detector Template	Left	Right		Left	Thru	Right	Thru	Right	Thru	Right	
Leading Detector (m)	6.1	6.1		6.1	30.5	6.1	30.5	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	6.1		6.1	1.8	6.1	1.8	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)					28.7		28.7		28.7		
Detector 2 Size(m)					1.8		1.8		1.8		
Detector 2 Type					Cl+Ex		Cl+Ex		Cl+Ex		
Detector 2 Channel											
Detector 2 Extend (s)					0.0		0.0		0.0		

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

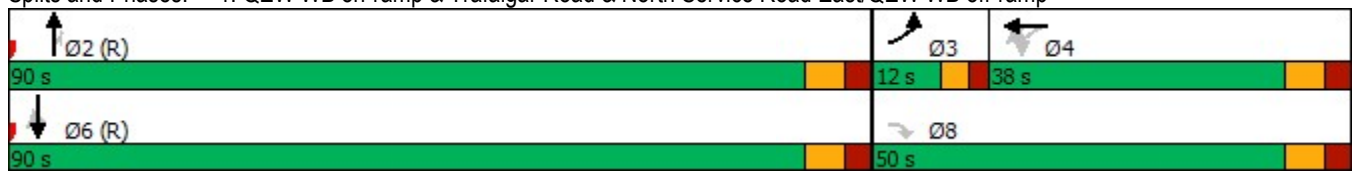


Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Turn Type	Prot	Perm		Perm	NA	Free	NA	Perm	NA	Perm	
Protected Phases	3				4		2		6		
Permitted Phases		8		4		Free		2		6	
Detector Phase	3	8		4	4		2	2	6	6	
Switch Phase											
Minimum Initial (s)	7.0	10.0		5.0	5.0		28.0	28.0	28.0	28.0	
Minimum Split (s)	12.0	22.5		38.0	38.0		35.0	35.0	35.0	35.0	
Total Split (s)	12.0	50.0		38.0	38.0		90.0	90.0	90.0	90.0	
Total Split (%)	8.6%	35.7%		27.1%	27.1%		64.3%	64.3%	64.3%	64.3%	
Maximum Green (s)	7.0	43.0		31.0	31.0		83.0	83.0	83.0	83.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-3.0	-3.0		-3.0	-3.0	-3.0	-3.0	
Total Lost Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
Lead/Lag	Lead			Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	
Walk Time (s)				7.0	7.0		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)				24.0	24.0		21.0	21.0	21.0	21.0	
Pedestrian Calls (#/hr)				0	0		0	0	0	0	
Act Effct Green (s)	9.0	33.6		28.8	28.8	140.0	98.4	98.4	98.4	98.4	
Actuated g/C Ratio	0.06	0.24		0.21	0.21	1.00	0.70	0.70	0.70	0.70	
v/c Ratio	0.11	0.59		0.72	0.72	0.19	0.79	0.45	0.35	0.95	
Control Delay	64.1	51.8		63.2	63.2	0.3	21.3	6.7	9.7	37.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.1	0.0	0.0	0.0	
Total Delay	64.1	51.8		63.2	63.2	0.3	21.4	6.7	9.7	37.5	
LOS	E	D		E	E	A	C	A	A	D	
Approach Delay					40.3		19.0		22.1		
Approach LOS					D		B		C		























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 23.9
 Intersection LOS: C
 Intersection Capacity Utilization 105.4%
 ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

											
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	 				  			  			
Traffic Volume (vph)	933	0	378	0	2446	502	0	1475	308	0	0
Future Volume (vph)	933	0	378	0	2446	502	0	1475	308	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		175.0	0.0	0.0		75.0	0.0		65.0	0.0	0.0
Storage Lanes		1	1	0		1	0		1	0	0
Taper Length (m)		25.0		7.6			7.6			2.5	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor			0.98			0.97			0.94		
Frt			0.850			0.850			0.850		
Flt Protected	0.950										
Satd. Flow (prot)	3506	0	1617	0	5142	1601	0	5142	1617	0	0
Flt Permitted	0.950										
Satd. Flow (perm)	3506	0	1590	0	5142	1557	0	5142	1517	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)			31			385			321		
Link Speed (k/h)		40			60			60		40	
Link Distance (m)		226.4			327.5			330.4		203.9	
Travel Time (s)		20.4			19.7			19.8		18.4	
Confl. Peds. (#/hr)			2			2			11		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	0%	1%	0%	2%	2%	0%	2%	1%	0%	0%
Adj. Flow (vph)	972	0	394	0	2548	523	0	1536	321	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	972	0	394	0	2548	523	0	1536	321	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)		7.4			2.0			2.0		0.0	
Link Offset(m)		0.0			0.0			0.0		0.0	
Crosswalk Width(m)		4.9			4.9			4.9		1.6	
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	24	14	24		14	24		14	24	14
Number of Detectors	1		1		2	1		2	1		
Detector Template	Left		Right		Thru	Right		Thru	Right		
Leading Detector (m)	6.1		6.1		30.5	6.1		30.5	6.1		
Trailing Detector (m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1		6.1		1.8	6.1		1.8	6.1		
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)					28.7			28.7			
Detector 2 Size(m)					1.8			1.8			
Detector 2 Type					Cl+Ex			Cl+Ex			
Detector 2 Channel											
Detector 2 Extend (s)					0.0			0.0			

Lanes, Volumes, Timings
 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2025 PM Future Total

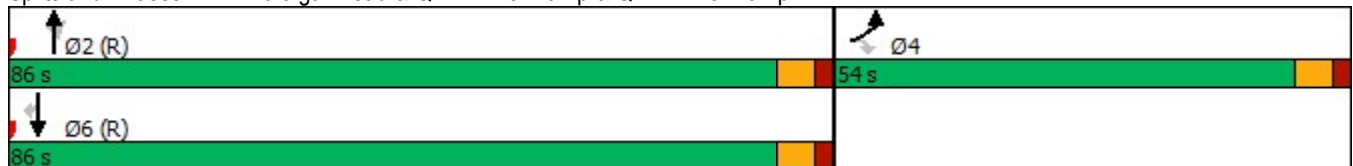


Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Turn Type	Prot		Perm		NA	Perm		NA	Perm		
Protected Phases	4				2			6			
Permitted Phases			4			2			6		
Detector Phase	4		4		2	2		6	6		
Switch Phase											
Minimum Initial (s)	10.0		10.0		28.0	28.0		28.0	28.0		
Minimum Split (s)	24.0		24.0		34.0	34.0		34.0	34.0		
Total Split (s)	54.0		54.0		86.0	86.0		86.0	86.0		
Total Split (%)	38.6%		38.6%		61.4%	61.4%		61.4%	61.4%		
Maximum Green (s)	48.0		48.0		80.0	80.0		80.0	80.0		
Yellow Time (s)	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		
Lost Time Adjust (s)	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Recall Mode	None		None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	7.0		7.0		7.0	7.0		7.0	7.0		
Flash Dont Walk (s)	11.0		11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0		0	0		0	0		
Act Effct Green (s)	47.6		47.6		86.4	86.4		86.4	86.4		
Actuated g/C Ratio	0.34		0.34		0.62	0.62		0.62	0.62		
v/c Ratio	0.82		0.70		0.80	0.47		0.48	0.30		
Control Delay	48.3		43.9		28.9	9.6		20.4	6.1		
Queue Delay	0.0		0.0		0.0	0.0		0.0	0.0		
Total Delay	48.3		43.9		29.0	9.6		20.4	6.1		
LOS	D		D		C	A		C	A		
Approach Delay		47.0			25.7			17.9			
Approach LOS		D			C			B			



























Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 51.8 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 28.0 Intersection LOS: C
 Intersection Capacity Utilization 80.5% ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp



3: Trafalgar Road & Cross Avenue/South Service Road East

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							  			  	
Traffic Volume (vph)	847	66	117	124	87	371	125	1579	43	127	1279	250
Future Volume (vph)	847	66	117	124	87	371	125	1579	43	127	1279	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		0.0	55.0		0.0	120.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	25.0			30.0			30.0			20.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor		0.99						1.00			1.00	
Frt		0.904				0.850		0.996			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3372	1619	0	1789	1883	1585	1772	5169	0	1789	5052	0
Flt Permitted	0.950			0.950			0.950			0.073		
Satd. Flow (perm)	3372	1619	0	1789	1883	1585	1772	5169	0	137	5052	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		64				207		3			33	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		191.2			115.5			274.1			327.5	
Travel Time (s)		13.8			8.3			19.7			23.6	
Confl. Peds. (#/hr)			8						5			8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	9%	4%	2%	2%	3%	3%	1%	0%	2%	0%	5%
Adj. Flow (vph)	847	66	117	124	87	371	125	1579	43	127	1279	250
Shared Lane Traffic (%)												
Lane Group Flow (vph)	847	183	0	124	87	371	125	1622	0	127	1529	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.4			5.4			5.7			5.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
 3: Trafalgar Road & Cross Avenue/South Service Road East

2025 PM Future Total

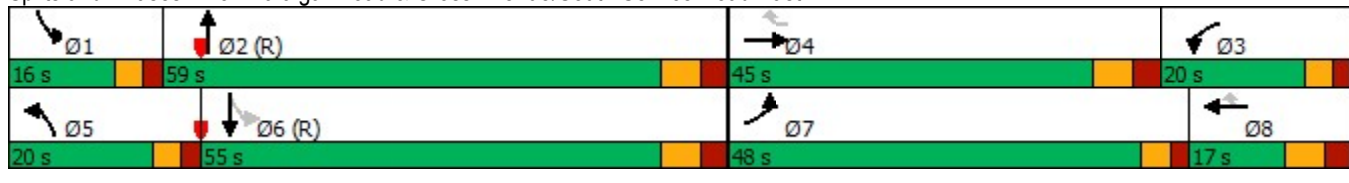


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	custom	Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						4 8				6		
Detector Phase	7	4		3	8	4 8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	9.8		7.0	20.0		7.0	20.0	
Minimum Split (s)	10.0	42.0		10.0	16.8		12.0	34.0		12.0	34.0	
Total Split (s)	48.0	45.0		20.0	17.0		20.0	59.0		16.0	55.0	
Total Split (%)	34.3%	32.1%		14.3%	12.1%		14.3%	42.1%		11.4%	39.3%	
Maximum Green (s)	43.0	38.0		15.0	10.0		15.0	52.0		11.0	48.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0	
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0						7.0			7.0	
Flash Dont Walk (s)		28.0						20.0			20.0	
Pedestrian Calls (#/hr)		0						0			0	
Act Effct Green (s)	41.5	21.0		33.9	13.3	34.3	15.5	59.3		68.5	55.7	
Actuated g/C Ratio	0.30	0.15		0.24	0.10	0.24	0.11	0.42		0.49	0.40	
v/c Ratio	0.85	0.62		0.29	0.49	0.68	0.64	0.74		0.62	0.75	
Control Delay	54.9	43.8		46.5	70.0	19.7	74.0	23.3		38.9	33.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	54.9	43.8		46.5	70.0	19.7	74.0	23.3		38.9	33.9	
LOS	D	D		D	E	B	E	C		D	C	
Approach Delay		52.9			32.9			26.9			34.3	
Approach LOS		D			C			C			C	

Intersection Summary




























Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 98 (70%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 35.4
 Intersection LOS: D
 Intersection Capacity Utilization 88.6%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 3: Trafalgar Road & Cross Avenue/South Service Road East



Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2025 PM Future Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 		 		
Traffic Volume (vph)	461	408	74	61	535	771	64	484	56	622	516	365
Future Volume (vph)	461	408	74	61	535	771	64	484	56	622	516	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		0.0	85.0		85.0	40.0		0.0	90.0		0.0
Storage Lanes	2		0	1		1	2		0	1		1
Taper Length (m)	20.0			7.5			85.0			15.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor		0.99				0.98		1.00				0.97
Frt		0.977				0.850		0.984				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3437	3423	0	1789	3544	1585	1755	3508	0	3471	1883	1570
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3437	3423	0	1789	3544	1553	1755	3508	0	3471	1883	1527
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16				606		8				342
Link Speed (k/h)		60			60			50				50
Link Distance (m)		267.7			164.8			224.3				274.1
Travel Time (s)		16.1			9.9			16.1				19.7
Confl. Peds. (#/hr)			11			29			3			12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	6%	2%	3%	3%	4%	2%	4%	2%	2%	4%
Adj. Flow (vph)	461	408	74	61	535	771	64	484	56	622	516	365
Shared Lane Traffic (%)												
Lane Group Flow (vph)	461	482	0	61	535	771	64	540	0	622	516	365
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

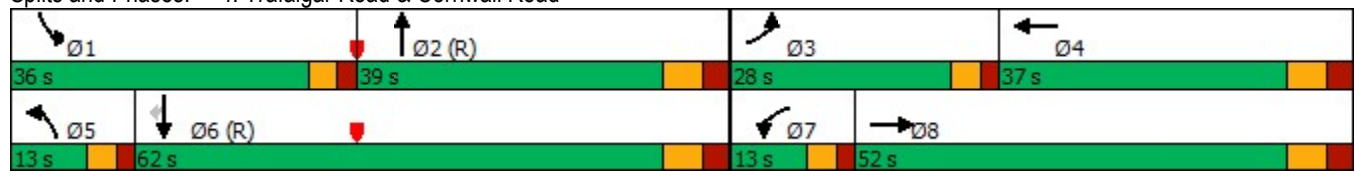
2025 PM Future Total

	↖		→		↗		↖		←		↗		↖		↑		↗		↘		↓		↘		
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR													
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA		Prot	NA	Perm													
Protected Phases	3	8		7	4		5	2		1	6														
Permitted Phases						Free																			6
Detector Phase	3	8		7	4		5	2		1	6														6
Switch Phase																									
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0														20.0
Minimum Split (s)	12.0	37.0		12.0	37.0		12.0	39.0		12.0	39.0														39.0
Total Split (s)	28.0	52.0		13.0	37.0		13.0	39.0		36.0	62.0														62.0
Total Split (%)	20.0%	37.1%		9.3%	26.4%		9.3%	27.9%		25.7%	44.3%														44.3%
Maximum Green (s)	23.0	45.0		8.0	30.0		8.0	32.0		31.0	55.0														55.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0														3.0
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0														-3.0
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag														Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes														Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0														3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max														C-Max
Walk Time (s)		7.0			7.0			7.0			7.0														7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0														25.0
Pedestrian Calls (#/hr)		0			0			0			0														0
Act Effct Green (s)	23.8	45.6		9.8	29.2	140.0	10.6	42.2		30.8	64.9														64.9
Actuated g/C Ratio	0.17	0.33		0.07	0.21	1.00	0.08	0.30		0.22	0.46														0.46
v/c Ratio	0.79	0.43		0.49	0.72	0.50	0.48	0.51		0.82	0.59														0.41
Control Delay	66.3	37.0		76.3	57.5	1.1	75.0	43.3		45.3	45.8														23.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0														0.0
Total Delay	66.3	37.0		76.3	57.5	1.1	75.0	43.3		45.3	45.8														23.0
LOS	E	D		E	E	A	E	D		D	D														C
Approach Delay		51.3			26.5			46.7			40.1														
Approach LOS		D			C			D			D														

Intersection Summary

















Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 39.2 Intersection LOS: D
 Intersection Capacity Utilization 92.0% ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 4: Trafalgar Road & Cornwall Road



















Lanes, Volumes, Timings
5: South Service Road East & Davis Road

2025 PM Future Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	2	57	1	4	0	152	52	10	236	3
Future Volume (vph)	2	0	2	57	1	4	0	152	52	10	236	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.932			0.991			0.962			0.998	
Flt Protected		0.976			0.956						0.998	
Satd. Flow (prot)	0	1748	0	0	1538	0	0	3410	0	0	3517	0
Flt Permitted		0.976			0.956						0.998	
Satd. Flow (perm)	0	1748	0	0	1538	0	0	3410	0	0	3517	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Confl. Peds. (#/hr)										2		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	4%	0%	38%	2%	0%
Adj. Flow (vph)	2	0	2	66	1	5	0	175	60	11	271	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	72	0	0	235	0	0	285	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	26.4%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
5: South Service Road East & Davis Road

2025 PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	2	57	1	4	0	152	52	10	236	3
Future Volume (Veh/h)	2	0	2	57	1	4	0	152	52	10	236	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	2	0	2	66	1	5	0	175	60	11	271	3
Pedestrians					2							
Lane Width (m)					3.7							
Walking Speed (m/s)					1.1							
Percent Blockage					0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	388	532	137	366	503	120	274			237		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	388	532	137	366	503	120	274			237		
tC, single (s)	7.5	6.5	6.9	7.9	6.5	6.9	4.1			4.9		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.6		
p0 queue free %	100	100	100	87	100	99	100			99		
cM capacity (veh/h)	542	451	893	516	468	914	1301			1100		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	4	72	88	148	146	138						
Volume Left	2	66	0	0	11	0						
Volume Right	2	5	0	60	0	3						
cSH	674	531	1301	1700	1100	1700						
Volume to Capacity	0.01	0.14	0.00	0.09	0.01	0.08						
Queue Length 95th (m)	0.1	3.5	0.0	0.0	0.2	0.0						
Control Delay (s)	10.4	12.8	0.0	0.0	0.7	0.0						
Lane LOS	B	B			A							
Approach Delay (s)	10.4	12.8	0.0		0.4							
Approach LOS	B	B										
Intersection Summary												
Average Delay				1.8								
Intersection Capacity Utilization			26.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: Davis Road & Site Access

2025 PM Future Total



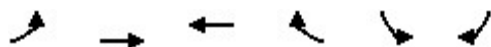
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Traffic Volume (vph)	39	23	13	0	0	49
Future Volume (vph)	39	23	13	0	0	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.865	
Fl _t Protected		0.970				
Satd. Flow (prot)	0	1827	1883	0	1629	0
Fl _t Permitted		0.970				
Satd. Flow (perm)	0	1827	1883	0	1629	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		90.2	144.8		45.4	
Travel Time (s)		6.5	10.4		3.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	25	14	0	0	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	67	14	0	53	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
6: Davis Road & Site Access

2025 PM Future Total



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	39	23	13	0	0	49
Future Volume (Veh/h)	39	23	13	0	0	49
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	25	14	0	0	53
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	14				123	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	14				123	14
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	95
cM capacity (veh/h)	1604				849	1066
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	67	14	53			
Volume Left	42	0	0			
Volume Right	0	0	53			
cSH	1604	1700	1066			
Volume to Capacity	0.03	0.01	0.05			
Queue Length 95th (m)	0.6	0.0	1.2			
Control Delay (s)	4.7	0.0	8.6			
Lane LOS	A		A			
Approach Delay (s)	4.7	0.0	8.6			
Approach LOS			A			
Intersection Summary						
Average Delay			5.7			
Intersection Capacity Utilization			20.0%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R>	<	<LT	T	T	T	R	T	T	T	R>
Maximum Queue (m)	40.9	96.4	80.4	96.2	174.3	178.0	184.2	140.0	100.5	221.1	234.9	235.6
Average Queue (m)	4.0	51.8	48.1	61.5	121.3	126.0	126.2	40.9	45.3	82.7	225.2	227.9
95th Queue (m)	20.2	89.2	74.2	90.6	167.7	169.3	171.3	145.8	78.5	203.3	251.7	232.4
Link Distance (m)		112.3	307.7	307.7	275.5	275.5	275.5		222.1	222.1	222.1	222.1
Upstream Blk Time (%)		0								0	39	83
Queuing Penalty (veh)		0								0	0	0
Storage Bay Dist (m)	65.0							80.0				
Storage Blk Time (%)		9		13			24					
Queuing Penalty (veh)		1		38			129					

Intersection: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	<	<	R	T	T	T	R	T	T	T
Maximum Queue (m)	184.4	207.5	168.5	128.2	135.2	157.1	130.0	87.8	86.3	78.0
Average Queue (m)	115.4	137.6	48.3	91.7	100.9	105.8	25.0	45.6	44.9	40.1
95th Queue (m)	168.0	196.9	107.7	126.5	136.4	147.7	109.2	77.9	73.7	67.4
Link Distance (m)		209.2	209.2	295.8	295.8	295.8		275.5	275.5	275.5
Upstream Blk Time (%)		1	0							
Queuing Penalty (veh)		0	0							
Storage Bay Dist (m)	175.0						75.0			
Storage Blk Time (%)	0	2				21				1
Queuing Penalty (veh)	0	11				103				3

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	EB	EB	EB	WB	WB	WB	B22	NB	NB	NB	NB	SB
Directions Served	L	L	TR	L	T	R	T	L	T	T	TR	L
Maximum Queue (m)	154.9	186.2	180.0	54.1	46.4	107.1	29.3	63.9	113.0	195.9	156.9	74.9
Average Queue (m)	134.3	161.7	100.0	24.4	20.7	80.4	3.1	30.5	58.2	88.8	104.7	35.9
95th Queue (m)	172.8	203.3	218.6	48.1	40.6	104.7	19.0	54.7	97.2	145.8	149.8	75.0
Link Distance (m)		171.6	171.6		93.4	93.4	173.1		236.4	236.4	236.4	
Upstream Blk Time (%)		26	8			10				0		
Queuing Penalty (veh)		0	0			14				0		
Storage Bay Dist (m)	130.0			55.0				120.0				55.0
Storage Blk Time (%)	2	34		1	0							1
Queuing Penalty (veh)	10	145		1	0							3

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (m)	150.8	145.7	151.7
Average Queue (m)	75.3	79.9	87.4
95th Queue (m)	122.8	123.9	137.6
Link Distance (m)	295.8	295.8	295.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	12		
Queuing Penalty (veh)	15		

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	T	R	L	T	TR	L
Maximum Queue (m)	94.9	104.9	200.2	177.1	69.3	116.6	95.1	54.4	49.8	112.7	124.8	98.1
Average Queue (m)	79.6	90.4	86.7	60.2	18.2	71.8	58.0	1.8	19.6	61.7	79.4	61.5
95th Queue (m)	108.2	118.1	192.3	136.8	47.7	101.5	86.1	22.7	39.7	98.8	112.9	86.4
Link Distance (m)			249.6	249.6		141.5	141.5					203.7
Upstream Blk Time (%)			0									
Queuing Penalty (veh)			0									
Storage Bay Dist (m)	85.0	85.0			85.0			85.0	40.0	40.0		90.0
Storage Blk Time (%)	4	27			0	3	0	0	1	10	46	0
Queuing Penalty (veh)	9	55			0	2	1	0	4	29	142	0

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	95.8	168.2	112.9
Average Queue (m)	66.1	101.2	54.0
95th Queue (m)	88.5	147.6	91.7
Link Distance (m)	236.4	236.4	236.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	0		
Queuing Penalty (veh)	1		

Intersection: 5: South Service Road East & Davis Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	TR	LT
Maximum Queue (m)	7.2	25.5	1.3	10.0
Average Queue (m)	1.0	10.3	0.0	0.5
95th Queue (m)	5.0	20.8	0.9	4.8
Link Distance (m)	38.3	70.7	102.9	206.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Davis Road & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	3.7	18.0
Average Queue (m)	0.1	7.1
95th Queue (m)	1.9	14.6
Link Distance (m)	70.7	36.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 718

Lanes, Volumes, Timings

2030 AM Future Total

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	6	239	125	487	45	264	1924	455	2369	1046	5
Future Volume (vph)	6	239	125	487	45	264	1924	455	2369	1046	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0	0.0				60.0		80.0		0.0	
Storage Lanes	1	1				1		1		1	
Taper Length (m)	15.0										
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Ped Bike Factor						0.99		0.98		0.96	
Frt		0.850				0.850		0.850		0.850	
Flt Protected	0.950			0.950	0.960						
Satd. Flow (prot)	1825	1622	0	1667	1685	1570	5142	1601	5092	1570	0
Flt Permitted	0.950			0.950	0.960						
Satd. Flow (perm)	1825	1622	0	1667	1685	1550	5142	1561	5092	1501	0
Right Turn on Red			No			Yes		Yes			Yes
Satd. Flow (RTOR)						224		455		70	
Link Speed (k/h)					40		60		60		
Link Distance (m)					190.6		330.4		230.9		
Travel Time (s)					17.2		19.8		13.9		
Confl. Peds. (#/hr)						2		2		6	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	1%	0%	4%	4%	4%	2%	2%	3%	4%	0%
Adj. Flow (vph)	6	239	125	487	45	264	1924	455	2369	1046	5
Shared Lane Traffic (%)				46%							
Lane Group Flow (vph)	6	364	0	263	269	264	1924	455	2369	1051	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)					3.7		2.0		2.0		
Link Offset(m)					0.0		0.0		0.0		
Crosswalk Width(m)					4.9		4.9		4.9		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	14	24		14		14		14	14
Number of Detectors	1	1		1	2	1	2	1	2	1	
Detector Template	Left	Right		Left	Thru	Right	Thru	Right	Thru	Right	
Leading Detector (m)	6.1	6.1		6.1	30.5	6.1	30.5	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	6.1		6.1	1.8	6.1	1.8	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)					28.7		28.7		28.7		
Detector 2 Size(m)					1.8		1.8		1.8		
Detector 2 Type					Cl+Ex		Cl+Ex		Cl+Ex		
Detector 2 Channel											
Detector 2 Extend (s)					0.0		0.0		0.0		

Lanes, Volumes, Timings

2030 AM Future Total

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

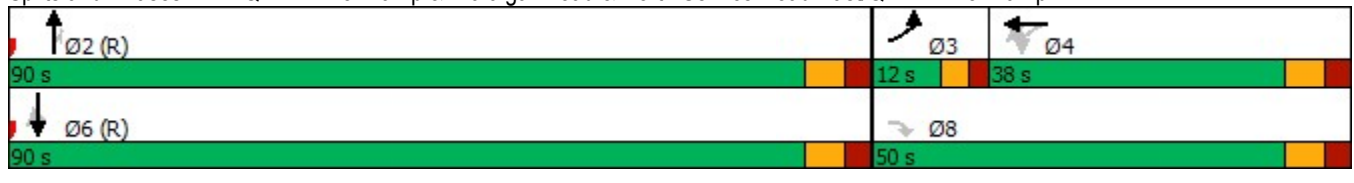


Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Turn Type	Prot	Perm		Perm	NA	Free	NA	Perm	NA	Perm	
Protected Phases	3				4		2		6		
Permitted Phases		8		4		Free		2		6	
Detector Phase	3	8		4	4		2	2	6	6	
Switch Phase											
Minimum Initial (s)	7.0	10.0		5.0	5.0		28.0	28.0	28.0	28.0	
Minimum Split (s)	12.0	22.5		38.0	38.0		35.0	35.0	35.0	35.0	
Total Split (s)	12.0	50.0		38.0	38.0		90.0	90.0	90.0	90.0	
Total Split (%)	8.6%	35.7%		27.1%	27.1%		64.3%	64.3%	64.3%	64.3%	
Maximum Green (s)	7.0	43.0		31.0	31.0		83.0	83.0	83.0	83.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-3.0	-3.0		-3.0	-3.0	-3.0	-3.0	
Total Lost Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
Lead/Lag	Lead			Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	
Walk Time (s)				7.0	7.0		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)				24.0	24.0		21.0	21.0	21.0	21.0	
Pedestrian Calls (#/hr)				0	0		0	0	0	0	
Act Effct Green (s)	9.0	38.9		36.5	36.5	140.0	93.1	93.1	93.1	93.1	
Actuated g/C Ratio	0.06	0.28		0.26	0.26	1.00	0.66	0.66	0.66	0.66	
v/c Ratio	0.05	0.81		0.61	0.61	0.17	0.56	0.38	0.70	1.03	
Control Delay	62.7	61.0		51.8	52.0	0.2	10.4	2.4	17.0	58.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	62.7	61.0		51.8	52.0	0.2	10.4	2.4	17.0	58.9	
LOS	E	E		D	D	A	B	A	B	E	
Approach Delay					34.8		8.9		29.9		
Approach LOS					C		A		C		























Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.03
Intersection Signal Delay:	24.9
Intersection LOS:	C
Intersection Capacity Utilization	113.6%
ICU Level of Service	H
Analysis Period (min)	15




























Splits and Phases: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

											
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	 				  			  			
Traffic Volume (vph)	901	0	646	0	1479	693	0	2644	492	0	0
Future Volume (vph)	901	0	646	0	1479	693	0	2644	492	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		175.0	0.0	0.0		75.0	0.0		65.0	0.0	0.0
Storage Lanes		1	1	0		1	0		1	0	0
Taper Length (m)		25.0		7.6			7.6			2.5	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor						0.97			0.95		
Frt			0.850			0.850			0.850		
Flt Protected	0.950										
Satd. Flow (prot)	3471	0	1601	0	5142	1601	0	4902	1585	0	0
Flt Permitted	0.950										
Satd. Flow (perm)	3471	0	1601	0	5142	1557	0	4902	1505	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)			23			693			282		
Link Speed (k/h)		40			60			60		40	
Link Distance (m)		226.4			327.5			330.4		203.9	
Travel Time (s)		20.4			19.7			19.8		18.4	
Confl. Peds. (#/hr)						2			8		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	0%	2%	0%	2%	2%	0%	7%	3%	0%	0%
Adj. Flow (vph)	901	0	646	0	1479	693	0	2644	492	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	901	0	646	0	1479	693	0	2644	492	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)		7.4			2.0			2.0		0.0	
Link Offset(m)		0.0			0.0			0.0		0.0	
Crosswalk Width(m)		4.9			4.9			4.9		1.6	
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	24	14	24		14	24		14	24	14
Number of Detectors	1		1		2	1		2	1		
Detector Template	Left		Right		Thru	Right		Thru	Right		
Leading Detector (m)	6.1		6.1		30.5	6.1		30.5	6.1		
Trailing Detector (m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1		6.1		1.8	6.1		1.8	6.1		
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)					28.7			28.7			
Detector 2 Size(m)					1.8			1.8			
Detector 2 Type					Cl+Ex			Cl+Ex			
Detector 2 Channel											
Detector 2 Extend (s)					0.0			0.0			

3: Trafalgar Road & Cross Avenue/South Service Road East

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 		  	 	
Traffic Volume (vph)	612	92	142	59	82	106	116	1392	69	286	1684	364
Future Volume (vph)	612	92	142	59	82	106	116	1392	69	286	1684	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		0.0	55.0		0.0	120.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	25.0			30.0			30.0			20.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor		0.99						1.00			1.00	
Frt		0.909				0.850		0.993			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3219	1684	0	1722	1921	1617	1755	5010	0	1807	4906	0
Flt Permitted	0.950			0.950			0.950			0.073		
Satd. Flow (perm)	3219	1684	0	1722	1921	1617	1755	5010	0	139	4906	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55				148		6			46	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		191.2			115.5			274.1			327.5	
Travel Time (s)		13.8			8.3			19.7			23.6	
Confl. Peds. (#/hr)			7						4			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	10%	0%	4%	6%	0%	1%	4%	4%	0%	1%	3%	7%
Adj. Flow (vph)	612	92	142	59	82	106	116	1392	69	286	1684	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	612	234	0	59	82	106	116	1461	0	286	2048	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.4			5.4			5.7			5.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
 3: Trafalgar Road & Cross Avenue/South Service Road East

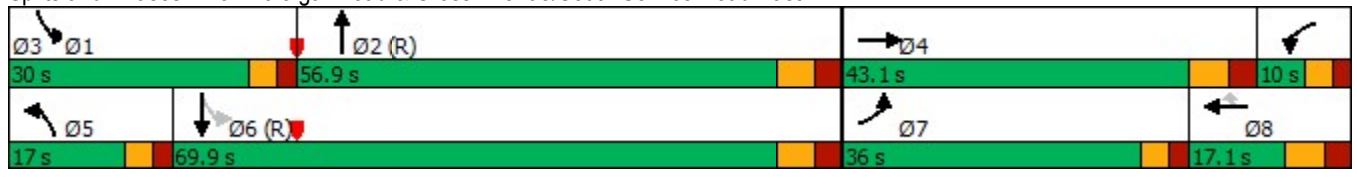
2030 AM Future Total

	↖		→		↗		↖		↗		↘	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8				6		
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	9.8	9.8	7.0	20.0		7.0	20.0	
Minimum Split (s)	10.0	42.0		10.0	16.8	16.8	12.0	34.0		12.0	34.0	
Total Split (s)	36.0	43.1		10.0	17.1	17.1	17.0	56.9		30.0	69.9	
Total Split (%)	25.7%	30.8%		7.1%	12.2%	12.2%	12.1%	40.6%		21.4%	49.9%	
Maximum Green (s)	31.0	36.1		5.0	10.1	10.1	12.0	49.9		25.0	62.9	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	3.0		2.0	3.0	3.0	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0	-3.0	-2.0	-3.0		-2.0	-3.0	
Total Lost Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		7.0						7.0			7.0	
Flash Dont Walk (s)		28.0						20.0			20.0	
Pedestrian Calls (#/hr)		0						0			0	
Act Effct Green (s)	31.4	29.2		17.5	13.0	13.0	13.6	58.7		85.6	68.1	
Actuated g/C Ratio	0.22	0.21		0.12	0.09	0.09	0.10	0.42		0.61	0.49	
v/c Ratio	0.85	0.59		0.28	0.46	0.37	0.69	0.69		0.80	0.85	
Control Delay	63.9	45.5		58.9	69.2	6.5	64.8	47.5		45.4	36.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	63.9	45.5		58.9	69.2	6.5	64.8	47.5		45.4	36.2	
LOS	E	D		E	E	A	E	D		D	D	
Approach Delay		58.8			39.8			48.8			37.3	
Approach LOS		E			D			D			D	

Intersection Summary




























Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 8.4 (6%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 44.7
 Intersection LOS: D
 Intersection Capacity Utilization 86.1%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 3: Trafalgar Road & Cross Avenue/South Service Road East



Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2030 AM Future Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 		 		
Traffic Volume (vph)	419	521	61	31	476	676	80	412	56	720	586	510
Future Volume (vph)	419	521	61	31	476	676	80	412	56	720	586	510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		0.0	85.0		85.0	40.0		0.0	90.0		0.0
Storage Lanes	2		0	1		1	2		0	1		1
Taper Length (m)	20.0			7.5			85.0			15.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor		1.00				0.99		1.00				0.98
Frt		0.984				0.850		0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3404	3440	0	1825	3510	1541	1789	3484	0	3437	1883	1585
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3404	3440	0	1825	3510	1518	1789	3484	0	3437	1883	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				640		10				384
Link Speed (k/h)		60			60			50				50
Link Distance (m)		267.7			164.8			224.3				274.1
Travel Time (s)		16.1			9.9			16.1				19.7
Confl. Peds. (#/hr)			4			9			5			9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	4%	5%	0%	4%	6%	2%	3%	0%	3%	2%	3%
Adj. Flow (vph)	419	521	61	31	476	676	80	412	56	720	586	510
Shared Lane Traffic (%)												
Lane Group Flow (vph)	419	582	0	31	476	676	80	468	0	720	586	510
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

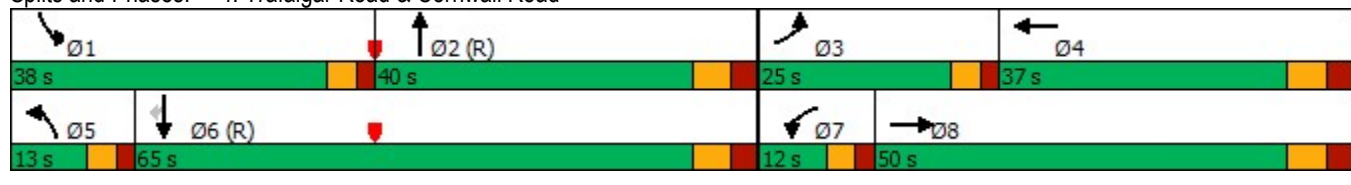
2030 AM Future Total

	↖		→		↗		↖		←		↗		↖		↑		↗		↘		↓		↘		
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR													
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA		Prot	NA	Perm													
Protected Phases	3	8		7	4		5	2		1	6														
Permitted Phases						Free																			6
Detector Phase	3	8		7	4		5	2		1	6														6
Switch Phase																									
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0														20.0
Minimum Split (s)	12.0	37.0		12.0	37.0		12.0	39.0		12.0	39.0														39.0
Total Split (s)	25.0	50.0		12.0	37.0		13.0	40.0		38.0	65.0														65.0
Total Split (%)	17.9%	35.7%		8.6%	26.4%		9.3%	28.6%		27.1%	46.4%														46.4%
Maximum Green (s)	20.0	43.0		7.0	30.0		8.0	33.0		33.0	58.0														58.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0														3.0
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0														-3.0
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag														
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes														
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0														3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max														C-Max
Walk Time (s)		7.0			7.0			7.0			7.0														7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0														25.0
Pedestrian Calls (#/hr)		0			0			0			0														0
Act Effct Green (s)	21.4	44.6		9.0	27.4	140.0	11.6	42.6		34.6	65.6														65.6
Actuated g/C Ratio	0.15	0.32		0.06	0.20	1.00	0.08	0.30		0.25	0.47														0.47
v/c Ratio	0.81	0.53		0.26	0.69	0.45	0.54	0.44		0.85	0.66														0.55
Control Delay	69.9	40.5		68.4	57.7	0.9	75.5	41.2		49.3	15.2														4.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0														0.0
Total Delay	69.9	40.5		68.4	57.7	0.9	75.5	41.2		49.3	15.2														4.9
LOS	E	D		E	E	A	E	D		D	B														A
Approach Delay		52.8			25.5			46.2			25.8														
Approach LOS		D			C			D			C														

Intersection Summary

















Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 34.1 Intersection LOS: C
 Intersection Capacity Utilization 88.7% ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 4: Trafalgar Road & Cornwall Road



















Lanes, Volumes, Timings
5: South Service Road East & Davis Road

2030 AM Future Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	2	39	0	4	1	166	49	5	142	2
Future Volume (vph)	2	0	2	39	0	4	1	166	49	5	142	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Fr _t		0.932			0.986			0.966			0.998	
Fl _t Protected		0.976			0.957						0.998	
Satd. Flow (prot)	0	1748	0	0	1536	0	0	3526	0	0	3521	0
Fl _t Permitted		0.976			0.957						0.998	
Satd. Flow (perm)	0	1748	0	0	1536	0	0	3526	0	0	3521	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	0%	0%	38%	2%	0%
Adj. Flow (vph)	2	0	2	45	0	5	1	191	56	6	163	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	50	0	0	248	0	0	171	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	18.3%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
5: South Service Road East & Davis Road

2030 AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	2	39	0	4	1	166	49	5	142	2
Future Volume (Veh/h)	2	0	2	39	0	4	1	166	49	5	142	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	2	0	2	45	0	5	1	191	56	6	163	2
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	278	425	82	316	398	124	165			247		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	278	425	82	316	398	124	165			247		
tC, single (s)	7.5	6.5	6.9	7.9	6.5	6.9	4.1			4.9		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.6		
p0 queue free %	100	100	100	92	100	99	100			99		
cM capacity (veh/h)	651	521	967	565	539	911	1426			1091		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	4	50	96	152	88	84						
Volume Left	2	45	1	0	6	0						
Volume Right	2	5	0	56	0	2						
cSH	778	588	1426	1700	1091	1700						
Volume to Capacity	0.01	0.09	0.00	0.09	0.01	0.05						
Queue Length 95th (m)	0.1	2.1	0.0	0.0	0.1	0.0						
Control Delay (s)	9.7	11.7	0.1	0.0	0.6	0.0						
Lane LOS	A	B	A		A							
Approach Delay (s)	9.7	11.7	0.0		0.3							
Approach LOS	A	B										
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			18.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: Davis Road & Site Access

2030 AM Future Total



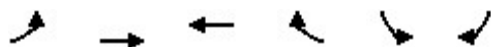
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	31	23	16	0	0	27
Future Volume (vph)	31	23	16	0	0	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.865	
Fl _t Protected		0.972				
Satd. Flow (prot)	0	1831	1883	0	1629	0
Fl _t Permitted		0.972				
Satd. Flow (perm)	0	1831	1883	0	1629	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		90.2	144.8		45.4	
Travel Time (s)		6.5	10.4		3.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	25	17	0	0	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	59	17	0	29	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
6: Davis Road & Site Access

2030 AM Future Total



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	23	16	0	0	27
Future Volume (Veh/h)	31	23	16	0	0	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	25	17	0	0	29
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	17				110	17
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	17				110	17
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				100	97
cM capacity (veh/h)	1600				868	1062
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	59	17	29			
Volume Left	34	0	0			
Volume Right	0	0	29			
cSH	1600	1700	1062			
Volume to Capacity	0.02	0.01	0.03			
Queue Length 95th (m)	0.5	0.0	0.6			
Control Delay (s)	4.3	0.0	8.5			
Lane LOS	A		A			
Approach Delay (s)	4.3	0.0	8.5			
Approach LOS			A			
Intersection Summary						
Average Delay			4.7			
Intersection Capacity Utilization		19.6%		ICU Level of Service		A
Analysis Period (min)			15			

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R>	<	<LT	T	T	T	T	T	T	R>
Maximum Queue (m)	63.9	122.1	97.3	89.3	56.2	65.9	66.0	153.7	223.9	234.1	236.3
Average Queue (m)	7.1	117.1	57.7	59.5	29.1	33.8	31.7	91.9	132.4	224.8	228.6
95th Queue (m)	44.0	119.4	85.2	85.0	51.0	58.6	58.6	139.8	239.0	249.5	234.0
Link Distance (m)		112.3	173.7	173.7	275.5	275.5	275.5	222.0	222.0	222.0	222.0
Upstream Blk Time (%)		98							0	35	63
Queuing Penalty (veh)		0							0	0	0
Storage Bay Dist (m)	65.0										
Storage Blk Time (%)		96		9							
Queuing Penalty (veh)		6		25							

Intersection: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	<	<	R	T	T	T	T	T	T	R
Maximum Queue (m)	199.0	221.0	223.3	42.5	52.0	59.4	164.1	162.3	152.7	95.5
Average Queue (m)	130.9	202.6	206.9	22.3	26.1	29.0	86.9	85.5	73.8	6.3
95th Queue (m)	211.8	252.6	251.9	39.2	44.8	50.5	138.4	139.1	125.7	50.2
Link Distance (m)		209.2	209.2	295.8	295.8	295.8	275.5	275.5	275.5	
Upstream Blk Time (%)		31	46							
Queuing Penalty (veh)		0	0							
Storage Bay Dist (m)	175.0									65.0
Storage Blk Time (%)	0	7							10	
Queuing Penalty (veh)	1	33							49	

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	TR	L	T
Maximum Queue (m)	150.3	185.1	157.4	37.9	49.5	41.0	105.5	213.1	233.6	260.4	74.9	152.2
Average Queue (m)	116.2	141.7	59.5	16.8	23.1	19.1	32.2	111.6	181.9	205.1	60.7	95.5
95th Queue (m)	157.6	191.4	126.7	32.4	42.4	35.1	73.0	182.7	250.9	276.7	88.6	139.3
Link Distance (m)		171.6	171.6		93.4	93.4		236.4	236.4	236.4		295.8
Upstream Blk Time (%)		5	0					0	2	17		
Queuing Penalty (veh)		0	0					0	12	86		
Storage Bay Dist (m)	130.0			55.0			120.0				55.0	
Storage Blk Time (%)	1	18		0	0		0	2			11	30
Queuing Penalty (veh)	2	55		0	0		0	2			63	87

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (m)	148.8	201.3
Average Queue (m)	96.1	113.3
95th Queue (m)	144.3	182.8
Link Distance (m)	295.8	295.8
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	T	R	L	T	TR	L
Maximum Queue (m)	94.9	104.9	246.0	222.5	52.5	113.2	120.8	87.4	63.3	111.6	127.2	85.7
Average Queue (m)	86.0	98.4	168.9	130.1	9.2	69.8	76.1	24.9	22.7	58.1	79.4	41.4
95th Queue (m)	112.9	120.1	312.1	266.1	31.5	108.8	148.3	92.2	43.9	100.0	114.0	69.1
Link Distance (m)			249.6	249.6		141.5	141.5					203.7
Upstream Blk Time (%)			22	0		0	17					
Queuing Penalty (veh)			0	0		0	0					
Storage Bay Dist (m)	85.0	85.0			85.0			85.0	40.0	40.0		90.0
Storage Blk Time (%)	14	59	0			2	1	18	5	6	46	0
Queuing Penalty (veh)	36	154	0			1	7	43	12	15	130	0

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	77.8	132.4	66.3
Average Queue (m)	45.8	50.9	19.8
95th Queue (m)	68.5	100.7	47.2
Link Distance (m)	236.4	236.4	236.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

Intersection: 5: South Service Road East & Davis Road

Movement	EB	WB	SB
Directions Served	LTR	LTR	LT
Maximum Queue (m)	8.8	16.2	5.6
Average Queue (m)	0.8	7.2	0.3
95th Queue (m)	4.8	15.5	3.1
Link Distance (m)	38.3	70.7	206.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Davis Road & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	1.8	15.6
Average Queue (m)	0.1	5.6
95th Queue (m)	1.9	13.6
Link Distance (m)	70.7	36.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 820

Lanes, Volumes, Timings

2030 PM Future Total

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	13	127	110	470	138	326	3161	610	1451	1119	11
Future Volume (vph)	13	127	110	470	138	326	3161	610	1451	1119	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0	0.0				60.0		80.0		0.0	
Storage Lanes	1	1				1		1		1	
Taper Length (m)	15.0										
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Ped Bike Factor						0.99		0.96		0.94	
Frt		0.850				0.850		0.850		0.850	
Flt Protected	0.950			0.950	0.973						
Satd. Flow (prot)	1825	1608	0	1717	1758	1585	5142	1601	5142	1601	0
Flt Permitted	0.950			0.950	0.973						
Satd. Flow (perm)	1825	1608	0	1717	1758	1563	5142	1538	5142	1506	0
Right Turn on Red			No			Yes		Yes			Yes
Satd. Flow (RTOR)						243		405		70	
Link Speed (k/h)					40		60		60		
Link Distance (m)					324.6		330.4		230.9		
Travel Time (s)					29.2		19.8		13.9		
Confl. Peds. (#/hr)						8		8		10	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	2%	1%	1%	1%	3%	2%	2%	2%	2%	0%
Adj. Flow (vph)	13	127	110	470	138	326	3161	610	1451	1119	11
Shared Lane Traffic (%)				36%							
Lane Group Flow (vph)	13	237	0	301	307	326	3161	610	1451	1130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)					3.7		2.0		2.0		
Link Offset(m)					0.0		0.0		0.0		
Crosswalk Width(m)					4.9		4.9		4.9		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	14	24		14		14		14	14
Number of Detectors	1	1		1	2	1	2	1	2	1	
Detector Template	Left	Right		Left	Thru	Right	Thru	Right	Thru	Right	
Leading Detector (m)	6.1	6.1		6.1	30.5	6.1	30.5	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	6.1		6.1	1.8	6.1	1.8	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)					28.7		28.7		28.7		
Detector 2 Size(m)					1.8		1.8		1.8		
Detector 2 Type					Cl+Ex		Cl+Ex		Cl+Ex		
Detector 2 Channel											
Detector 2 Extend (s)					0.0		0.0		0.0		

Lanes, Volumes, Timings

2030 PM Future Total

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

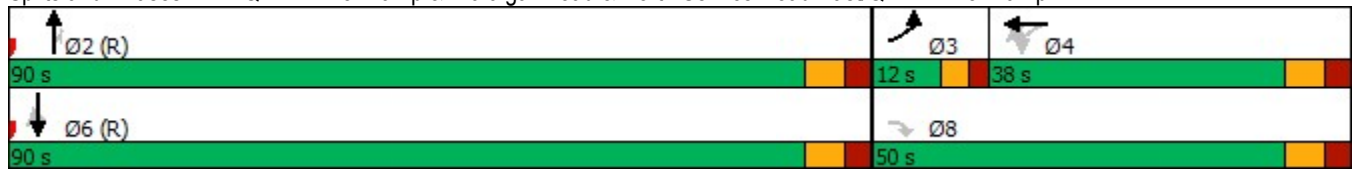


Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Turn Type	Prot	Perm		Perm	NA	Free	NA	Perm	NA	Perm	
Protected Phases	3				4		2		6		
Permitted Phases		8		4		Free		2		6	
Detector Phase	3	8		4	4		2	2	6	6	
Switch Phase											
Minimum Initial (s)	7.0	10.0		5.0	5.0		28.0	28.0	28.0	28.0	
Minimum Split (s)	12.0	22.5		38.0	38.0		35.0	35.0	35.0	35.0	
Total Split (s)	12.0	50.0		38.0	38.0		90.0	90.0	90.0	90.0	
Total Split (%)	8.6%	35.7%		27.1%	27.1%		64.3%	64.3%	64.3%	64.3%	
Maximum Green (s)	7.0	43.0		31.0	31.0		83.0	83.0	83.0	83.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-3.0	-3.0		-3.0	-3.0	-3.0	-3.0	
Total Lost Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
Lead/Lag	Lead			Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	
Walk Time (s)				7.0	7.0		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)				24.0	24.0		21.0	21.0	21.0	21.0	
Pedestrian Calls (#/hr)				0	0		0	0	0	0	
Act Effct Green (s)	9.0	35.9		31.1	31.1	140.0	96.1	96.1	96.1	96.1	
Actuated g/C Ratio	0.06	0.26		0.22	0.22	1.00	0.69	0.69	0.69	0.69	
v/c Ratio	0.11	0.58		0.79	0.79	0.21	0.90	0.52	0.41	1.07	
Control Delay	64.1	49.7		66.5	65.9	0.3	26.5	8.0	11.0	71.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.3	0.0	0.0	0.0	
Total Delay	64.1	49.7		66.5	65.9	0.3	26.7	8.0	11.0	71.0	
LOS	E	D		E	E	A	C	A	B	E	
Approach Delay					43.2		23.7		37.3		
Approach LOS					D		C		D		























Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.07
Intersection Signal Delay:	31.7
Intersection LOS:	C
Intersection Capacity Utilization	114.5%
ICU Level of Service	H
Analysis Period (min)	15

Splits and Phases: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp





























2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

											
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	 				  			  			
Traffic Volume (vph)	1030	0	458	0	2741	570	0	1730	340	0	0
Future Volume (vph)	1030	0	458	0	2741	570	0	1730	340	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		175.0	0.0	0.0		75.0	0.0		65.0	0.0	0.0
Storage Lanes		1	1	0		1	0		1	0	0
Taper Length (m)		25.0		7.6			7.6			2.5	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor			0.98			0.97			0.94		
Frt			0.850			0.850			0.850		
Flt Protected	0.950										
Satd. Flow (prot)	3506	0	1617	0	5142	1601	0	5142	1617	0	0
Flt Permitted	0.950										
Satd. Flow (perm)	3506	0	1590	0	5142	1557	0	5142	1517	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)			23			404			335		
Link Speed (k/h)		40			60			60		40	
Link Distance (m)		226.4			327.5			330.4		203.9	
Travel Time (s)		20.4			19.7			19.8		18.4	
Confl. Peds. (#/hr)			2			2			11		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	1%	0%	2%	2%	0%	2%	1%	0%	0%
Adj. Flow (vph)	1030	0	458	0	2741	570	0	1730	340	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	1030	0	458	0	2741	570	0	1730	340	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)		7.4			2.0			2.0		0.0	
Link Offset(m)		0.0			0.0			0.0		0.0	
Crosswalk Width(m)		4.9			4.9			4.9		1.6	
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	24	14	24		14	24		14	24	14
Number of Detectors	1		1		2	1		2	1		
Detector Template	Left		Right		Thru	Right		Thru	Right		
Leading Detector (m)	6.1		6.1		30.5	6.1		30.5	6.1		
Trailing Detector (m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1		6.1		1.8	6.1		1.8	6.1		
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)					28.7			28.7			
Detector 2 Size(m)					1.8			1.8			
Detector 2 Type					Cl+Ex			Cl+Ex			
Detector 2 Channel											
Detector 2 Extend (s)					0.0			0.0			

Lanes, Volumes, Timings
 3: Trafalgar Road & Cross Avenue/South Service Road East

2030 PM Future Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							  			  	
Traffic Volume (vph)	915	70	124	124	97	368	155	1743	43	125	1414	250
Future Volume (vph)	915	70	124	124	97	368	155	1743	43	125	1414	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		0.0	55.0		0.0	120.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	25.0			30.0			30.0			20.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor		0.99						1.00			1.00	
Frt		0.904				0.850		0.996			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3372	1619	0	1789	1883	1585	1772	5169	0	1789	5067	0
Flt Permitted	0.950			0.950			0.950			0.074		
Satd. Flow (perm)	3372	1619	0	1789	1883	1585	1772	5169	0	139	5067	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		64				133		3			29	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		191.2			115.5			274.1			327.5	
Travel Time (s)		13.8			8.3			19.7			23.6	
Confl. Peds. (#/hr)			8						5			8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	9%	4%	2%	2%	3%	3%	1%	0%	2%	0%	5%
Adj. Flow (vph)	915	70	124	124	97	368	155	1743	43	125	1414	250
Shared Lane Traffic (%)												
Lane Group Flow (vph)	915	194	0	124	97	368	155	1786	0	125	1664	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.4			5.4			5.7			5.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
 3: Trafalgar Road & Cross Avenue/South Service Road East

2030 PM Future Total

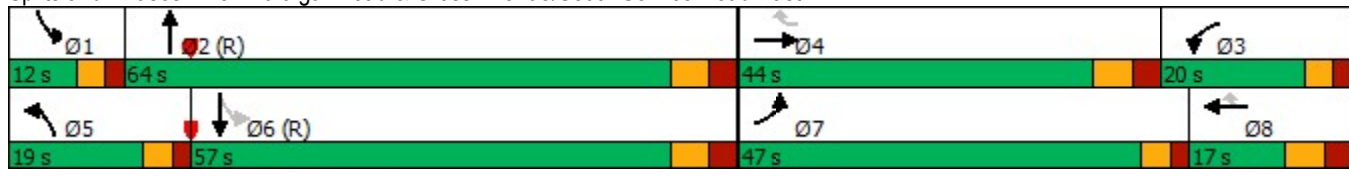


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	custom	Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						4 8				6		
Detector Phase	7	4		3	8	4 8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	9.8		7.0	20.0		7.0	20.0	
Minimum Split (s)	10.0	42.0		10.0	16.8		12.0	34.0		12.0	34.0	
Total Split (s)	47.0	44.0		20.0	17.0		19.0	64.0		12.0	57.0	
Total Split (%)	33.6%	31.4%		14.3%	12.1%		13.6%	45.7%		8.6%	40.7%	
Maximum Green (s)	42.0	37.0		15.0	10.0		14.0	57.0		7.0	50.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0	
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0						7.0			7.0	
Flash Dont Walk (s)		28.0						20.0			20.0	
Pedestrian Calls (#/hr)		0						0			0	
Act Effct Green (s)	42.5	25.5		30.0	13.1	38.6	15.7	61.1		65.0	54.7	
Actuated g/C Ratio	0.30	0.18		0.21	0.09	0.28	0.11	0.44		0.46	0.39	
v/c Ratio	0.89	0.56		0.32	0.55	0.69	0.78	0.79		0.72	0.83	
Control Delay	58.5	39.2		51.3	73.4	26.4	84.1	22.4		51.3	36.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	58.5	39.2		51.3	73.4	26.4	84.1	22.4		51.3	36.0	
LOS	E	D		D	E	C	F	C		D	D	
Approach Delay		55.1			39.4			27.3			37.1	
Approach LOS		E			D			C			D	

Intersection Summary































Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 98 (70%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 37.5
 Intersection LOS: D
 Intersection Capacity Utilization 93.5%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 3: Trafalgar Road & Cross Avenue/South Service Road East



Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2030 PM Future Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Traffic Volume (vph)	531	450	74	61	590	855	64	488	56	682	518	412
Future Volume (vph)	531	450	74	61	590	855	64	488	56	682	518	412
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		0.0	85.0		85.0	40.0		0.0	90.0		0.0
Storage Lanes	2		0	1		1	2		0	1		1
Taper Length (m)	20.0			7.5			85.0			15.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor		0.99				0.98		1.00				0.97
Frt		0.979				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3437	3433	0	1789	3544	1585	1755	3512	0	3471	1883	1570
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3437	3433	0	1789	3544	1553	1755	3512	0	3471	1883	1527
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14				596		8				384
Link Speed (k/h)		60			60			50				50
Link Distance (m)		267.7			164.8			224.3				274.1
Travel Time (s)		16.1			9.9			16.1				19.7
Confl. Peds. (#/hr)			11			29			3			12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	6%	2%	3%	3%	4%	2%	4%	2%	2%	4%
Adj. Flow (vph)	531	450	74	61	590	855	64	488	56	682	518	412
Shared Lane Traffic (%)												
Lane Group Flow (vph)	531	524	0	61	590	855	64	544	0	682	518	412
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2030 PM Future Total

	↖		→		↗		↖		←		↗		↖		↑		↗		↘		↓		↘		
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR													
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA		Prot	NA	Perm													
Protected Phases	3	8		7	4		5	2		1	6														
Permitted Phases						Free																			6
Detector Phase	3	8		7	4		5	2		1	6														6
Switch Phase																									
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0														20.0
Minimum Split (s)	12.0	37.0		12.0	37.0		12.0	39.0		12.0	39.0														39.0
Total Split (s)	28.0	52.0		13.0	37.0		13.0	40.0		35.0	62.0														62.0
Total Split (%)	20.0%	37.1%		9.3%	26.4%		9.3%	28.6%		25.0%	44.3%														44.3%
Maximum Green (s)	23.0	45.0		8.0	30.0		8.0	33.0		30.0	55.0														55.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0														3.0
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0														-3.0
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag														
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes														
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0														3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max														
Walk Time (s)		7.0			7.0			7.0			7.0														
Flash Dont Walk (s)		23.0			23.0			25.0			25.0														
Pedestrian Calls (#/hr)		0			0			0			0														
Act Effct Green (s)	24.7	47.9		9.8	30.6	140.0	10.1	39.2		31.5	63.0														63.0
Actuated g/C Ratio	0.18	0.34		0.07	0.22	1.00	0.07	0.28		0.22	0.45														0.45
v/c Ratio	0.88	0.44		0.49	0.76	0.55	0.50	0.55		0.87	0.61														0.46
Control Delay	72.6	36.3		76.3	58.1	1.4	76.8	45.6		47.0	45.5														23.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0														0.0
Total Delay	72.6	36.3		76.3	58.1	1.4	76.8	45.6		47.0	45.5														23.4
LOS	E	D		E	E	A	E	D		D	D														C
Approach Delay		54.6			26.7			48.9			40.5														
Approach LOS		D			C			D			D														

Intersection Summary

















Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 40.3
 Intersection LOS: D
 Intersection Capacity Utilization 96.3%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 4: Trafalgar Road & Cornwall Road



















Lanes, Volumes, Timings
5: South Service Road East & Davis Road

2030 PM Future Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	2	54	1	4	0	157	49	10	246	3
Future Volume (vph)	2	0	2	54	1	4	0	157	49	10	246	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.932			0.990			0.964			0.998	
Flt Protected		0.976			0.956						0.998	
Satd. Flow (prot)	0	1748	0	0	1538	0	0	3415	0	0	3519	0
Flt Permitted		0.976			0.956						0.998	
Satd. Flow (perm)	0	1748	0	0	1538	0	0	3415	0	0	3519	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Confl. Peds. (#/hr)										2		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	4%	0%	38%	2%	0%
Adj. Flow (vph)	2	0	2	62	1	5	0	180	56	11	283	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	68	0	0	236	0	0	297	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	26.4%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
5: South Service Road East & Davis Road

2030 PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	2	54	1	4	0	157	49	10	246	3
Future Volume (Veh/h)	2	0	2	54	1	4	0	157	49	10	246	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	2	0	2	62	1	5	0	180	56	11	283	3
Pedestrians					2							
Lane Width (m)					3.7							
Walking Speed (m/s)					1.1							
Percent Blockage					0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	402	544	143	376	518	120	286			238		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	402	544	143	376	518	120	286			238		
tC, single (s)	7.5	6.5	6.9	7.9	6.5	6.9	4.1			4.9		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.6		
p0 queue free %	100	100	100	88	100	99	100			99		
cM capacity (veh/h)	529	443	885	508	459	914	1288			1099		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	4	68	90	146	152	144						
Volume Left	2	62	0	0	11	0						
Volume Right	2	5	0	56	0	3						
cSH	662	524	1288	1700	1099	1700						
Volume to Capacity	0.01	0.13	0.00	0.09	0.01	0.09						
Queue Length 95th (m)	0.1	3.4	0.0	0.0	0.2	0.0						
Control Delay (s)	10.5	12.9	0.0	0.0	0.7	0.0						
Lane LOS	B	B			A							
Approach Delay (s)	10.5	12.9	0.0		0.4							
Approach LOS	B	B										
Intersection Summary												
Average Delay				1.7								
Intersection Capacity Utilization			26.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
6: Davis Road & Site Access

2030 PM Future Total



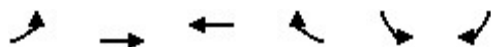
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	36	23	13	0	0	46
Future Volume (vph)	36	23	13	0	0	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.865	
Fl _t Protected		0.970				
Satd. Flow (prot)	0	1827	1883	0	1629	0
Fl _t Permitted		0.970				
Satd. Flow (perm)	0	1827	1883	0	1629	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		90.2	144.8		45.4	
Travel Time (s)		6.5	10.4		3.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	25	14	0	0	50
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	64	14	0	50	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
6: Davis Road & Site Access

2030 PM Future Total



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	23	13	0	0	46
Future Volume (Veh/h)	36	23	13	0	0	46
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	25	14	0	0	50
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	14				117	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	14				117	14
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				100	95
cM capacity (veh/h)	1604				858	1066
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	64	14	50			
Volume Left	39	0	0			
Volume Right	0	0	50			
cSH	1604	1700	1066			
Volume to Capacity	0.02	0.01	0.05			
Queue Length 95th (m)	0.6	0.0	1.1			
Control Delay (s)	4.5	0.0	8.5			
Lane LOS	A		A			
Approach Delay (s)	4.5	0.0	8.5			
Approach LOS			A			
Intersection Summary						
Average Delay			5.6			
Intersection Capacity Utilization		19.9%		ICU Level of Service		A
Analysis Period (min)			15			

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R>	<	<LT	R	T	T	T	R	T	T	T
Maximum Queue (m)	67.6	119.4	113.5	156.2	48.0	256.1	262.4	249.2	140.0	136.7	224.5	231.0
Average Queue (m)	9.1	76.7	62.7	80.0	6.4	177.6	182.1	186.1	105.2	50.7	83.2	225.1
95th Queue (m)	45.4	124.8	104.1	134.6	50.7	255.3	261.3	267.7	204.6	91.0	197.5	250.2
Link Distance (m)		112.3	307.7	307.7		275.5	275.5	275.5		222.1	222.1	222.1
Upstream Blk Time (%)		11				0	0	0		0	1	43
Queuing Penalty (veh)		0				1	2	4		0	0	0
Storage Bay Dist (m)	65.0				60.0				80.0			
Storage Blk Time (%)		37		26				31				
Queuing Penalty (veh)		5		84				190				

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	SB
Directions Served	R>
Maximum Queue (m)	235.8
Average Queue (m)	228.0
95th Queue (m)	232.8
Link Distance (m)	222.1
Upstream Blk Time (%)	83
Queuing Penalty (veh)	0
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	<	<	R	T	T	T	R	T	T	T
Maximum Queue (m)	198.6	215.6	213.7	162.6	174.6	191.7	130.0	86.4	89.9	81.3
Average Queue (m)	139.9	168.2	103.0	109.8	121.7	128.1	57.9	52.4	53.1	47.7
95th Queue (m)	199.9	230.1	217.3	156.9	169.4	187.4	164.1	80.4	81.2	74.8
Link Distance (m)		209.2	209.2	295.8	295.8	295.8		275.5	275.5	275.5
Upstream Blk Time (%)		7	3							
Queuing Penalty (veh)		0	0							
Storage Bay Dist (m)	175.0						75.0			
Storage Blk Time (%)	0	11				26				2
Queuing Penalty (veh)	1	56				146				6

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	EB	EB	EB	WB	WB	WB	B22	NB	NB	NB	NB	SB
Directions Served	L	L	TR	L	T	R	T	L	T	T	TR	L
Maximum Queue (m)	154.9	188.8	184.6	56.8	59.0	109.7	45.6	80.2	114.3	190.5	170.7	74.9
Average Queue (m)	149.8	177.3	156.5	22.0	24.5	84.5	5.3	38.8	63.5	92.3	110.8	37.1
95th Queue (m)	168.9	193.0	234.7	45.6	49.3	107.7	27.9	69.0	100.7	146.0	156.5	77.2
Link Distance (m)		171.6	171.6		93.4	93.4	173.1		236.4	236.4	236.4	
Upstream Blk Time (%)		60	24			14						
Queuing Penalty (veh)		0	0			21						
Storage Bay Dist (m)	130.0			55.0				120.0				55.0
Storage Blk Time (%)	8	58		1	1				0			1
Queuing Penalty (veh)	35	267		1	2				0			4

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (m)	173.2	145.4	156.5
Average Queue (m)	89.5	83.8	92.4
95th Queue (m)	143.8	132.1	140.8
Link Distance (m)	295.8	295.8	295.8
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (m)			
Storage Blk Time (%)	17		
Queuing Penalty (veh)	20		

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	T	R	L	T	TR	L
Maximum Queue (m)	94.9	105.0	262.7	249.6	81.2	127.2	106.8	55.2	56.6	109.9	120.0	97.6
Average Queue (m)	92.5	103.8	224.1	178.5	17.9	82.3	67.5	5.3	19.0	63.4	80.1	66.2
95th Queue (m)	102.7	111.3	319.3	292.5	52.2	115.5	98.3	40.2	40.5	97.5	110.4	92.3
Link Distance (m)			249.6	249.6		141.5	141.5					203.7
Upstream Blk Time (%)			45	0		0						
Queuing Penalty (veh)			0	0		0						
Storage Bay Dist (m)	85.0	85.0			85.0			85.0	40.0	40.0		90.0
Storage Blk Time (%)	28	70	0			8	1	0	2	9	49	0
Queuing Penalty (veh)	62	158	0			5	5	0	7	28	151	1

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	104.9	144.4	111.1
Average Queue (m)	71.5	94.5	62.2
95th Queue (m)	97.2	137.3	100.9
Link Distance (m)	236.4	236.4	236.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	1		
Queuing Penalty (veh)	4		

Intersection: 5: South Service Road East & Davis Road

Movement	EB	WB	SB
Directions Served	LTR	LTR	LT
Maximum Queue (m)	7.2	26.2	12.7
Average Queue (m)	1.2	9.7	0.9
95th Queue (m)	5.6	21.0	6.6
Link Distance (m)	38.3	70.7	206.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Davis Road & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	3.7	18.8
Average Queue (m)	0.1	7.2
95th Queue (m)	1.9	15.4
Link Distance (m)	70.7	36.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1266

Lanes, Volumes, Timings

2035 AM Future Total

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	6	239	138	534	49	291	2111	493	2613	1155	5
Future Volume (vph)	6	239	138	534	49	291	2111	493	2613	1155	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0	0.0				60.0		80.0		0.0	
Storage Lanes	1	1				1		1		1	
Taper Length (m)	15.0										
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Ped Bike Factor						0.99		0.98		0.96	
Frt		0.850				0.850		0.850		0.850	
Flt Protected	0.950			0.950	0.960						
Satd. Flow (prot)	1825	1623	0	1667	1685	1570	5142	1601	5092	1570	0
Flt Permitted	0.950			0.950	0.960						
Satd. Flow (perm)	1825	1623	0	1667	1685	1550	5142	1561	5092	1501	0
Right Turn on Red			No			Yes		Yes			Yes
Satd. Flow (RTOR)						226		441		70	
Link Speed (k/h)					40		60		60		
Link Distance (m)					190.6		330.4		230.9		
Travel Time (s)					17.2		19.8		13.9		
Confl. Peds. (#/hr)						2		2		6	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	1%	0%	4%	4%	4%	2%	2%	3%	4%	0%
Adj. Flow (vph)	6	239	138	534	49	291	2111	493	2613	1155	5
Shared Lane Traffic (%)				46%							
Lane Group Flow (vph)	6	377	0	288	295	291	2111	493	2613	1160	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)					3.7		2.0		2.0		
Link Offset(m)					0.0		0.0		0.0		
Crosswalk Width(m)					4.9		4.9		4.9		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	14	24		14		14		14	14
Number of Detectors	1	1		1	2	1	2	1	2	1	
Detector Template	Left	Right		Left	Thru	Right	Thru	Right	Thru	Right	
Leading Detector (m)	6.1	6.1		6.1	30.5	6.1	30.5	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	6.1		6.1	1.8	6.1	1.8	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)					28.7		28.7		28.7		
Detector 2 Size(m)					1.8		1.8		1.8		
Detector 2 Type					Cl+Ex		Cl+Ex		Cl+Ex		
Detector 2 Channel											
Detector 2 Extend (s)					0.0		0.0		0.0		

Lanes, Volumes, Timings

2035 AM Future Total

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

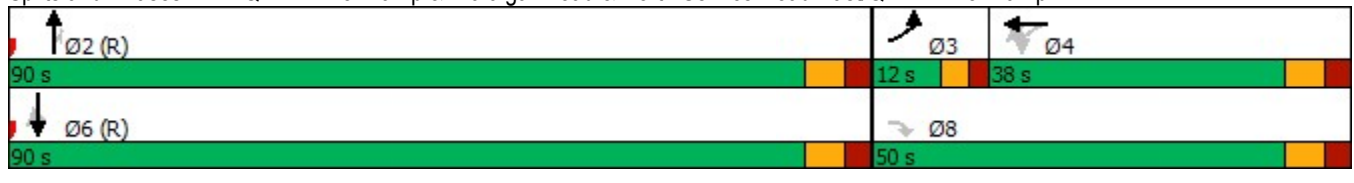


Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Turn Type	Prot	Perm		Perm	NA	Free	NA	Perm	NA	Perm	
Protected Phases	3				4		2		6		
Permitted Phases		8		4		Free		2		6	
Detector Phase	3	8		4	4		2	2	6	6	
Switch Phase											
Minimum Initial (s)	7.0	10.0		5.0	5.0		28.0	28.0	28.0	28.0	
Minimum Split (s)	12.0	22.5		38.0	38.0		35.0	35.0	35.0	35.0	
Total Split (s)	12.0	50.0		38.0	38.0		90.0	90.0	90.0	90.0	
Total Split (%)	8.6%	35.7%		27.1%	27.1%		64.3%	64.3%	64.3%	64.3%	
Maximum Green (s)	7.0	43.0		31.0	31.0		83.0	83.0	83.0	83.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-3.0	-3.0		-3.0	3.0	-3.0	-3.0	
Total Lost Time (s)	3.0	4.0		4.0	4.0		4.0	10.0	4.0	4.0	
Lead/Lag	Lead			Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	
Walk Time (s)				7.0	7.0		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)				24.0	24.0		21.0	21.0	21.0	21.0	
Pedestrian Calls (#/hr)				0	0		0	0	0	0	
Act Effct Green (s)	9.0	39.7		37.3	37.3	140.0	92.3	86.3	92.3	92.3	
Actuated g/C Ratio	0.06	0.28		0.27	0.27	1.00	0.66	0.62	0.66	0.66	
v/c Ratio	0.05	0.82		0.65	0.66	0.19	0.62	0.44	0.78	1.14	
Control Delay	62.7	61.5		53.1	53.4	0.3	10.4	2.1	19.7	100.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	62.7	61.5		53.1	53.4	0.3	10.4	2.1	19.8	100.6	
LOS	E	E		D	D	A	B	A	B	F	
Approach Delay					35.6		8.8		44.6		
Approach LOS					D		A		D		

Intersection Summary























Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.14
Intersection Signal Delay:	32.2
Intersection LOS:	C
Intersection Capacity Utilization:	122.5%
ICU Level of Service:	H
Analysis Period (min):	15

Splits and Phases: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lanes, Volumes, Timings
 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2035 AM Future Total

											
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	 				  			  			
Traffic Volume (vph)	922	0	405	0	1610	755	0	2913	543	0	0
Future Volume (vph)	922	0	405	0	1610	755	0	2913	543	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		175.0	0.0	0.0		75.0	0.0		65.0	0.0	0.0
Storage Lanes		1	1	0		1	0		1	0	0
Taper Length (m)		25.0		7.6			7.6			2.5	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor						0.97			0.95		
Frt			0.850			0.850			0.850		
Flt Protected	0.950										
Satd. Flow (prot)	3471	0	1601	0	5142	1601	0	4902	1585	0	0
Flt Permitted	0.950										
Satd. Flow (perm)	3471	0	1601	0	5142	1557	0	4902	1505	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)			23			755			357		
Link Speed (k/h)		40			60			60		40	
Link Distance (m)		226.4			327.5			330.4		203.9	
Travel Time (s)		20.4			19.7			19.8		18.4	
Confl. Peds. (#/hr)						2			8		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	0%	2%	0%	2%	2%	0%	7%	3%	0%	0%
Adj. Flow (vph)	922	0	405	0	1610	755	0	2913	543	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	922	0	405	0	1610	755	0	2913	543	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)		7.4			2.0			2.0		0.0	
Link Offset(m)		0.0			0.0			0.0		0.0	
Crosswalk Width(m)		4.9			4.9			4.9		1.6	
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	24	14	24		14	24		14	24	14
Number of Detectors	1		1		2	1		2	1		
Detector Template	Left		Right		Thru	Right		Thru	Right		
Leading Detector (m)	6.1		6.1		30.5	6.1		30.5	6.1		
Trailing Detector (m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1		6.1		1.8	6.1		1.8	6.1		
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)					28.7			28.7			
Detector 2 Size(m)					1.8			1.8			
Detector 2 Type					Cl+Ex			Cl+Ex			
Detector 2 Channel											
Detector 2 Extend (s)					0.0			0.0			

Lanes, Volumes, Timings
 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2035 AM Future Total

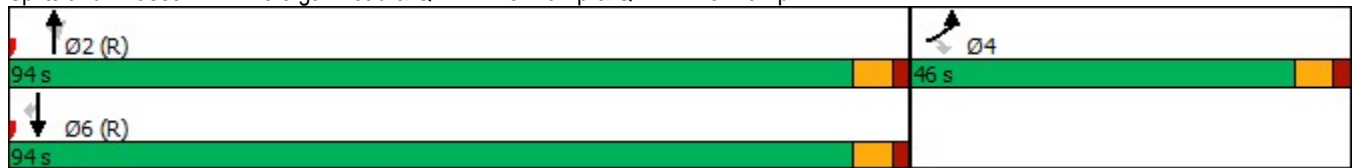


Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Turn Type	Prot		Perm		NA	Perm		NA	Perm		
Protected Phases	4				2			6			
Permitted Phases			4			2			6		
Detector Phase	4		4		2	2		6	6		
Switch Phase											
Minimum Initial (s)	5.0		5.0		5.0	5.0		5.0	5.0		
Minimum Split (s)	24.0		24.0		24.0	24.0		24.0	24.0		
Total Split (s)	46.0		46.0		94.0	94.0		94.0	94.0		
Total Split (%)	32.9%		32.9%		67.1%	67.1%		67.1%	67.1%		
Maximum Green (s)	40.0		40.0		88.0	88.0		88.0	88.0		
Yellow Time (s)	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		
Lost Time Adjust (s)	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Recall Mode	None		None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	7.0		7.0		7.0	7.0		7.0	7.0		
Flash Dont Walk (s)	11.0		11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0		0	0		0	0		
Act Effct Green (s)	42.3		42.3		91.7	91.7		91.7	91.7		
Actuated g/C Ratio	0.30		0.30		0.66	0.66		0.66	0.66		
v/c Ratio	0.88		0.81		0.48	0.59		0.91	0.49		
Control Delay	57.1		56.4		10.5	3.4		19.8	2.8		
Queue Delay	0.0		0.0		0.0	0.0		0.1	0.0		
Total Delay	57.1		56.4		10.5	3.4		19.9	2.8		
LOS	E		E		B	A		B	A		
Approach Delay		56.9			8.2			17.2			
Approach LOS		E			A			B			

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 5.6 (4%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 21.6
 Intersection Capacity Utilization 89.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

































3: Trafalgar Road & Cross Avenue/South Service Road East

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	612	92	142	59	82	106	116	1533	69	280	1854	364
Future Volume (vph)	612	92	142	59	82	106	116	1533	69	280	1854	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		0.0	55.0		0.0	120.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	25.0			30.0			30.0			20.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor		0.99						1.00			1.00	
Frt		0.909				0.850		0.994			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3219	1684	0	1722	1921	1617	1755	5014	0	1807	4920	0
Flt Permitted	0.950			0.950			0.950			0.064		
Satd. Flow (perm)	3219	1684	0	1722	1921	1617	1755	5014	0	122	4920	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		54				148		6			41	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		191.2			115.5			274.1			327.5	
Travel Time (s)		13.8			8.3			19.7			23.6	
Confl. Peds. (#/hr)			7						4			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	10%	0%	4%	6%	0%	1%	4%	4%	0%	1%	3%	7%
Adj. Flow (vph)	612	92	142	59	82	106	116	1533	69	280	1854	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	612	234	0	59	82	106	116	1602	0	280	2218	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.4			5.4			5.7			5.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2035 AM Future Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Traffic Volume (vph)	462	574	61	31	525	745	80	412	56	790	585	560
Future Volume (vph)	462	574	61	31	525	745	80	412	56	790	585	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		0.0	85.0		85.0	40.0		0.0	90.0		0.0
Storage Lanes	2		0	1		1	2		0	1		1
Taper Length (m)	20.0			7.5			85.0			15.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor		1.00				0.99		1.00				0.98
Frt		0.986				0.850		0.982				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3404	3448	0	1825	3510	1541	1789	3484	0	3437	1883	1585
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3404	3448	0	1825	3510	1518	1789	3484	0	3437	1883	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				645		10				383
Link Speed (k/h)		60			60			50				50
Link Distance (m)		267.7			164.8			224.3				274.1
Travel Time (s)		16.1			9.9			16.1				19.7
Confl. Peds. (#/hr)			4			9			5			9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	4%	5%	0%	4%	6%	2%	3%	0%	3%	2%	3%
Adj. Flow (vph)	462	574	61	31	525	745	80	412	56	790	585	560
Shared Lane Traffic (%)												
Lane Group Flow (vph)	462	635	0	31	525	745	80	468	0	790	585	560
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

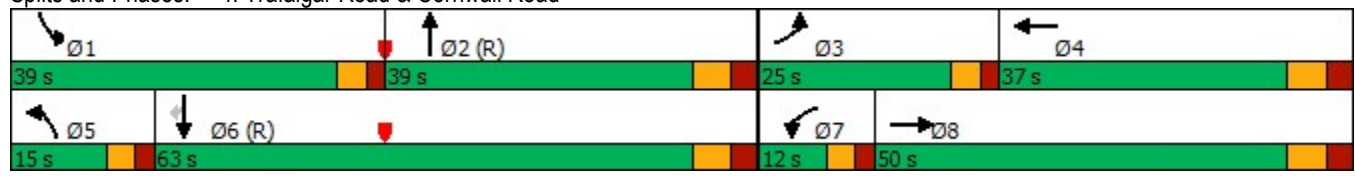
2035 AM Future Total

	↖		→		↗		↖		↗		↘	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						Free						6
Detector Phase	3	8		7	4		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0	20.0
Minimum Split (s)	12.0	37.0		12.0	37.0		12.0	39.0		12.0	39.0	39.0
Total Split (s)	25.0	50.0		12.0	37.0		15.0	39.0		39.0	63.0	63.0
Total Split (%)	17.9%	35.7%		8.6%	26.4%		10.7%	27.9%		27.9%	45.0%	45.0%
Maximum Green (s)	20.0	43.0		7.0	30.0		10.0	32.0		34.0	56.0	56.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0	-3.0
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0	25.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	21.8	46.6		9.0	29.0	140.0	11.8	38.8		36.3	63.3	63.3
Actuated g/C Ratio	0.16	0.33		0.06	0.21	1.00	0.08	0.28		0.26	0.45	0.45
v/c Ratio	0.87	0.55		0.26	0.72	0.49	0.53	0.48		0.89	0.69	0.62
Control Delay	75.5	40.0		68.4	57.6	1.1	74.4	44.2		56.2	13.2	3.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	75.5	40.0		68.4	57.6	1.1	74.4	44.2		56.2	13.2	3.8
LOS	E	D		E	E	A	E	D		E	B	A
Approach Delay		54.9			25.5			48.6			28.0	
Approach LOS		D			C			D			C	

















Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 35.7
 Intersection LOS: D
 Intersection Capacity Utilization 92.9%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 4: Trafalgar Road & Cornwall Road



5: South Service Road East & QEW EB off-ramp/Davis Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	288	6	223	39	0	4	0	166	43	5	142	0
Future Volume (vph)	288	6	223	39	0	4	0	166	43	5	142	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Fr _t		0.942			0.986			0.969				
Fl _t Protected		0.973			0.957						0.998	
Satd. Flow (prot)	0	1761	0	0	1536	0	0	3537	0	0	3527	0
Fl _t Permitted		0.799			0.556						0.929	
Satd. Flow (perm)	0	1446	0	0	893	0	0	3537	0	0	3283	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		85			73			49				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	0%	0%	38%	2%	0%
Adj. Flow (vph)	331	7	256	45	0	5	0	191	49	6	163	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	594	0	0	50	0	0	240	0	0	169	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2			2		1	2	
Detector Template	Left	Thru		Left	Thru			Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5			30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8			1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8						6		
Detector Phase	4	4		8	8			2		6	6	
Switch Phase												

5: South Service Road East & QEW EB off-ramp/Davis Road

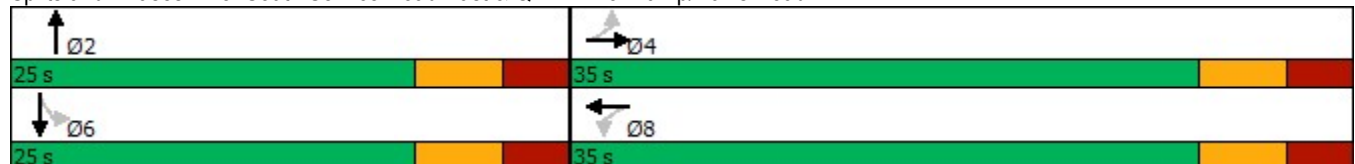


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0			25.0		25.0	25.0	
Total Split (s)	35.0	35.0		35.0	35.0			25.0		25.0	25.0	
Total Split (%)	58.3%	58.3%		58.3%	58.3%			41.7%		41.7%	41.7%	
Maximum Green (s)	28.0	28.0		28.0	28.0			18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		7.0			7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)		21.6			21.6			8.0			8.0	
Actuated g/C Ratio		0.49			0.49			0.18			0.18	
v/c Ratio		0.79			0.11			0.35			0.28	
Control Delay		17.2			1.8			15.3			18.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		17.2			1.8			15.3			18.6	
LOS		B			A			B			B	
Approach Delay		17.2			1.8			15.3			18.6	
Approach LOS		B			A			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	44
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.79
Intersection Signal Delay:	16.2
Intersection LOS:	B
Intersection Capacity Utilization:	47.3%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 5: South Service Road East & QEW EB off-ramp/Davis Road



Lanes, Volumes, Timings
6: Davis Road & Site Access

2035 AM Future Total



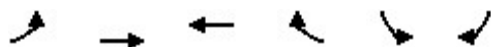
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (vph)	31	22	16	0	0	27
Future Volume (vph)	31	22	16	0	0	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.865	
Fl _t Protected		0.972				
Satd. Flow (prot)	0	1831	1883	0	1629	0
Fl _t Permitted		0.972				
Satd. Flow (perm)	0	1831	1883	0	1629	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		90.2	144.8		45.4	
Travel Time (s)		6.5	10.4		3.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	24	17	0	0	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	58	17	0	29	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.5%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
6: Davis Road & Site Access

2035 AM Future Total



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	31	22	16	0	0	27
Future Volume (Veh/h)	31	22	16	0	0	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	24	17	0	0	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)		90				
pX, platoon unblocked						
vC, conflicting volume	17				109	17
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	17				109	17
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				100	97
cM capacity (veh/h)	1600				869	1062
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	58	17	29			
Volume Left	34	0	0			
Volume Right	0	0	29			
cSH	1600	1700	1062			
Volume to Capacity	0.02	0.01	0.03			
Queue Length 95th (m)	0.5	0.0	0.6			
Control Delay (s)	4.3	0.0	8.5			
Lane LOS	A		A			
Approach Delay (s)	4.3	0.0	8.5			
Approach LOS			A			
Intersection Summary						
Average Delay			4.8			
Intersection Capacity Utilization		19.5%		ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
 23: South Service Road East & Access

2035 AM Future Total













Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	2	1	208	402	2
Future Volume (vph)	2	2	1	208	402	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt	0.932				0.999	
Flt Protected	0.976					
Satd. Flow (prot)	1713	0	0	3579	3575	0
Flt Permitted	0.976					
Satd. Flow (perm)	1713	0	0	3579	3575	0
Link Speed (k/h)	48			50	48	
Link Distance (m)	50.6			96.6	23.3	
Travel Time (s)	3.8			7.0	1.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	2	1	226	437	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	227	439	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

















Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
 23: South Service Road East & Access

2035 AM Future Total

















						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	2	1	208	402	2
Future Volume (Veh/h)	2	2	1	208	402	2
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)	2	2	1	226	437	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				401	23	
pX, platoon unblocked	0.98	0.98	0.98			
vC, conflicting volume	553	220	439			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	494	152	377			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	492	846	1150			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	4	76	151	291	148	
Volume Left	2	1	0	0	0	
Volume Right	2	0	0	0	2	
cSH	623	1150	1700	1700	1700	
Volume to Capacity	0.01	0.00	0.09	0.17	0.09	
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	
Control Delay (s)	10.8	0.1	0.0	0.0	0.0	
Lane LOS	B	A				
Approach Delay (s)	10.8	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay	0.1					
Intersection Capacity Utilization	21.2%			ICU Level of Service	A	
Analysis Period (min)	15					

5: South Service Road East & QEW EB off-ramp/Davis Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	288	6	223	39	0	4	0	166	43	5	142	0
Future Volume (vph)	288	6	223	39	0	4	0	166	43	5	142	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Fr _t		0.942			0.986			0.969				
Fl _t Protected		0.973			0.957						0.998	
Satd. Flow (prot)	0	1761	0	0	1536	0	0	3537	0	0	3527	0
Fl _t Permitted		0.973			0.957						0.998	
Satd. Flow (perm)	0	1761	0	0	1536	0	0	3537	0	0	3527	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	0%	0%	38%	2%	0%
Adj. Flow (vph)	331	7	256	45	0	5	0	191	49	6	163	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	594	0	0	50	0	0	240	0	0	169	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	42.3%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
 5: South Service Road East & QEW EB off-ramp/Davis Road

2035 AM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	288	6	223	39	0	4	0	166	43	5	142	0
Future Volume (Veh/h)	288	6	223	39	0	4	0	166	43	5	142	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	331	7	256	45	0	5	0	191	49	6	163	0
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	276	415	82	568	390	120	163			240		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	276	415	82	568	390	120	163			240		
tC, single (s)	7.5	6.5	6.9	7.9	6.5	6.9	4.1			4.9		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.6		
p0 queue free %	49	99	74	83	100	99	100			99		
cM capacity (veh/h)	654	528	968	268	545	915	1428			1098		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	594	50	127	113	60	109						
Volume Left	331	45	0	0	6	0						
Volume Right	256	5	0	49	0	0						
cSH	758	288	1700	1700	1098	1700						
Volume to Capacity	0.78	0.17	0.07	0.07	0.01	0.06						
Queue Length 95th (m)	59.7	4.7	0.0	0.0	0.1	0.0						
Control Delay (s)	24.7	20.1	0.0	0.0	0.9	0.0						
Lane LOS	C	C			A							
Approach Delay (s)	24.7	20.1	0.0		0.3							
Approach LOS	C	C										
Intersection Summary												
Average Delay			14.9									
Intersection Capacity Utilization			42.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R>	<	<LT	T	T	T	T	T	T	R>
Maximum Queue (m)	65.2	121.4	96.8	100.6	66.4	72.0	71.5	215.9	225.8	233.6	239.2
Average Queue (m)	7.3	117.1	62.4	65.9	25.5	30.9	21.9	90.7	127.1	226.7	229.1
95th Queue (m)	44.2	119.5	91.0	95.0	51.0	59.5	50.3	148.8	234.3	232.5	235.1
Link Distance (m)		112.3	173.7	173.7	275.5	275.5	275.5	222.0	222.0	222.0	222.0
Upstream Blk Time (%)		98						0	2	34	65
Queuing Penalty (veh)		0						0	0	0	0
Storage Bay Dist (m)	65.0										
Storage Blk Time (%)		96		16			0				
Queuing Penalty (veh)		6		46			0				

Intersection: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	<	<	R	T	T	T	T	T	T
Maximum Queue (m)	197.9	220.1	214.9	42.2	45.2	47.0	140.3	136.5	90.4
Average Queue (m)	147.2	174.5	111.2	18.9	24.3	24.0	65.2	61.4	49.3
95th Queue (m)	200.3	234.0	212.0	35.3	41.8	42.3	107.8	102.3	80.3
Link Distance (m)		209.2	209.2	295.8	295.8	295.8	275.5	275.5	275.5
Upstream Blk Time (%)		9	2						
Queuing Penalty (veh)		0	0						
Storage Bay Dist (m)	175.0								
Storage Blk Time (%)	0	14						2	
Queuing Penalty (veh)	2	65						8	

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	R	L	T	T	TR	L	T
Maximum Queue (m)	154.0	182.5	176.6	42.1	55.9	37.2	112.6	210.8	230.2	261.2	74.9	177.6
Average Queue (m)	121.0	145.6	73.4	16.9	22.7	17.3	34.2	122.9	186.3	214.9	54.2	96.2
95th Queue (m)	168.0	194.2	165.8	33.3	45.5	31.3	69.3	196.1	246.3	287.7	88.9	150.0
Link Distance (m)		171.6	171.6		93.4	93.4		236.4	236.4	236.4		295.8
Upstream Blk Time (%)		15	7					0	0	18		
Queuing Penalty (veh)		0	0					0	1	100		
Storage Bay Dist (m)	130.0			55.0			120.0				55.0	
Storage Blk Time (%)	2	30			1			3			10	30
Queuing Penalty (veh)	7	92			1			3			58	83

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (m)	173.4	182.5
Average Queue (m)	91.8	105.2
95th Queue (m)	143.9	167.1
Link Distance (m)	295.8	295.8
Upstream Blk Time (%)		0
Queuing Penalty (veh)		2
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	T	R	L	T	TR	L
Maximum Queue (m)	95.0	105.0	266.1	253.2	38.8	127.6	138.6	74.0	46.4	109.5	129.5	81.6
Average Queue (m)	93.4	104.4	233.6	188.4	8.2	75.6	84.3	34.1	20.7	60.1	81.3	48.8
95th Queue (m)	100.3	106.3	312.0	292.6	27.8	112.0	153.3	106.5	39.3	101.6	115.7	78.7
Link Distance (m)			249.6	249.6		141.5	141.5					203.7
Upstream Blk Time (%)			55	0		0	10					
Queuing Penalty (veh)			0	0		0	0					
Storage Bay Dist (m)	85.0	85.0			85.0			85.0	40.0	40.0		90.0
Storage Blk Time (%)	25	78	0			6	1	13	2	9	52	0
Queuing Penalty (veh)	73	225	1			2	7	34	6	24	149	2

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	98.2	84.7	64.4
Average Queue (m)	53.0	35.1	16.1
95th Queue (m)	86.1	70.6	40.3
Link Distance (m)	236.4	236.4	236.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)	1		
Queuing Penalty (veh)	5		

Intersection: 5: South Service Road East & QEW EB off-ramp/Davis Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	T	TR	LT	T
Maximum Queue (m)	45.3	20.9	19.5	26.2	26.7	17.8
Average Queue (m)	30.8	5.9	7.8	12.7	12.4	6.0
95th Queue (m)	46.9	16.0	17.2	23.0	22.7	15.0
Link Distance (m)	40.7	70.7	102.9	102.9	211.2	211.2
Upstream Blk Time (%)	3					
Queuing Penalty (veh)	0					
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: Davis Road & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	5.6	16.7
Average Queue (m)	0.2	5.7
95th Queue (m)	2.3	14.2
Link Distance (m)	70.7	36.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1002

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	13	127	122	511	153	360	3484	669	1593	1235	11
Future Volume (vph)	13	127	122	511	153	360	3484	669	1593	1235	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0	0.0				60.0		80.0		0.0	
Storage Lanes	1	1				1		1		1	
Taper Length (m)	15.0										
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Ped Bike Factor						0.99		0.96		0.94	
Frt		0.850				0.850		0.850		0.850	
Flt Protected	0.950			0.950	0.973						
Satd. Flow (prot)	1825	1609	0	1717	1758	1585	5142	1601	5142	1601	0
Flt Permitted	0.950			0.950	0.973						
Satd. Flow (perm)	1825	1609	0	1717	1758	1563	5142	1538	5142	1506	0
Right Turn on Red			No			Yes		Yes			Yes
Satd. Flow (RTOR)						244		403		70	
Link Speed (k/h)					40		60		60		
Link Distance (m)					324.6		330.4		230.9		
Travel Time (s)					29.2		19.8		13.9		
Confl. Peds. (#/hr)						8		8		10	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	2%	1%	1%	1%	3%	2%	2%	2%	2%	0%
Adj. Flow (vph)	13	127	122	511	153	360	3484	669	1593	1235	11
Shared Lane Traffic (%)				36%							
Lane Group Flow (vph)	13	249	0	327	337	360	3484	669	1593	1246	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)					3.7		2.0		2.0		
Link Offset(m)					0.0		0.0		0.0		
Crosswalk Width(m)					4.9		4.9		4.9		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	14	24		14		14		14	14
Number of Detectors	1	1		1	2	1	2	1	2	1	
Detector Template	Left	Right		Left	Thru	Right	Thru	Right	Thru	Right	
Leading Detector (m)	6.1	6.1		6.1	30.5	6.1	30.5	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	6.1		6.1	1.8	6.1	1.8	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)					28.7		28.7		28.7		
Detector 2 Size(m)					1.8		1.8		1.8		
Detector 2 Type					Cl+Ex		Cl+Ex		Cl+Ex		
Detector 2 Channel											
Detector 2 Extend (s)					0.0		0.0		0.0		

1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

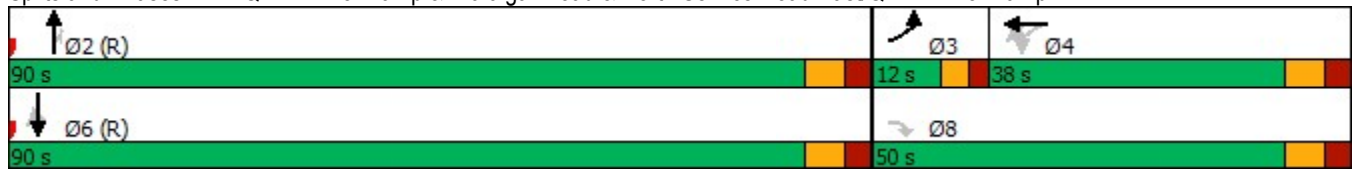


Lane Group	EBL	EBR	EBR2	WBL2	WBT	WBR	NBT	NBR	SBT	SBR	SBR2
Turn Type	Prot	Perm		Perm	NA	Free	NA	Perm	NA	Perm	
Protected Phases	3				4		2		6		
Permitted Phases		8		4		Free		2		6	
Detector Phase	3	8		4	4		2	2	6	6	
Switch Phase											
Minimum Initial (s)	7.0	10.0		5.0	5.0		28.0	28.0	28.0	28.0	
Minimum Split (s)	12.0	22.5		38.0	38.0		35.0	35.0	35.0	35.0	
Total Split (s)	12.0	50.0		38.0	38.0		90.0	90.0	90.0	90.0	
Total Split (%)	8.6%	35.7%		27.1%	27.1%		64.3%	64.3%	64.3%	64.3%	
Maximum Green (s)	7.0	43.0		31.0	31.0		83.0	83.0	83.0	83.0	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-2.0	-3.0		-3.0	-3.0		-3.0	-3.0	-3.0	-3.0	
Total Lost Time (s)	3.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	
Lead/Lag	Lead			Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	
Walk Time (s)				7.0	7.0		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)				24.0	24.0		21.0	21.0	21.0	21.0	
Pedestrian Calls (#/hr)				0	0		0	0	0	0	
Act Effct Green (s)	9.0	37.5		32.7	32.7	140.0	94.5	94.5	94.5	94.5	
Actuated g/C Ratio	0.06	0.27		0.23	0.23	1.00	0.68	0.68	0.68	0.68	
v/c Ratio	0.11	0.58		0.82	0.82	0.23	1.00	0.57	0.46	1.20	
Control Delay	64.1	48.8		67.5	67.8	0.3	41.5	11.3	12.1	122.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	3.8	0.0	0.0	0.0	
Total Delay	64.1	48.8		67.5	67.8	0.3	45.2	11.3	12.1	122.0	
LOS	E	D		E	E	A	D	B	B	F	
Approach Delay					44.0		39.8		60.3		
Approach LOS					D		D		E		























Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.20
Intersection Signal Delay:	47.7
Intersection LOS:	D
Intersection Capacity Utilization	123.6%
ICU Level of Service	H
Analysis Period (min)	15

Splits and Phases: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp



2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

											
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	 				  			  			
Traffic Volume (vph)	1053	0	725	0	3016	624	0	1893	375	0	0
Future Volume (vph)	1053	0	725	0	3016	624	0	1893	375	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		175.0	0.0	0.0		75.0	0.0		65.0	0.0	0.0
Storage Lanes		1	1	0		1	0		1	0	0
Taper Length (m)		25.0		7.6			7.6			2.5	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor			0.98			0.97			0.94		
Frt			0.850			0.850			0.850		
Flt Protected	0.950										
Satd. Flow (prot)	3506	0	1617	0	5142	1601	0	5142	1617	0	0
Flt Permitted	0.950										
Satd. Flow (perm)	3506	0	1590	0	5142	1557	0	5142	1517	0	0
Right Turn on Red			Yes			Yes			Yes		
Satd. Flow (RTOR)			23			351			295		
Link Speed (k/h)		40			60			60		40	
Link Distance (m)		226.4			327.5			330.4		203.9	
Travel Time (s)		20.4			19.7			19.8		18.4	
Confl. Peds. (#/hr)			2			2			11		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	1%	0%	2%	2%	0%	2%	1%	0%	0%
Adj. Flow (vph)	1053	0	725	0	3016	624	0	1893	375	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	1053	0	725	0	3016	624	0	1893	375	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(m)		7.4			2.0			2.0		0.0	
Link Offset(m)		0.0			0.0			0.0		0.0	
Crosswalk Width(m)		4.9			4.9			4.9		1.6	
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	24	14	24		14	24		14	24	14
Number of Detectors	1		1		2	1		2	1		
Detector Template	Left		Right		Thru	Right		Thru	Right		
Leading Detector (m)	6.1		6.1		30.5	6.1		30.5	6.1		
Trailing Detector (m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Size(m)	6.1		6.1		1.8	6.1		1.8	6.1		
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0		0.0	0.0		0.0	0.0		
Detector 2 Position(m)					28.7			28.7			
Detector 2 Size(m)					1.8			1.8			
Detector 2 Type					Cl+Ex			Cl+Ex			
Detector 2 Channel											
Detector 2 Extend (s)					0.0			0.0			

Lanes, Volumes, Timings
 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

2035 PM Future Total

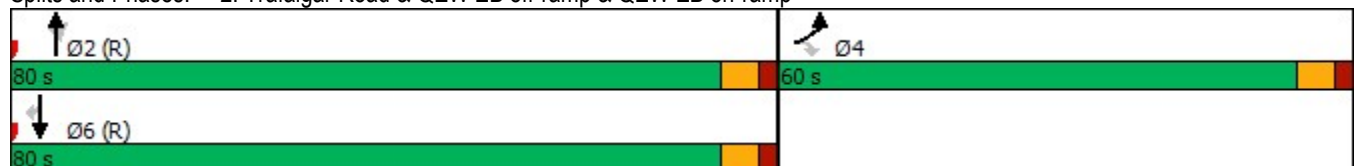


Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Turn Type	Prot		Perm		NA	Perm		NA	Perm		
Protected Phases	4				2			6			
Permitted Phases			4			2			6		
Detector Phase	4		4		2	2		6	6		
Switch Phase											
Minimum Initial (s)	10.0		10.0		28.0	28.0		28.0	28.0		
Minimum Split (s)	24.0		24.0		34.0	34.0		34.0	34.0		
Total Split (s)	60.0		60.0		80.0	80.0		80.0	80.0		
Total Split (%)	42.9%		42.9%		57.1%	57.1%		57.1%	57.1%		
Maximum Green (s)	54.0		54.0		74.0	74.0		74.0	74.0		
Yellow Time (s)	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		
Lost Time Adjust (s)	-3.0		-3.0		-3.0	-3.0		-3.0	-3.0		
Total Lost Time (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0	3.0		
Recall Mode	None		None		C-Max	C-Max		C-Max	C-Max		
Walk Time (s)	7.0		7.0		7.0	7.0		7.0	7.0		
Flash Dont Walk (s)	11.0		11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0		0	0		0	0		
Act Effct Green (s)	57.0		57.0		77.0	77.0		77.0	77.0		
Actuated g/C Ratio	0.41		0.41		0.55	0.55		0.55	0.55		
v/c Ratio	0.74		1.10		1.07	0.62		0.67	0.39		
Control Delay	39.0		103.0		73.1	18.0		28.9	10.0		
Queue Delay	0.9		0.0		14.4	0.0		0.0	0.0		
Total Delay	40.0		103.0		87.5	18.0		28.9	10.0		
LOS	D		F		F	B		C	A		
Approach Delay		65.7			75.6			25.8			
Approach LOS		E			E			C			

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 51.8 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 58.6
 Intersection LOS: E
 Intersection Capacity Utilization 95.0%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

























3: Trafalgar Road & Cross Avenue/South Service Road East

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	915	70	124	124	97	368	155	1923	42	118	1555	250
Future Volume (vph)	915	70	124	124	97	368	155	1923	42	118	1555	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		0.0	55.0		0.0	120.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	25.0			30.0			30.0			20.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor		0.99						1.00			1.00	
Frt		0.904				0.850		0.997			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3372	1619	0	1789	1883	1585	1772	5175	0	1789	5082	0
Flt Permitted	0.950			0.950			0.950			0.073		
Satd. Flow (perm)	3372	1619	0	1789	1883	1585	1772	5175	0	137	5082	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		63				129		3			25	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		191.2			115.5			274.1			327.5	
Travel Time (s)		13.8			8.3			19.7			23.6	
Confl. Peds. (#/hr)			8						5			8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	9%	4%	2%	2%	3%	3%	1%	0%	2%	0%	5%
Adj. Flow (vph)	915	70	124	124	97	368	155	1923	42	118	1555	250
Shared Lane Traffic (%)												
Lane Group Flow (vph)	915	194	0	124	97	368	155	1965	0	118	1805	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.4			5.4			5.7			5.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

2035 PM Future Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	583	496	74	61	651	943	64	488	56	747	518	454
Future Volume (vph)	583	496	74	61	651	943	64	488	56	747	518	454
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		0.0	85.0		85.0	40.0		0.0	90.0		0.0
Storage Lanes	2		0	1		1	2		0	1		1
Taper Length (m)	20.0			7.5			85.0			15.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Ped Bike Factor		0.99				0.98		1.00				0.97
Frt		0.981				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3437	3443	0	1789	3544	1585	1755	3512	0	3471	1883	1570
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3437	3443	0	1789	3544	1553	1755	3512	0	3471	1883	1527
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				592		8				418
Link Speed (k/h)		60			60			50				50
Link Distance (m)		267.7			164.8			224.3				274.1
Travel Time (s)		16.1			9.9			16.1				19.7
Confl. Peds. (#/hr)			11			29			3			12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	6%	2%	3%	3%	4%	2%	4%	2%	2%	4%
Adj. Flow (vph)	583	496	74	61	651	943	64	488	56	747	518	454
Shared Lane Traffic (%)												
Lane Group Flow (vph)	583	570	0	61	651	943	64	544	0	747	518	454
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.4			7.4			7.4				7.4
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.9			4.9			4.9				4.9
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7				28.7
Detector 2 Size(m)		1.8			1.8			1.8				1.8
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
4: Trafalgar Road & Cornwall Road

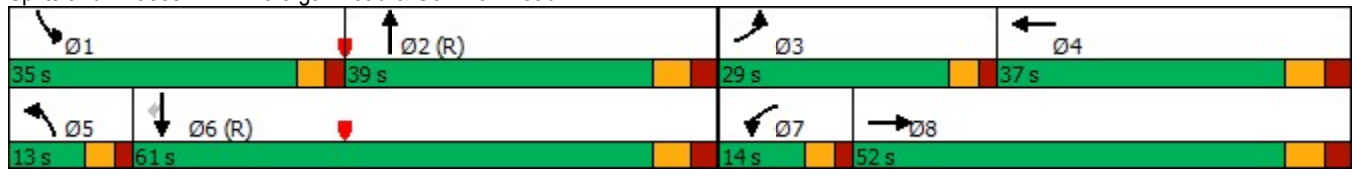
2035 PM Future Total

	↖		→		↗		↖		←		↗		↖		↑		↗		↘		↓		↘		
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR													
Turn Type	Prot	NA		Prot	NA	Free	Prot	NA		Prot	NA	Perm													
Protected Phases	3	8		7	4		5	2		1	6														
Permitted Phases						Free																			6
Detector Phase	3	8		7	4		5	2		1	6														6
Switch Phase																									
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	20.0		7.0	20.0														20.0
Minimum Split (s)	12.0	37.0		12.0	37.0		12.0	39.0		12.0	39.0														39.0
Total Split (s)	29.0	52.0		14.0	37.0		13.0	39.0		35.0	61.0														61.0
Total Split (%)	20.7%	37.1%		10.0%	26.4%		9.3%	27.9%		25.0%	43.6%														43.6%
Maximum Green (s)	24.0	45.0		9.0	30.0		8.0	32.0		30.0	54.0														54.0
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0														3.0
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-3.0		-2.0	-3.0		-2.0	-3.0														-3.0
Total Lost Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0														4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag														
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes														
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0														3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max														
Walk Time (s)		7.0			7.0			7.0			7.0														7.0
Flash Dont Walk (s)		23.0			23.0			25.0			25.0														25.0
Pedestrian Calls (#/hr)		0			0			0			0														0
Act Effct Green (s)	26.0	49.5		10.5	31.6	140.0	10.0	36.1		32.3	60.8														60.8
Actuated g/C Ratio	0.19	0.35		0.08	0.23	1.00	0.07	0.26		0.23	0.43														0.43
v/c Ratio	0.91	0.46		0.46	0.81	0.61	0.52	0.60		0.93	0.63														0.51
Control Delay	75.7	36.1		73.2	60.3	1.8	77.7	48.4		51.6	45.9														24.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0														0.0
Total Delay	75.7	36.1		73.2	60.3	1.8	77.7	48.4		51.6	45.9														24.1
LOS	E	D		E	E	A	E	D		D	D														C
Approach Delay		56.1			27.4			51.5			42.6														
Approach LOS		E			C			D			D														

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 57.4 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 41.8 Intersection LOS: D
 Intersection Capacity Utilization 100.3% ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 4: Trafalgar Road & Cornwall Road

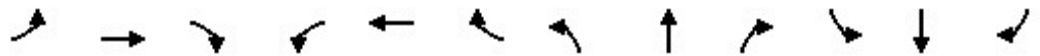


5: South Service Road East & QEW EB off-ramp/Davis Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	56	8	28	54	0	4	0	157	41	10	246	0
Future Volume (vph)	56	8	28	54	0	4	0	157	41	10	246	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor								1.00				
Frt		0.959			0.990			0.969				
Flt Protected		0.970			0.956						0.998	
Satd. Flow (prot)	0	1787	0	0	1534	0	0	3412	0	0	3525	0
Flt Permitted		0.775			0.835						0.946	
Satd. Flow (perm)	0	1428	0	0	1340	0	0	3412	0	0	3341	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			36			47				
Link Speed (k/h)		50			50			50				50
Link Distance (m)		53.3			90.2			119.9				218.3
Travel Time (s)		3.8			6.5			8.6				15.7
Confl. Peds. (#/hr)									2			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	4%	0%	38%	2%	0%
Adj. Flow (vph)	64	9	32	62	0	5	0	180	47	11	283	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	105	0	0	67	0	0	227	0	0	294	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2			2		1	2	
Detector Template	Left	Thru		Left	Thru			Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5			30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8			1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8						6		

5: South Service Road East & QEW EB off-ramp/Davis Road

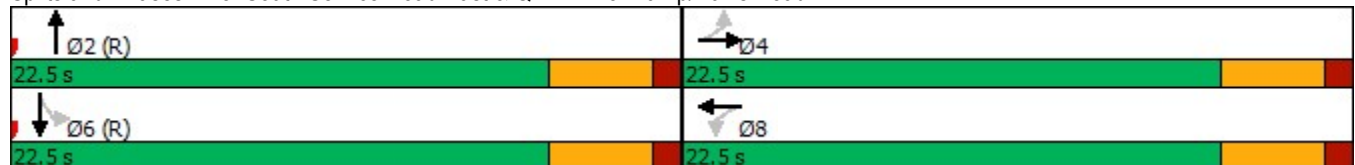


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8			2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5			22.5		22.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5			22.5		22.5	22.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%			50.0%		50.0%	50.0%	
Maximum Green (s)	18.0	18.0		18.0	18.0			18.0		18.0	18.0	
Yellow Time (s)	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	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)		7.8			7.7			34.1			34.1	
Actuated g/C Ratio		0.17			0.17			0.76			0.76	
v/c Ratio		0.38			0.26			0.09			0.12	
Control Delay		15.9			11.6			3.0			3.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		15.9			11.6			3.0			3.5	
LOS		B			B			A			A	
Approach Delay		15.9			11.6			3.0			3.5	
Approach LOS		B			B			A			A	

Intersection Summary

Area Type: Other
 Cycle Length: 45
 Actuated Cycle Length: 45
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.38
 Intersection Signal Delay: 6.0
 Intersection LOS: A
 Intersection Capacity Utilization 27.4%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 5: South Service Road East & QEW EB off-ramp/Davis Road



Lanes, Volumes, Timings
6: Davis Road & Site Access

2035 PM Future Total



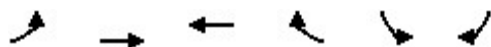
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	36	23	12	0	0	46
Future Volume (vph)	36	23	12	0	0	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.865	
Fl _t Protected		0.970				
Satd. Flow (prot)	0	1827	1883	0	1629	0
Fl _t Permitted		0.970				
Satd. Flow (perm)	0	1827	1883	0	1629	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		90.2	144.8		45.4	
Travel Time (s)		6.5	10.4		3.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	25	13	0	0	50
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	64	13	0	50	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
6: Davis Road & Site Access

2035 PM Future Total



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	36	23	12	0	0	46
Future Volume (Veh/h)	36	23	12	0	0	46
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	25	13	0	0	50
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)		90				
pX, platoon unblocked						
vC, conflicting volume	13				116	13
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				116	13
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				100	95
cM capacity (veh/h)	1606				859	1067
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	64	13	50			
Volume Left	39	0	0			
Volume Right	0	0	50			
cSH	1606	1700	1067			
Volume to Capacity	0.02	0.01	0.05			
Queue Length 95th (m)	0.6	0.0	1.1			
Control Delay (s)	4.5	0.0	8.5			
Lane LOS	A		A			
Approach Delay (s)	4.5	0.0	8.5			
Approach LOS			A			
Intersection Summary						
Average Delay			5.6			
Intersection Capacity Utilization		19.9%		ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
 23: South Service Road East & Access

2035 PM Future Total



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	2	0	198	325	3
Future Volume (vph)	2	2	0	198	325	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.865			0.999	
Flt Protected	0.950					
Satd. Flow (prot)	0	1629	0	3579	3575	0
Flt Permitted	0.950					
Satd. Flow (perm)	0	1629	0	3579	3575	0
Link Speed (k/h)	48			50	48	
Link Distance (m)	46.1			97.6	22.2	
Travel Time (s)	3.5			7.0	1.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	2	0	215	353	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	2	0	215	356	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 23: South Service Road East & Access

















2035 PM Future Total



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↓	
Traffic Volume (veh/h)	2	2	0	198	325	3
Future Volume (Veh/h)	2	2	0	198	325	3
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)	2	2	0	215	353	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				402	22	
pX, platoon unblocked	0.98	0.98	0.98			
vC, conflicting volume	462	178	356			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	419	130	311			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	553	880	1225			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	4	108	108	235	121	
Volume Left	2	0	0	0	0	
Volume Right	2	0	0	0	3	
cSH	679	1700	1700	1700	1700	
Volume to Capacity	0.01	0.06	0.06	0.14	0.07	
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	
Control Delay (s)	10.3	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	10.3	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay	0.1					
Intersection Capacity Utilization	Err%			ICU Level of Service	H	
Analysis Period (min)	15					





















Lanes, Volumes, Timings
 5: South Service Road East & QEW EB off-ramp/Davis Road

2035 PM Future Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	7	28	50	0	4	0	157	38	10	246	0
Future Volume (vph)	56	7	28	50	0	4	0	157	38	10	246	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor												
Frt		0.958			0.989			0.971				
Flt Protected		0.970			0.956							0.998
Satd. Flow (prot)	0	1785	0	0	1534	0	0	3434	0	0	3525	0
Flt Permitted		0.970			0.956							0.998
Satd. Flow (perm)	0	1785	0	0	1534	0	0	3434	0	0	3525	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.3			90.2			119.9			218.3	
Travel Time (s)		3.8			6.5			8.6			15.7	
Confl. Peds. (#/hr)									2			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	20%	0%	0%	0%	4%	0%	38%	2%	0%
Adj. Flow (vph)	64	8	32	57	0	5	0	180	44	11	283	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	104	0	0	62	0	0	224	0	0	294	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	25.6%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
 5: South Service Road East & QEW EB off-ramp/Davis Road

2035 PM Future Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (veh/h)	56	7	28	50	0	4	0	157	38	10	246	0
Future Volume (Veh/h)	56	7	28	50	0	4	0	157	38	10	246	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	64	8	32	57	0	5	0	180	44	11	283	0
Pedestrians					2							
Lane Width (m)					3.7							
Walking Speed (m/s)					1.1							
Percent Blockage					0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	400	531	142	404	509	114	283			226		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	400	531	142	404	509	114	283			226		
tC, single (s)	7.5	6.5	6.9	7.9	6.5	6.9	4.1			4.9		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.6		
p0 queue free %	88	98	96	88	100	99	100			99		
cM capacity (veh/h)	532	451	887	461	464	922	1291			1112		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	104	62	120	104	105	189						
Volume Left	64	57	0	0	11	0						
Volume Right	32	5	0	44	0	0						
cSH	597	481	1700	1700	1112	1700						
Volume to Capacity	0.17	0.13	0.07	0.06	0.01	0.11						
Queue Length 95th (m)	4.8	3.3	0.0	0.0	0.2	0.0						
Control Delay (s)	12.3	13.6	0.0	0.0	0.9	0.0						
Lane LOS	B	B			A							
Approach Delay (s)	12.3	13.6	0.0		0.3							
Approach LOS	B	B										
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			25.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R>	<	<LT	R	T	T	T	R	T	T	T
Maximum Queue (m)	66.4	114.2	115.5	149.4	120.0	279.5	282.4	276.8	140.0	138.2	224.0	234.2
Average Queue (m)	12.5	92.9	73.3	89.5	16.2	218.1	222.9	226.8	131.5	53.5	85.3	226.9
95th Queue (m)	55.3	140.9	107.1	128.3	83.0	282.0	284.8	290.9	186.3	95.1	201.1	230.5
Link Distance (m)		112.3	307.7	307.7		275.5	275.5	275.5		222.1	222.1	222.1
Upstream Blk Time (%)		33				1	0	1		0	1	41
Queuing Penalty (veh)		0				7	5	8		0	0	0
Storage Bay Dist (m)	65.0				60.0				80.0			
Storage Blk Time (%)		58		34				34				
Queuing Penalty (veh)		8		122				227				

Intersection: 1: QEW WB on-ramp & Trafalgar Road & North Service Road East/QEW WB off-ramp

Movement	SB
Directions Served	R>
Maximum Queue (m)	238.0
Average Queue (m)	228.2
95th Queue (m)	233.1
Link Distance (m)	222.1
Upstream Blk Time (%)	83
Queuing Penalty (veh)	0
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Trafalgar Road & QEW EB off-ramp & QEW EB on-ramp

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	<	<	R	T	T	T	R	T	T	T
Maximum Queue (m)	199.6	222.5	220.1	278.7	292.5	297.4	130.0	104.2	112.4	102.4
Average Queue (m)	147.7	206.7	206.1	227.8	239.4	257.1	124.7	66.4	67.9	60.5
95th Queue (m)	218.2	248.2	255.0	280.3	296.2	299.5	166.7	97.6	99.6	91.9
Link Distance (m)		209.2	209.2	295.8	295.8	295.8		275.5	275.5	275.5
Upstream Blk Time (%)		29	38	0	0	1				
Queuing Penalty (veh)		0	0	0	1	8				
Storage Bay Dist (m)	175.0						75.0			
Storage Blk Time (%)	0	13				46				5
Queuing Penalty (veh)	2	69				288				20

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	EB	EB	EB	WB	WB	WB	B22	B22	NB	NB	NB	NB
Directions Served	L	L	TR	L	T	R	T	T	L	T	T	TR
Maximum Queue (m)	155.0	189.5	185.6	48.5	44.3	111.1	10.7	59.7	124.0	223.9	237.3	258.8
Average Queue (m)	153.4	179.7	170.2	21.5	16.8	91.7	0.4	11.6	47.7	121.8	158.5	175.5
95th Queue (m)	158.0	186.6	216.6	39.5	35.3	115.2	7.5	41.1	100.7	212.3	251.1	271.8
Link Distance (m)		171.6	171.6		93.4	93.4	173.1	173.1		236.4	236.4	236.4
Upstream Blk Time (%)		70	29			33				0	0	7
Queuing Penalty (veh)		0	0			53				0	2	47
Storage Bay Dist (m)	130.0			55.0					120.0			
Storage Blk Time (%)	11	66		0	0				0	3		
Queuing Penalty (veh)	52	303		0	0				1	5		

Intersection: 3: Trafalgar Road & Cross Avenue/South Service Road East

Movement	SB	SB	SB	SB
Directions Served	L	T	T	TR
Maximum Queue (m)	74.8	167.8	151.2	153.9
Average Queue (m)	38.5	94.8	89.9	95.6
95th Queue (m)	81.5	154.4	142.2	137.3
Link Distance (m)		295.8	295.8	295.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	55.0			
Storage Blk Time (%)	0	22		
Queuing Penalty (veh)	0	25		

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	T	T	R	L	T	TR	L
Maximum Queue (m)	95.0	105.0	265.2	251.9	92.4	144.1	149.5	92.5	57.8	120.8	140.8	104.8
Average Queue (m)	92.7	103.6	225.3	179.9	31.5	98.9	92.6	35.9	16.4	72.2	90.0	77.8
95th Queue (m)	101.3	111.7	328.6	296.0	84.6	143.6	149.1	109.6	37.7	108.7	127.4	108.9
Link Distance (m)			249.6	249.6		141.5	141.5					203.7
Upstream Blk Time (%)			52	0		1	4					
Queuing Penalty (veh)			0	0		0	0					
Storage Bay Dist (m)	85.0	85.0			85.0			85.0	40.0	40.0		90.0
Storage Blk Time (%)	29	69	0		0	17	4	2	1	19	57	4
Queuing Penalty (veh)	71	172	1		0	10	42	7	4	57	177	14

Intersection: 4: Trafalgar Road & Cornwall Road

Movement	SB	SB	SB
Directions Served	L	T	R
Maximum Queue (m)	174.9	158.1	141.7
Average Queue (m)	97.4	105.2	70.1
95th Queue (m)	179.5	177.7	120.2
Link Distance (m)	236.4	236.4	236.4
Upstream Blk Time (%)	2	1	0
Queuing Penalty (veh)	13	8	1
Storage Bay Dist (m)			
Storage Blk Time (%)	9		
Queuing Penalty (veh)	34		

Intersection: 5: South Service Road East & QEW EB off-ramp/Davis Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	T	TR	LT	T
Maximum Queue (m)	31.2	32.1	16.0	17.2	20.0	20.3
Average Queue (m)	13.7	11.2	2.8	4.6	5.1	5.6
95th Queue (m)	24.7	25.3	10.5	14.1	14.8	16.1
Link Distance (m)	40.7	70.7	102.9	102.9	211.2	211.2
Upstream Blk Time (%)	0					
Queuing Penalty (veh)	0					
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: Davis Road & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	1.8	17.2
Average Queue (m)	0.1	7.7
95th Queue (m)	1.3	15.1
Link Distance (m)	70.7	36.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1866

APPENDIX H

Excerpts – Background Transportation Reports

DRAFT

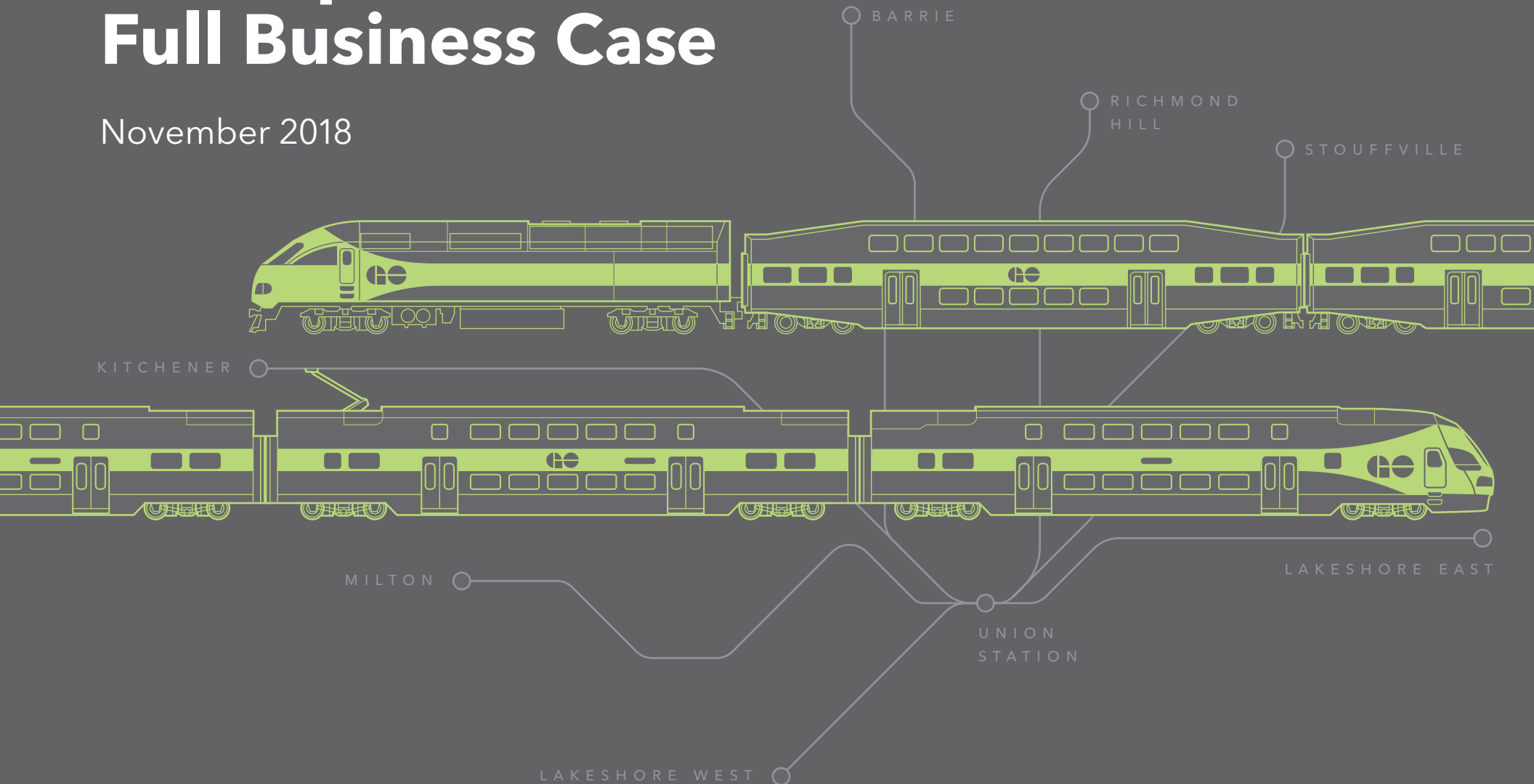
APPENDIX H.1

Excerpts – GO Expansion Full Business Case

DRAFT

GO Expansion Full Business Case

November 2018



LSW Lakeshore West

Lakeshore West Today

Lakeshore West is GO Rail’s most heavily used corridor, with 48,000 peak passengers and 16,000 mid-day, contra-peak, and all-day passengers. Large parts of the corridor have been urbanized since the 1950s but intensification continues especially around Oakville and Aldershot stations.

The Lakeshore West Line currently offers two-way all-day service between Union Station and Aldershot with trains arriving every 15-20 minutes in the peak period and every 30 minutes throughout the rest of the day and on evenings and weekends. Additionally, there are trains to Union Station from Hamilton in the morning and trains from Union Station to Hamilton in the evening.

Investment Summary

As part of GO Expansion, Lakeshore West will receive significant investment which is summarized in Table 3.2. The travel time and frequency improvements included in this program are illustrated in Figure 3.7.

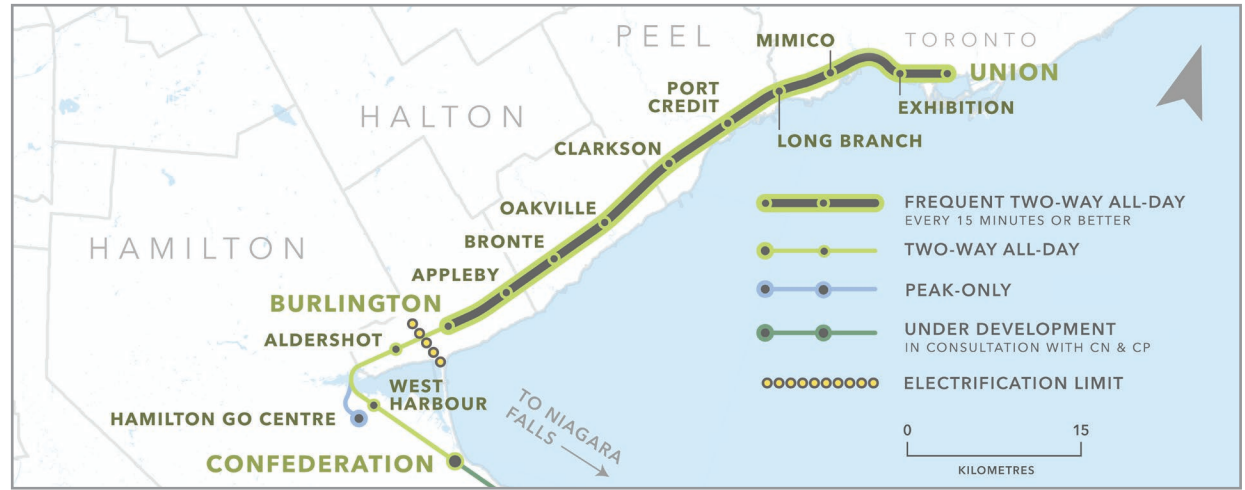


Table 3.2: GO Expansion Improvements to the Lakeshore West Line






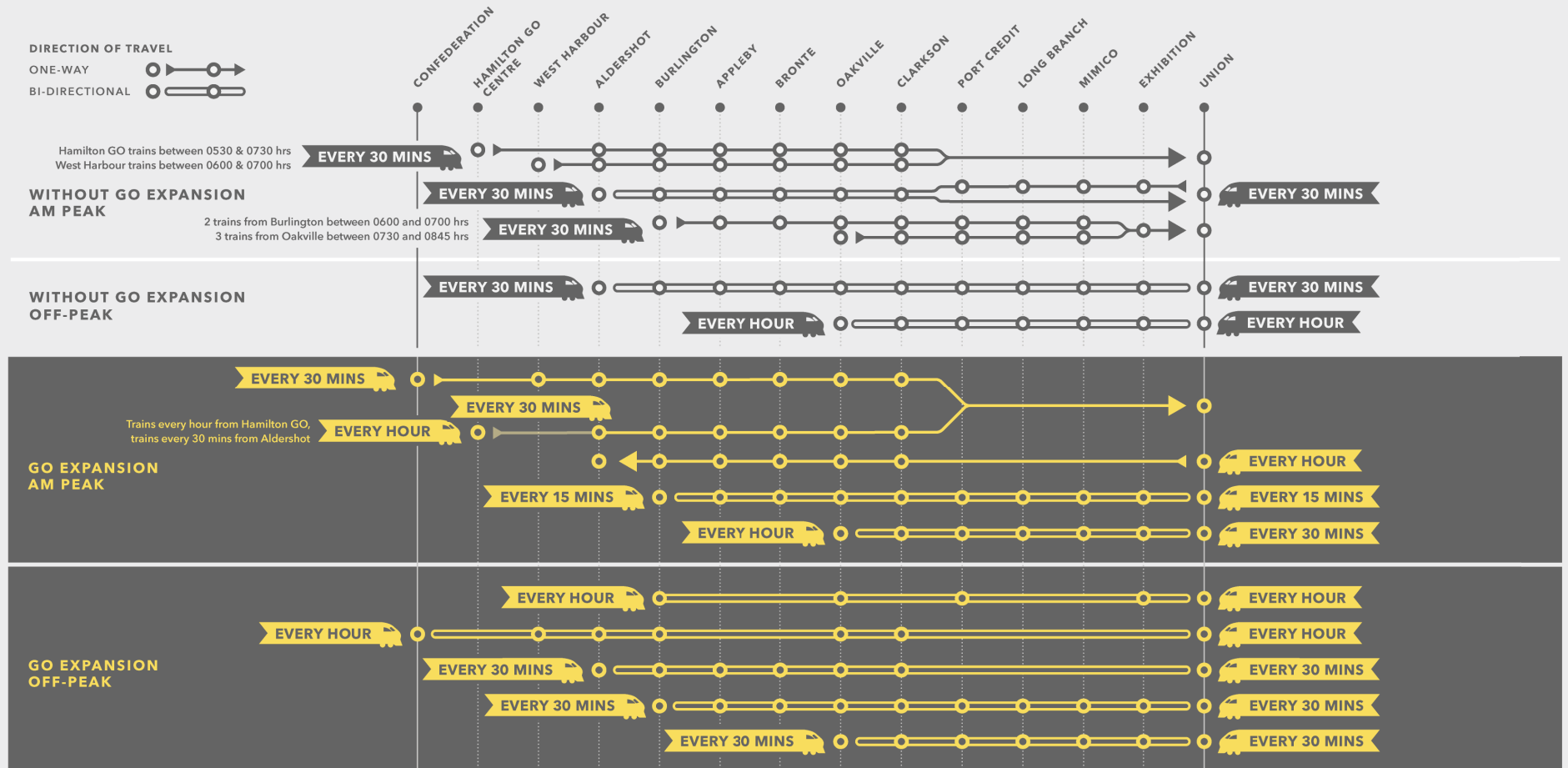
Program Element	Performance Objectives	Next Steps
 MORE ACCESSIBLE STATIONS	<ul style="list-style-type: none"> Customers can board and alight faster, reducing trip times by 2-5 minutes 	<ul style="list-style-type: none"> Improvements at: Exhibition, Mimico, Long Branch, Clarkson, Oakville, Bronte, Appleby, Burlington
 MORE ALL-DAY SERVICE	<ul style="list-style-type: none"> 282 weekday services Detailed service plan shown in Figure 3.5 Two-way all-day service between Union and Hamilton, fifteen minute service or better between Burlington and Union 	<ul style="list-style-type: none"> 20.4 km of new track, two new road/rail separations All-day EMU service comprises 2 tph stopping at all stations to/from Burlington, and 2 tph stopping at all stations to/from Oakville. All-day Aldershot trains stop at Burlington, Bronte, Appleby, Oakville and Clarkson offering a combined service from these stations, half of which are express from Oakville Oakville and Clarkson have 6 tph, comprising 2 express and 4 all stations. Port Credit and all stations to Union have 4 tph all day
 SERVICE IN BOTH DIRECTIONS		
 TRAINS EVERY 15 MINUTES		
 FASTER AND MORE EFFICIENT TRAINS	<ul style="list-style-type: none"> Up to 8% faster for electric locomotive services Up to 29% faster for EMU service 	<ul style="list-style-type: none"> Electrification from Union Station to Burlington Station (205 km of electrified track) Use of electric rolling stock (locomotives and EMUs)

Figure 3.7: Lakeshore West Reference Concept Design Frequency and Speed Improvements



BEST TIME TO UNION STATION (MINS)



APPENDIX H.2

Excerpts – Region of Halton Transportation Master Plan

DRAFT



The **Road** to **Change**

Halton Region Transportation Master Plan

2031

TDM initiatives do not on their own address the forecasted travel demand to 2031 but these should be considered an element of the overall transportation solution to ensure the efficient movement of people and to encourage the use of alternative modes of travel while minimizing impacts on socio-economic and natural environments.

5.5 Active Transportation

Active Transportation refers primarily to walking and cycling. Active Transportation can provide health benefits to individuals by increasing physical activity and can benefit the environment by conserving energy and reducing emissions that impact air quality.

The attractiveness of walking and cycling is influenced by:

- The distance between origin and destination;
- Individual attitudes towards walking and cycling;
- The availability of pedestrian and cycle facilities that are:
 - Maintained year round;
 - Direct and continuous; and
 - Physically safe with respect to pedestrian/cyclist interaction with other pedestrians/cyclists as well as interaction with vehicles; and
- Suitable facilities such as benches, water fountains, bicycle parking/storage, personal showers and change rooms at a destination.

According to the 2006 Transportation Tomorrow Survey, approximately 34 percent of current “auto drive” trips during the PM peak period are short trips under 5 km in length, with a further 30 percent of trips falling in the 5-10 km and 10-15 km trip length range. These represent the target market for shifts to Active Transportation modes as longer trips do not become reasonable or feasible for “average” travellers.

The success of Active Transportation depends on the ability to attract those individuals that are driving their car (as a single occupant) to a destination which is within 5 to 10 km.

Table 5.2 summarises the distribution of trip length for auto driver trips made by Halton residents in 2006 (according to the 2006 Transportation Tomorrow Survey).

Previously, the Region coordinated cycling through the former Halton Regional Cycling Advisory Committee. A broader focus is required to account for the other Active Transportation modes including walking, roller blades and scooters. In December 2010 Regional Council dissolved the Regional Cycling Committee and approved the establishment of a new Regional Active Transportation Advisory Committee. The Region’s “Active Transportation Advisory Committee” (ATAC) will define a coordinated approach to all non-motorised travel needs across the Region. The ATAC will play an active role in establishing a strategy defining educational and outreach initiatives and infrastructure improvements to promote increased non-motorised travel throughout the Region.

7.3 Public Transit

The evaluation of transportation demand in the Region to 2031 determined that in order to maintain current levels of service and establish a transportation system that recognises the vision and guiding principles established through ROPA 38 and this TMP, 15 to 20 percent of all peak period trips must be accommodated by public transit by 2031. Meeting this objective will, however, require a significant enhancement of transit services over the planning period, a stronger commitment to transit-supportive development and policies, the implementation of a transit supportive road network and implementation of transit improvements by neighbouring municipalities and Metrolinx in accordance with the Metrolinx Regional Transportation Plan (The Big Move).

To ensure that the proposed Regional road network effectively accommodates the transit services required to achieve the 2031 transportation system objectives, a conceptual Transit Strategy was developed with the local municipal transit authorities to ensure transit supportive initiatives within the Regional roadway network are provided to accommodate:

- Implementation of a Bus Rapid Transit (BRT) service along Dundas Street and Trafalgar Road;
- Protection for higher order transit corridors within key areas of Halton Region; and
- Development of a Transit Priority Program and implement measures along key corridors and nodes.

The TMP analysis considered a gradual transit increase over the next 20 years as presented in **Table 7.1**.

Table 7.1 - Transit Mode Share Targets by Horizon

Horizon Year	Transit Mode Share Target		
	Internal Trips	External Trips	Total
2016	2%	7%	5%
2021	6%	20%	10%
2026	8%	30%	15%
2031	11%	30%	20%

A transit servicing concept was developed to demonstrate the feasibility of achieving a 20 percent transit mode share by 2031. This concept evolved from discussions with the Municipal Advisory Group and is an initial step in addressing the anticipated travel needs of the Region and its local municipalities. Further discussion among these stakeholders will be required to define transit servicing to 2031.

Higher order transit corridors were identified within Halton Region to increase transit service usage and help meet the region-wide Transit Mode Split targets. Three types of corridors were considered, each providing a different level of transit service:

- Transit in reserved rights-of-way;
- Transit in semi-exclusive/exclusive rights-of-way; and
- Corridors with transit priority.

Transit in reserved rights-of-way - This is the highest level of priority for transit. In this corridor type, transit vehicles operate in an exclusive travel lane unimpeded by traffic (with the exception of intersection crossings). Transit signal priority features are also placed at signalised intersections to give transit vehicles priority and improve the reliability of service. An example of this type of corridor is the proposed Dundas Bus Rapid Transit corridor.

Transit in semi-exclusive/exclusive rights-of-way – This is the second highest level of priority for transit. In this corridor type, buses operate in high occupancy vehicle lanes; shared with taxis and automobiles with 2+ or 3+ occupants. Transit signal priority measures are placed at signalised intersections (where warranted). An example of this corridor type includes Eglinton Avenue East in Toronto.

Corridors with transit priority – This is the third highest level of priority for transit. In this corridor type, buses operate in mixed traffic lanes. Transit priority features such as signal priority and queue jump lanes are implemented at specific intersections along the corridor to improve service reliability and decrease travel time. An example of this is the first phase of the Züm higher order transit service on Queen Street in Brampton.

The transit servicing concept is presented in **Figure 7.1**.

7.3.1 External Transit Demand

The external transit demand will largely be met by planned improvements in the GO Transit network (rail and bus). Halton Region has also initiated a number of studies with the objective of improving local and inter-regional transit access such as the Dundas BRT Study in partnership with Oakville and Burlington, as well as the Trafalgar Road BRT Study.

Figure 7.1 - Transit Servicing Concept

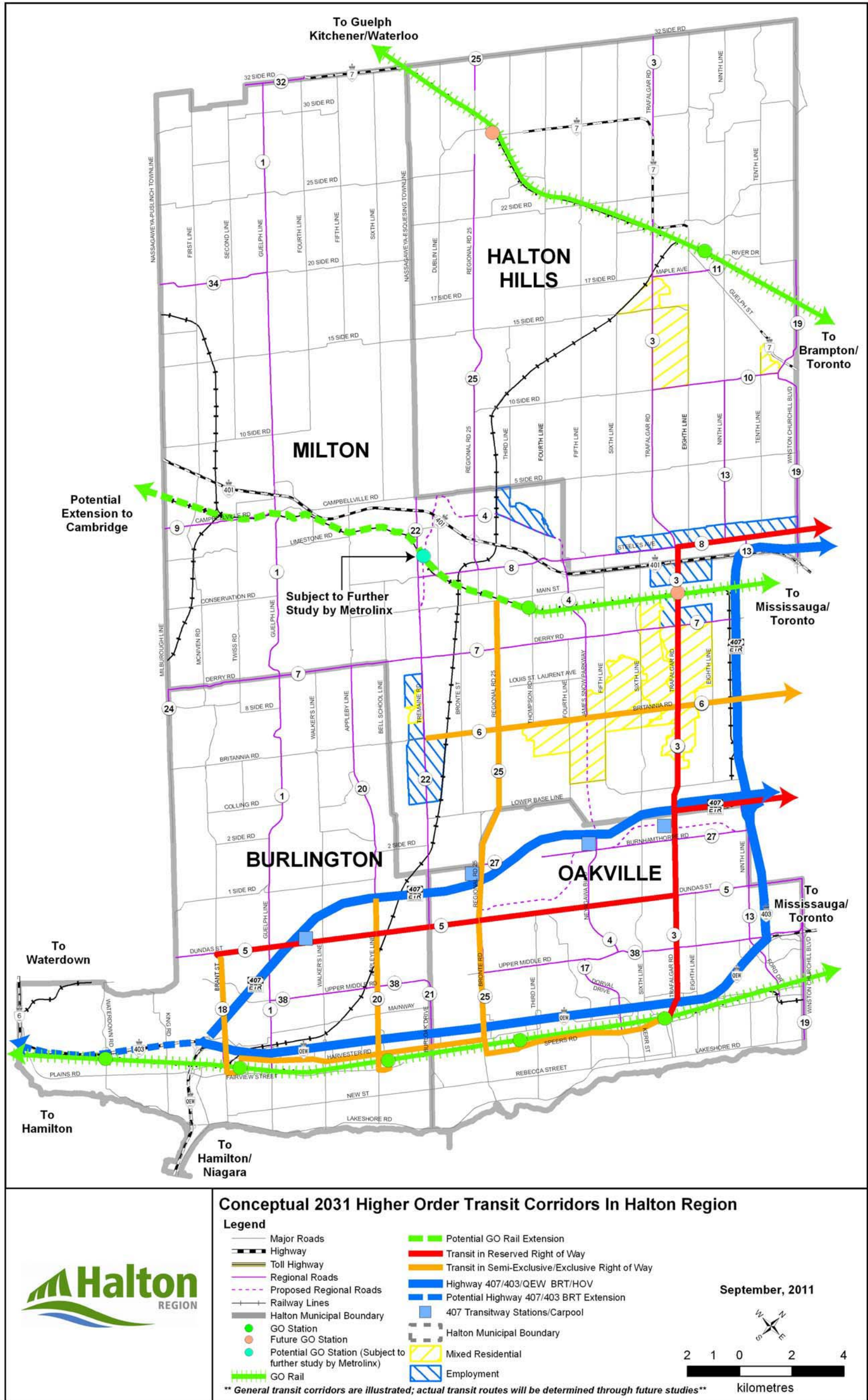
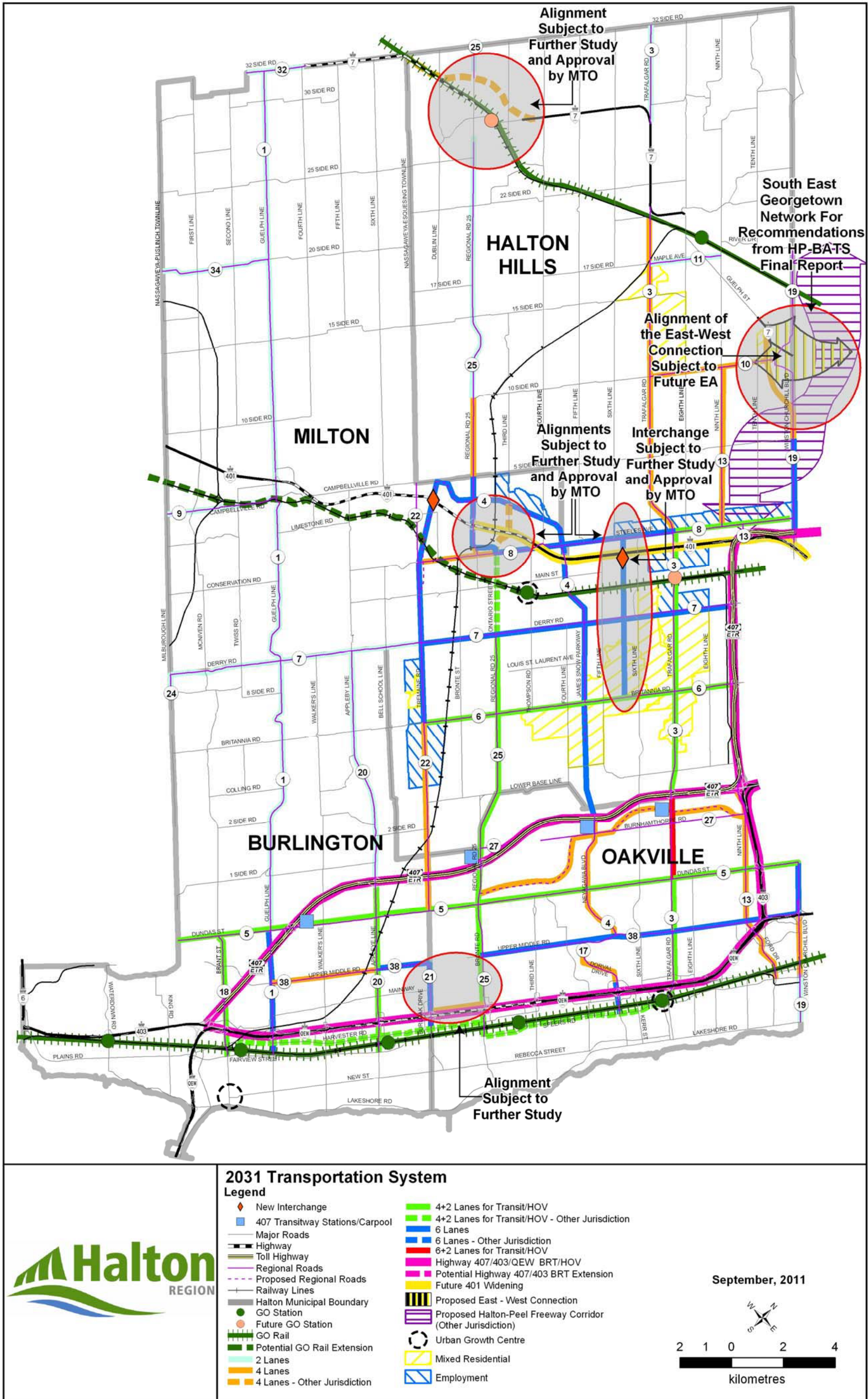


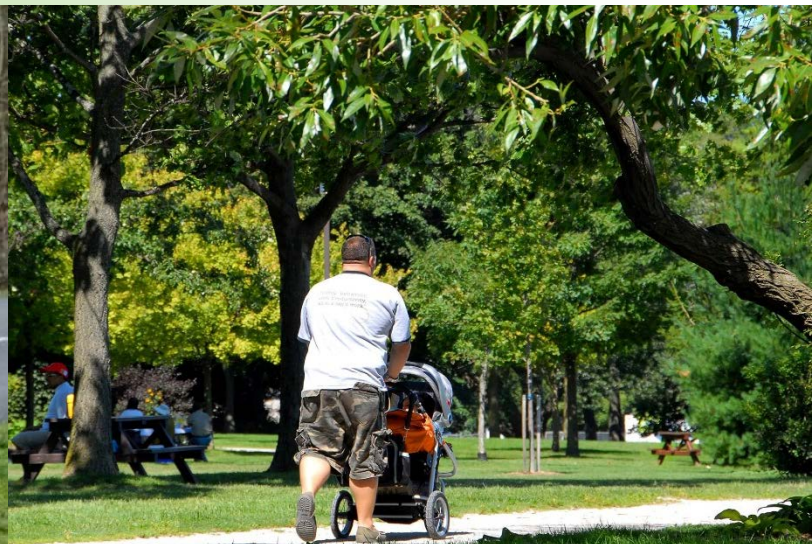
Figure 7.2 – 2031 Transportation System



APPENDIX H.3

Excerpts – Town of Oakville Active Transportation Master Plan

DRAFT

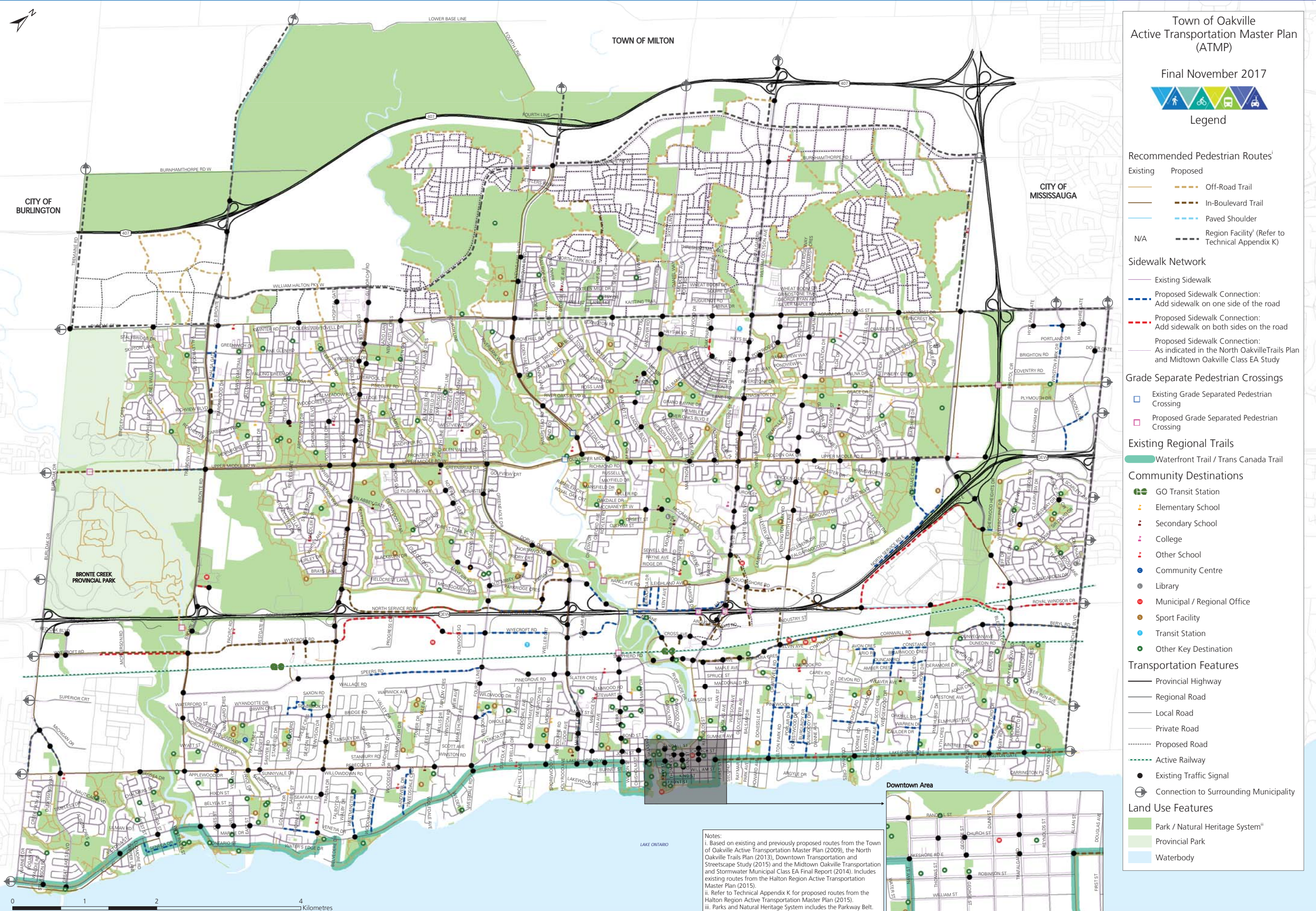


TOWN OF OAKVILLE ACTIVE TRANSPORTATION MASTER PLAN (ATMP)

FINAL REPORT | NOVEMBER 2017

wsp + GLENN POTHIER (GLPi)





Town of Oakville
Active Transportation Master Plan
(ATMP)

Final November 2017

Legend

Recommended Pedestrian Routes¹

Existing	Proposed
	Off-Road Trail
	In-Boulevard Trail
	Paved Shoulder
N/A	Region Facility ² (Refer to Technical Appendix K)

Sidewalk Network

- Existing Sidewalk
- Proposed Sidewalk Connection: Add sidewalk on one side on the road
- Proposed Sidewalk Connection: Add sidewalk on both sides on the road
- Proposed Sidewalk Connection: As indicated in the North Oakville/Trails Plan and Midtown Oakville Class EA Study

Grade Separate Pedestrian Crossings

- Existing Grade Separated Pedestrian Crossing
- Proposed Grade Separated Pedestrian Crossing

Existing Regional Trails

- Waterfront Trail / Trans Canada Trail

Community Destinations

- GO Transit Station
- Elementary School
- Secondary School
- College
- Other School
- Community Centre
- Library
- Municipal / Regional Office
- Sport Facility
- Transit Station
- Other Key Destination

Transportation Features

- Provincial Highway
- Regional Road
- Local Road
- Private Road
- Proposed Road
- Active Railway
- Existing Traffic Signal
- Connection to Surrounding Municipality

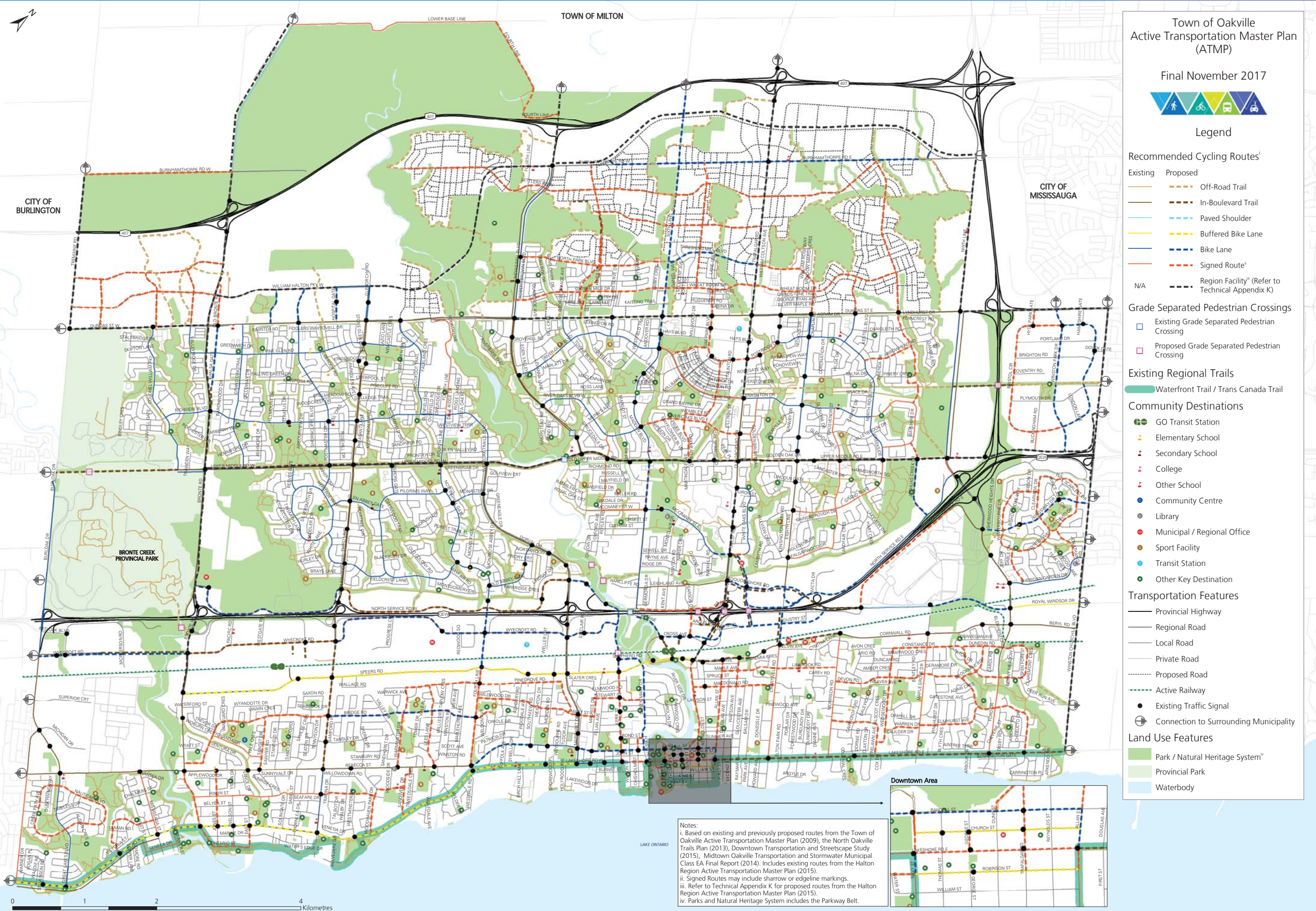
Land Use Features

- Park / Natural Heritage System³
- Provincial Park
- Waterbody

Notes:

- Based on existing and previously proposed routes from the Town of Oakville Active Transportation Master Plan (2009), the North Oakville Trails Plan (2013), Downtown Transportation and Streetscape Study (2015) and the Midtown Oakville Transportation and Stormwater Municipal Class EA Final Report (2014). Includes existing routes from the Halton Region Active Transportation Master Plan (2015).
- Refer to Technical Appendix K for proposed routes from the Halton Region Active Transportation Master Plan (2015).
- Parks and Natural Heritage System includes the Parkway Belt.





Town of Oakville
Active Transportation Master Plan
(ATMP)

Final November 2017

Legend

Recommended Cycling Routes¹

Existing	Proposed
	Off-Road Trail
	In-Boulevard Trail
	Paved Shoulder
	Buffered Bike Lane
	Bike Lane
	Signed Route ²
N/A	Region Facility ³ (Refer to Technical Appendix K)

Grade Separated Pedestrian Crossings

	Existing Grade Separated Pedestrian Crossing
	Proposed Grade Separated Pedestrian Crossing

Existing Regional Trails

- Waterfront Trail / Trans Canada Trail

Community Destinations

- GO Transit Station
- Elementary School
- Secondary School
- College
- Other School
- Community Centre
- Library
- Municipal / Regional Office
- Sport Facility
- Transit Station
- Other Key Destination

Transportation Features

- Provincial Highway
- Regional Road
- Local Road
- Private Road
- Proposed Road
- Active Railway
- Existing Traffic Signal
- Connection to Surrounding Municipality

Land Use Features

- Park / Natural Heritage System⁴
- Provincial Park
- Waterbody

Notes:

- Based on existing and previously proposed routes from the Town of Oakville Active Transportation Master Plan (2009), the North Oakville Trails Plan (2013), Downtown Transportation and Streetscape Study (2015), Midtown Oakville Transportation and Stormwater Municipal Class EA Final Report (2014). Includes existing routes from the Halton Region Active Transportation Master Plan (2015).
- Signed Routes may include narrow or edge-line markings.
- Refer to Technical Appendix K for proposed routes from the Halton Region Active Transportation Master Plan (2015).
- Parks and Natural Heritage System includes the Parkway Belt.



APPENDIX H.4

Excerpts – Town of Oakville Transportation Master Plan

DRAFT



**TOWN OF OAKVILLE
TRANSPORTATION
MASTER PLAN REVIEW**

FINAL

MARCH 2018

PREPARED FOR THE TOWN OF:



OAKVILLE



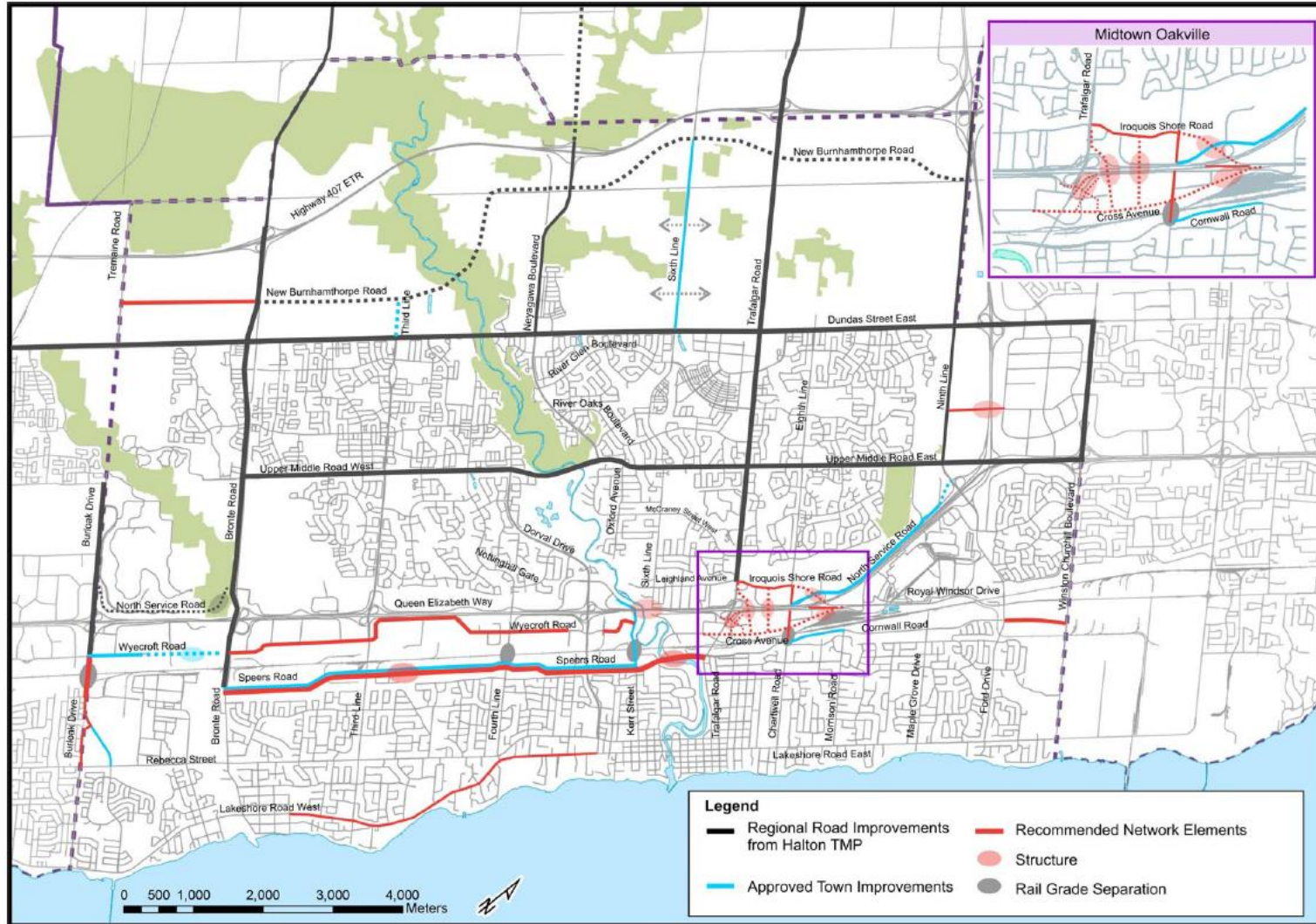


Figure 16: *Switching Gears 2013* Recommended Network

Source: *Switching Gears 2013*



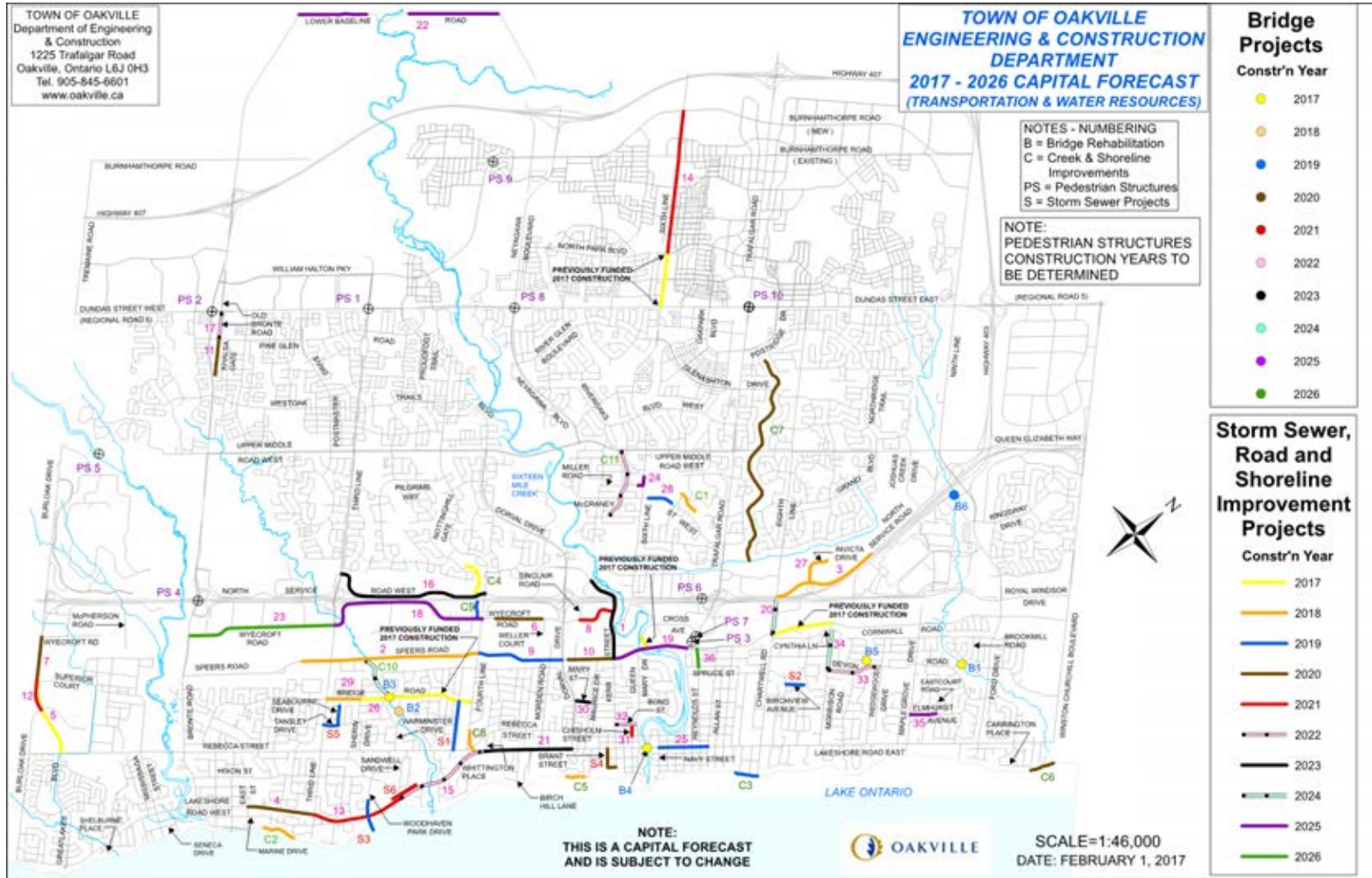


Figure 17: Town of Oakville 2017-2026 Capital Forecast Map

Source: Town of Oakville, <https://www.oakville.ca/townhall/capital-forecast.html>



4 Transit Split Target Assessment

4.1 Alternative Transit Mode Split Scenarios

In addition to the baseline condition, five alternate transit mode split scenarios were developed and assessed to determine the optimal conditions for the year 2031. With the recent ATMP Update and TDM initiatives, the town will continue to encourage these modes of non-auto trips. All scenarios assume that the active transportation and TDM targets of 6% each as set out in *Switching Gears 2013* will be met by 2031. The scenarios are described below:

- **Scenario A: Growth in AT and TDM**, assumes the percentage of trips by local and inter-regional transit remains unchanged at the current level of 1% and 5%. There will be some growth in the number of transit trips due to an overall increase in trips taken by all mode.
- **Scenario B: Growth in AT and TDM and Local Transit**, assumes growth in local transit mode share based on an extrapolation of the growth rate to 2031 in the 2015 Transit Service Review Report, resulting in a 2031 PM peak period local transit mode share of 3%. There will be no increase in inter-regional transit mode share.
- **Scenario C: Growth in AT and TDM, higher growth in inter-regional transit**, assumes that no growth in local transit mode share but service improvements anticipated through Metrolinx's Regional Transportation Plan initiative will be in place and also higher transit mode share for other municipalities in Halton Region, which results in inter-regional transit share of 7%.
- **Scenario D: Growth in AT and TDM, local transit and higher growth in inter-regional transit**, assumes a 3% local transit split as outlined in Scenario B and a higher inter-regional transit share of 9%, for a total transit mode share of 12%.
- **Scenario E: Growth in AT and TDM and higher growth in local transit and inter-regional transit**, assumes high growth in both local and inter-regional transit through high investments in transit infrastructure projects for a transit mode share of 16%.

Figure 19 summarizes the transit mode split targets for 2031 under each scenario considered.



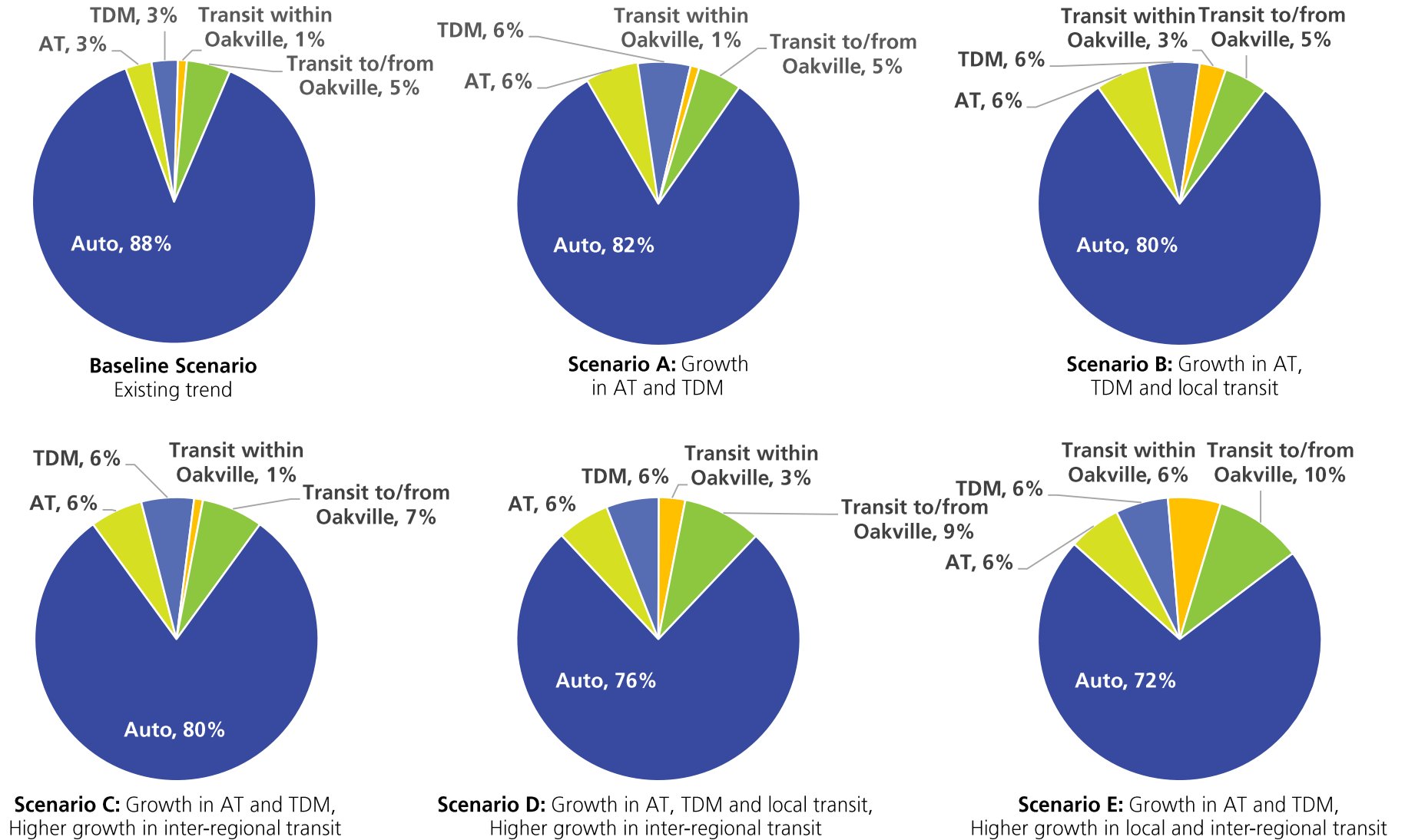


Figure 19: Alternative Transit Mode Split Scenarios for 2031



4.3 Preferred Transit Mode Share Target

From the assessment and evaluation of the socio-economic environment, natural environment, transportation services and traffic impacts, and cost-effectiveness perspectives, it is noted that Scenario D prevails as the preferred interim solution for 2031 with growth in AT and TDM, local transit, and higher growth in inter-regional transit. The 20% transit mode share is still the town's ultimate goal in order to provide sustainable transportation options. With the proposed interim transit mode share in Scenario D, the number of capacity-constrained screenlines is reduced from seven to four in the 2031 baseline scenario with trend modal share presented in **Figure 19**.

The remaining screenline lane deficiencies are presented in **Figure 20** and **Table 10**. Comparing to the baseline scenario, the screenlines east of Sixth Line and Trafalgar Road are no longer approaching capacity. In addition, the screenline along Oakville Creek South was previously identified as requiring two additional lanes per direction. Under the preferred scenario, only one additional lane per direction is required.



APPENDIX H.5

Excerpts – 157 Cross Avenue TIS

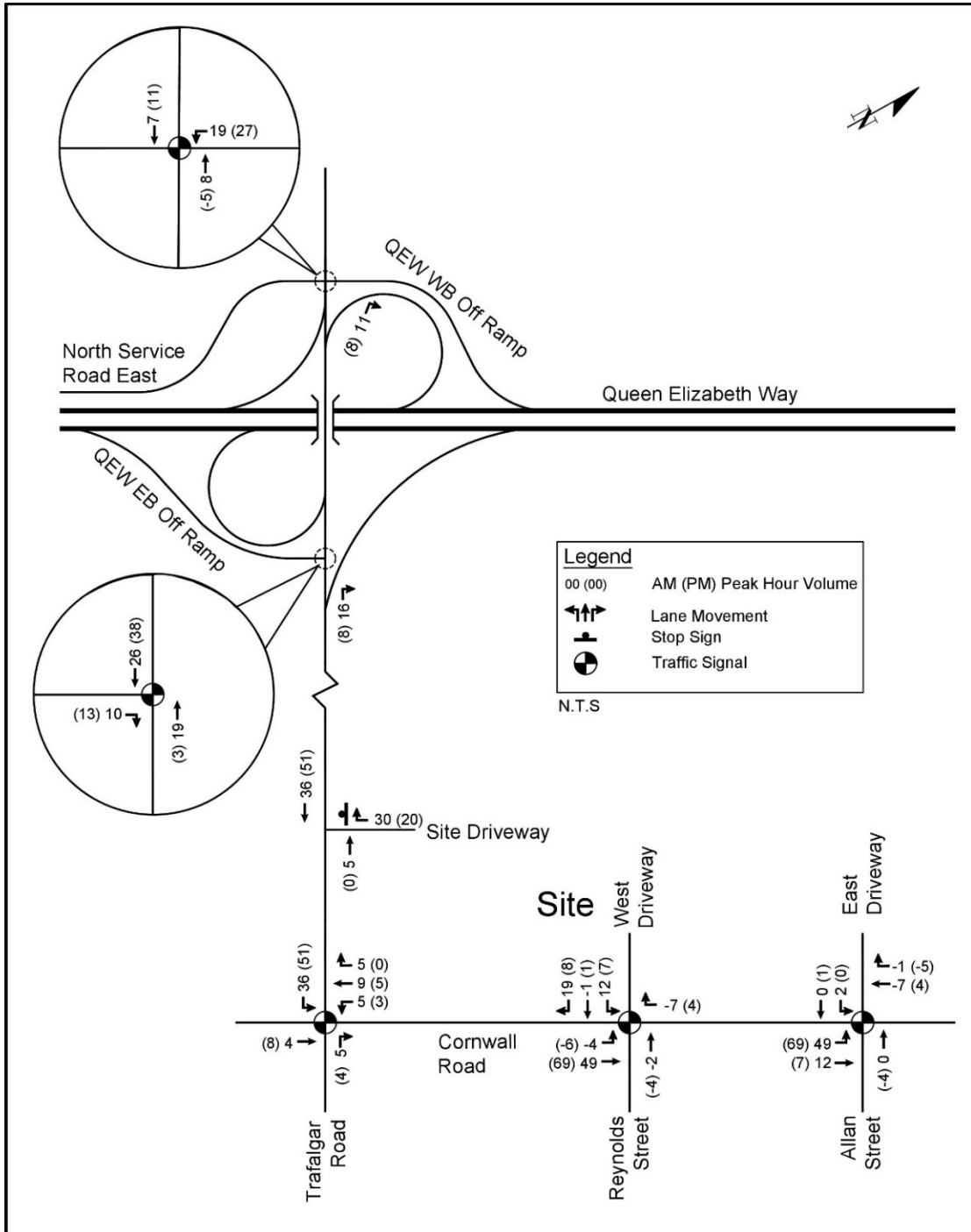
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APPENDIX H.6

Excerpts – Olde Oakville Market Place Transportation Study

DRAFT

Figure 9: Site Traffic - Access Scenario 1



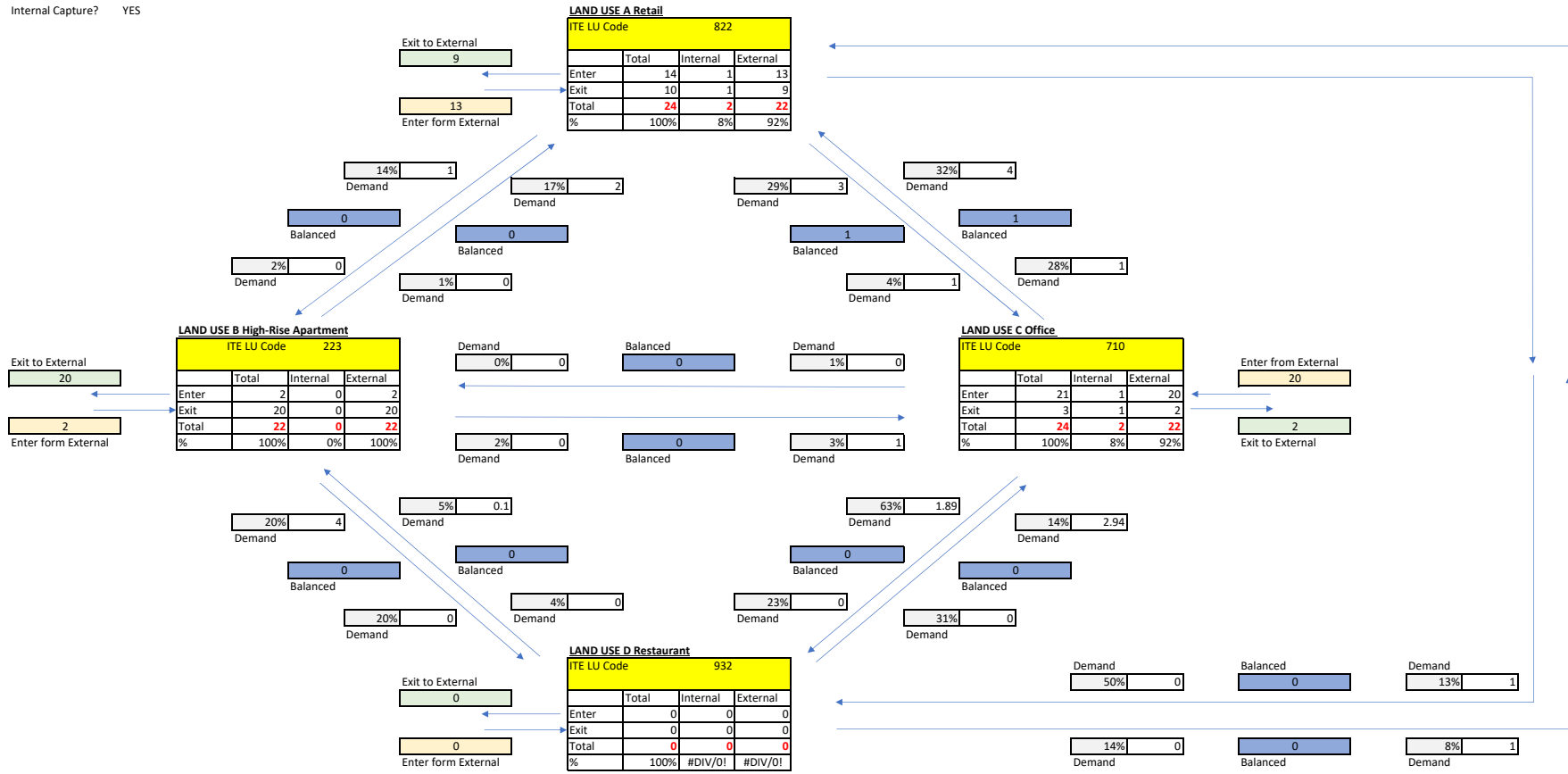
APPENDIX I

Internal Trip Capture Analysis

DRAFT

A.M. Peak Hour

Internal Capture? YES

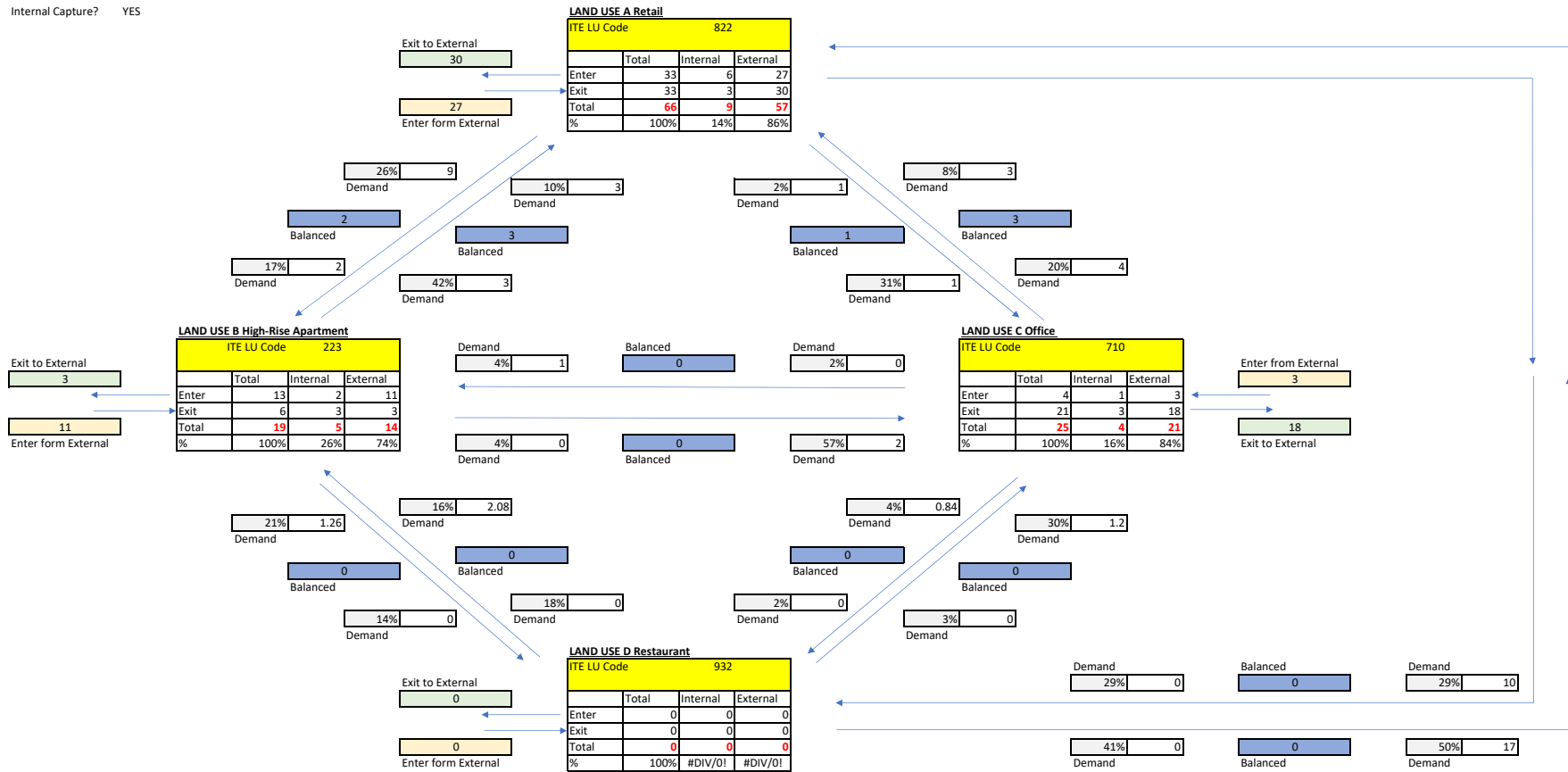


Net External Trips for Multi-Use Development					
	LAND USE A	LAND USE B	LAND USE C	LAND USE D	TOTAL
Enter	13	2	20	0	35
Exit	9	20	2	0	31
Total	22	22	22	0	66
Single-Use Trip Gen. Est.	24	22	24	0	70

INTERNAL CAPTURE 6%

P.M. Peak Hour

Internal Capture? YES



Net External Trips for Multi-Use Development					
	LAND USE A	LAND USE B	LAND USE C	LAND USE D	TOTAL
Enter	27	11	3	0	41
Exit	30	3	18	0	51
Total	57	14	21	0	92
Single-Use Trip Gen. Est.	66	19	25	0	110

INTERNAL CAPTURE
16%

APPENDIX J

Transportation Tomorrow Survey Data

DRAFT

Existing Mode Split (Zone)

TTS Zones Used

	AM Peak		PM Peak		
	1	2	Total		
Transit excluding GO rail	67	71	138		1.3%
Cycle	0	17	17		0.2%
Auto driver	3864	4690	8554		82.8%
GO rail only	202	87	289		2.8%
Joint GO rail and local transit	103	99	202		2.0%
Auto passenger	192	774	966		9.4%
Walk	14	148	162		1.6%
			10328		100.0%

Existing Mode Split (Halton Region)

	AM Peak		PM Peak		
	1	2	Total		
Transit excluding GO rail	8035	9189	17224		2.1%
Cycle	3785	4063	7848		1.0%
Auto driver	277409	329273	606682		73.6%
GO rail only	10574	9987	20561		2.5%
Joint GO rail and local transit	5122	5111	10233		1.2%
Motorcycle	319	395	714		0.1%
Other	311	329	640		0.1%
Auto passenger	36906	53978	90884		11.0%
School bus	14745	11322	26067		3.2%
Taxi passenger	309	405	714		0.1%
Paid rideshare	212	301	513		0.1%
Walk	21406	20455	41861		5.1%
SUM			823941		100.0%

	AM Peak		PM Peak		
	1	2	Total		
Transit excluding GO rail	3775	5022	8797		2.6%
Cycle	1916	2004	3920		1.2%
Auto driver	113233	128647	241880		72.3%
GO rail only	6526	5940	12466		3.7%
Joint GO rail and local transit	2621	2772	5393		1.6%
Motorcycle	37	139	176		0.1%
Other	76	93	169		0.1%
Auto passenger	15615	20112	35727		10.7%
School bus	5706	4498	10204		3.0%
Taxi passenger	146	119	265		0.1%
Paid rideshare	123	143	266		0.1%
Walk	8313	7177	15490		4.6%
SUM			334753		100.0%

Column1.1	Column1.2	Column1.3
Tue Mar 29 2022 16:49:53 GMT-0400 (Eastern Daylight Time) - Run Time: 2687ms		
Cross Tabulation Query Form - Trip - 2016 v1.1		
Row: Primary travel mode of trip - mode_prime		
Column: Start time of trip - start_time		
RowG:		
ColG:(600-900)(1500-1800)		
TblG:		
Filters:		
(Planning district of origin - pd_orig In 39		
or		
Planning district of destination - pd_dest In 39)		
Trip 2016		
Table:		
	1	2
Transit excluding GO rail	3775	5022
Cycle	1916	2004
Auto driver	113233	128647
GO rail only	6526	5940
Joint GO rail and local transit	2621	2772
Motorcycle	37	139
Other	76	93
Auto passenger	15615	20112
School bus	5706	4498
Taxi passenger	146	119
Paid rideshare	123	143
Walk	8313	7177

Column1.1	Column1.2	Column1.3
Tue Mar 29 2022 16:31:10 GMT-0400 (Eastern Daylight Time) - Run Time: 2581ms		
Cross Tabulation Query Form - Trip - 2016 v1.1		
Row: Primary travel mode of trip - mode_prime		
Column: Start time of trip - start_time		
RowG:		
ColG:(600-900)(1500-1800)		
TblG:		
Filters:		
(Regional municipality of origin - region_orig In 5		
or		
Regional municipality of destination - region_dest In 5)		
Trip 2016		
Table:		
	1	2
Transit excluding GO rail	8035	9189
Cycle	3785	4063
Auto driver	277409	329273
GO rail only	10574	9987
Joint GO rail and local transit	5122	5111
Motorcycle	319	395
Other	311	329
Auto passenger	36906	53978
School bus	14745	11322
Taxi passenger	309	405
Paid rideshare	212	301
Walk	21406	20455

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime

Column: Start time of trip - start_time

RowG:

ColG:(600-900)(1500-1800)

TblG:

Filters:

(2006 GTA zone of origin - gta06_orig In 4014

or

2006 GTA zone of destination - gta06_dest In 4014)

Trip 2016

Table:

	1	2
Transit excluding GO rail	67	71
Cycle	0	17
Auto driver	3864	4690
GO rail only	202	87
Joint GO rail and local transit	103	99
Auto passenger	192	774
Walk	14	148

SUM_ALL																		Possible Boundary Road Network entry/exit points			
I	NW_I	N_I	NE_I	E_I	SE_I	S_I	SW_I	W_I	NW_E	N_E	NE_E	E_E	SE_E	S_E	SW_E	W_E	TOTAL	% to use	%		
Trips	316	587	664	348	377	224	196	992	921	596	652	1087	712	0	0	15	1029	8716	5%	6.9%	1 South Service Road East e/of Davis Road
%	3.6%	6.7%	7.6%	4.0%	4.3%	2.6%	2.2%	11.4%	10.6%	6.8%	7.5%	12.5%	8.2%	0.0%	0.0%	0.2%	11.8%	100%	11%	11.4%	2 Cornwall Road West
% w/o trip:	0.0%	7.0%	7.9%	4.1%	4.5%	2.7%	2.3%	11.8%	11.0%	7.1%	7.8%	12.9%	8.5%	0.0%	0.0%	0.2%	12.3%	100%	2%	1.8%	3 Cornwall Road East
Approach?3/8		7	7	7	1	1	4	2	6	7	7	5	5	0	0	5	6		2%	2.2%	4 Trafalgar Road South
AM_IN																		21%	20.8%	5 QEW East	
I	NW_I	N_I	NE_I	E_I	SE_I	S_I	SW_I	W_I	NW_E	N_E	NE_E	E_E	SE_E	S_E	SW_E	W_E	TOTAL				
Trips	29	247	205	152	28	92	26	237	256	264	251	295	281	0	0	0	488	2851	22%	22.4%	6 QEW West
%	0.0102	0.0866	0.0719	0.0533	0.0098	0.0323	0.0091	0.0831	0.0898	0.0926	0.088	0.1035	0.0986	0	0	0	0.1712	1	33%	32.7%	7 Trafalgar Road North
% w/o trip:	0	0.0875	0.0726	0.0539	0.0099	0.0326	0.0092	0.084	0.0907	0.0936	0.0889	0.1045	0.0996	0	0	0	0.1729	1	100%	100.0%	8 Cross Avenue
AM_OUT																				9	
I	NW_I	N_I	NE_I	E_I	SE_I	S_I	SW_I	W_I	NW_E	N_E	NE_E	E_E	SE_E	S_E	SW_E	W_E	TOTAL				
Trips	29	78	186	53	0	20	32	108	163	59	37	194	47	0	0	0	41	1047			
%	2.77%	7.45%	17.77%	5.06%	0.00%	1.91%	3.06%	10.32%	15.57%	5.64%	3.53%	18.53%	4.49%	0.00%	0.00%	0.00%	3.92%	100.00%			
% w/o trip:	0.00%	7.66%	18.27%	5.21%	0.00%	1.96%	3.14%	10.61%	16.01%	5.80%	3.63%	19.06%	4.62%	0.00%	0.00%	0.00%	4.03%	100.00%			
PM_IN																					
I	NW_I	N_I	NE_I	E_I	SE_I	S_I	SW_I	W_I	NW_E	N_E	NE_E	E_E	SE_E	S_E	SW_E	W_E	TOTAL				
Trips	129	62	108	70	244	52	62	282	224	65	131	281	81	0	0	0	117	1908			
%	6.76%	3.25%	5.66%	3.67%	12.79%	2.73%	3.25%	14.78%	11.74%	3.41%	6.87%	14.73%	4.25%	0.00%	0.00%	0.00%	6.13%	100.00%			
% w/o trip:	0.00%	3.49%	6.07%	3.93%	13.72%	2.92%	3.49%	15.85%	12.59%	3.65%	7.36%	15.80%	4.55%	0.00%	0.00%	0.00%	6.58%	100.00%			
PM_OUT																					
I	NW_I	N_I	NE_I	E_I	SE_I	S_I	SW_I	W_I	NW_E	N_E	NE_E	E_E	SE_E	S_E	SW_E	W_E	TOTAL				
Trips	129	200	165	73	105	60	76	365	278	208	233	317	303	0	0	15	383	2910			
%	4.43%	6.87%	5.67%	2.51%	3.61%	2.06%	2.61%	12.54%	9.55%	7.15%	8.01%	10.89%	10.41%	0.00%	0.00%	0.52%	13.16%	100.00%			
% w/o trip:	0.00%	7.19%	5.93%	2.62%	3.78%	2.16%	2.73%	13.12%	10.00%	7.48%	8.38%	11.40%	10.90%	0.00%	0.00%	0.54%	13.77%	100.00%			

Column1.1	Column1.2	Column1.3
Thu Mar 31 2022 14:26:58 GMT-0400 (Eastern Daylight Time) - Run Time: 2636ms		
Cross Tabulation Query Form - Trip - 2016 v1.1		
Row: Planning district of origin - pd_orig		
Column: Start time of trip - start_time		
RowG:		
ColG:(600-900)(1500-1800)		
TblG:		
Filters:		
(2006 GTA zone of destination - gta06_dest In 4014		
and		
Primary travel mode of trip - mode_prime In D	M	U
and		
Start time of trip - start_time In 600-900	1500-1800)	
Trip 2016		
Table:		
	1	2
PD 1 of Toronto	49	0
PD 2 of Toronto	5	0
PD 3 of Toronto	77	0
PD 5 of Toronto	20	0
PD 7 of Toronto	0	26
PD 8 of Toronto	19	15
PD 9 of Toronto	0	37
PD 10 of Toronto	0	15
PD 11 of Toronto	13	0
Markham	33	0
Vaughan	30	0
Brampton	65	0
Mississauga	377	321
Halton Hills	45	30
Milton	93	60
Oakville	1272	1233
Burlington	271	130
Flamborough	57	0
Ancaster	36	0
Stoney Creek	31	0
Hamilton	175	23
Cambridge	117	0
Centre Wellington	25	0
Erin	23	0
Orangeville	0	20
Essa	16	0

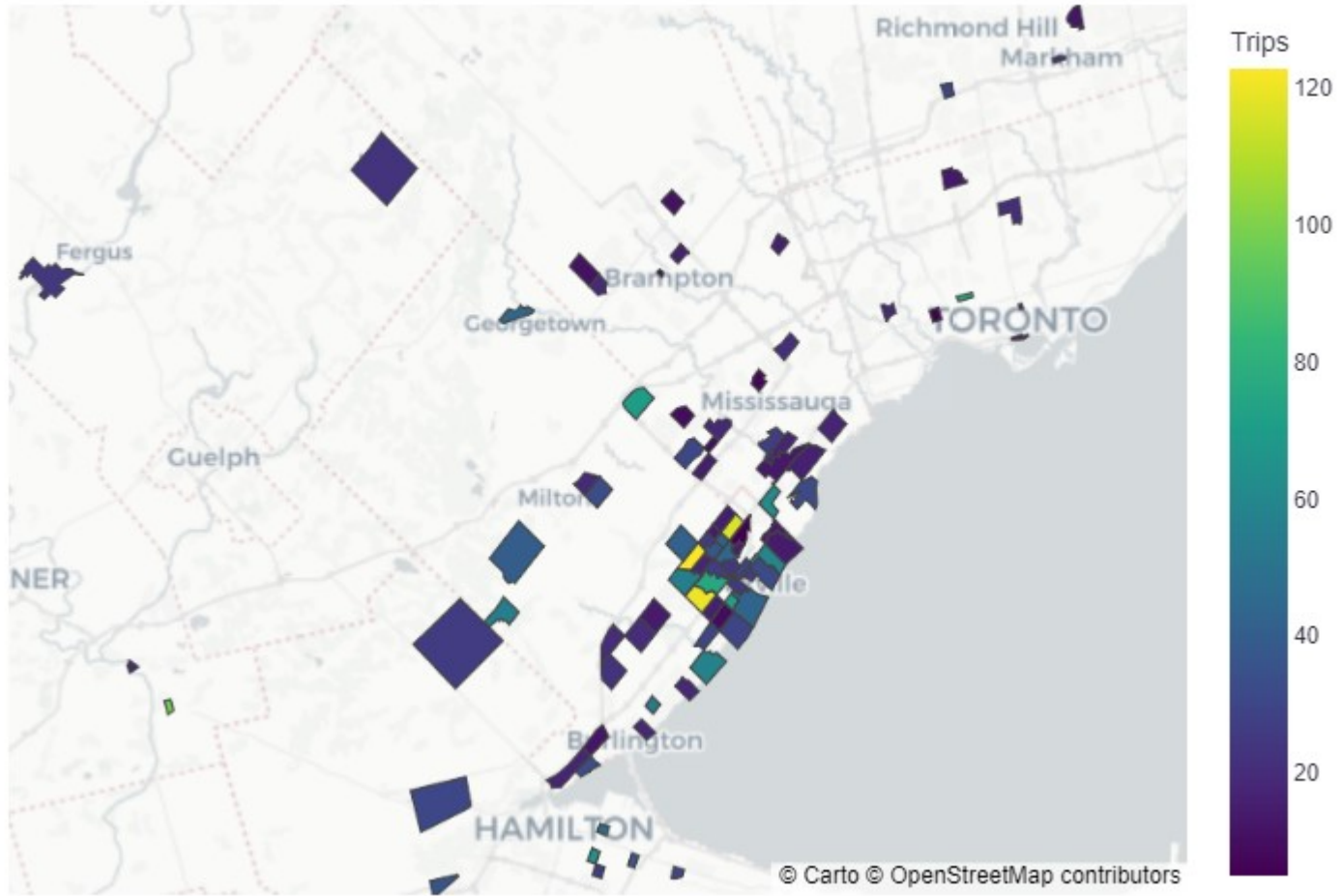
Column1.1	Column1.2	Column1.3
Thu Mar 31 2022 14:29:15 GMT-0400 (Eastern Daylight Time) - Run Time: 2248ms		
Cross Tabulation Query Form - Trip - 2016 v1.1		
Row: Planning district of destination - pd_dest		
Column: Start time of trip - start_time		
RowG:		
ColG:(600-900)(1500-1800)		
TblG:		
Filters:		
(2006 GTA zone of origin - gta06_orig In 4014		
and		
Primary travel mode of trip - mode_prime In D	M	U
and		
Start time of trip - start_time In 600-900	1500-1800)	
Trip 2016		
Table:		
	1	2
PD 1 of Toronto	30	5
PD 3 of Toronto	0	77
PD 5 of Toronto	0	20
PD 6 of Toronto	0	10
PD 7 of Toronto	0	26
PD 8 of Toronto	0	19
PD 9 of Toronto	0	10
Markham	0	33
Vaughan	0	30
Brampton	0	67
Mississauga	248	384
Halton Hills	0	45
Milton	22	130
Oakville	668	1453
Burlington	55	184
Flamborough	0	57
Ancaster	0	36
Stoney Creek	0	31
Hamilton	23	115
Cambridge	0	117
Centre Wellington	0	25
Erin	0	23
Barrie	0	13

Column1	Column2	Column3
Wed May 04 2022 16:48:50 GMT-0400 (Eastern Daylight Time) - Run Time: 2376ms		
Cross Tabulation Query Form - Trip - 2016 v1.1		
Row: 2006 GTA zone of destination - gta06_dest		
Column: 2006 GTA zone of origin - gta06_orig		
Filters:		
2006 GTA zone of origin - gta06_orig In 4014		
and		
Start time of trip - start_time In 600-900		
and		
Primary travel mode of trip - mode_prime In D	M	U
Trip 2016		
Table:		
	4014	
47	30	
3611	58	
3617	37	
3618	14	
3648	17	
3658	13	
3662	22	
3664	27	
3700	10	
3833	25	
3847	8	
3862	17	
4001	25	
4003	11	
4008	16	
4010	7	
4011	33	
4012	43	
4014	29	
4015	9	
4016	23	
4017	20	
4024	10	
4026	30	
4027	13	
4029	127	
4030	15	
4032	12	
4034	18	
4035	10	
4036	19	
4037	63	
4040	46	
4041	46	
4042	44	
4074	18	
4099	37	
4126	22	
5198	23	

Column1	Column2	Column3
Thu Mar 31 2022 15:01:00 GMT-0400 (Eastern Daylight Time) - Run Time: 2412ms		
Cross Tabulation Query Form - Trip - 2016 v1.1		
Row: 2006 GTA zone of origin - gta06_orig		
Column: 2006 GTA zone of destination - gta06_dest		
Filters:		
2006 GTA zone of destination - gta06_dest In 4014		
and		
Start time of trip - start_time In 1500-1800		
and		
Primary travel mode of trip - mode_prime In D	M	U
Trip 2016		
Table:		
	4014	
294	26	
342	15	
358	37	
420	15	
3607	18	
3611	58	
3618	14	
3633	10	
3642	8	
3648	17	
3658	13	
3671	38	
3680	22	
3691	22	
3700	10	
3701	31	
3809	50	
3847	8	
4003	41	
4004	41	
4005	13	
4006	21	
4008	16	
4009	21	
4011	78	
4012	170	
4014	129	
4015	22	
4016	40	
4017	15	
4018	37	
4019	77	
4020	146	
4021	21	
4024	21	
4027	42	
4028	7	
4029	51	
4030	22	
4032	34	
4035	23	
4037	40	
4040	29	
4041	12	
4045	15	
4053	26	
4056	11	
4059	25	
4076	17	
4078	15	
4097	37	
4120	17	
4123	14	
4126	22	
4127	6	
4167	17	
4177	13	
4186	49	
5198	23	
8403	20	

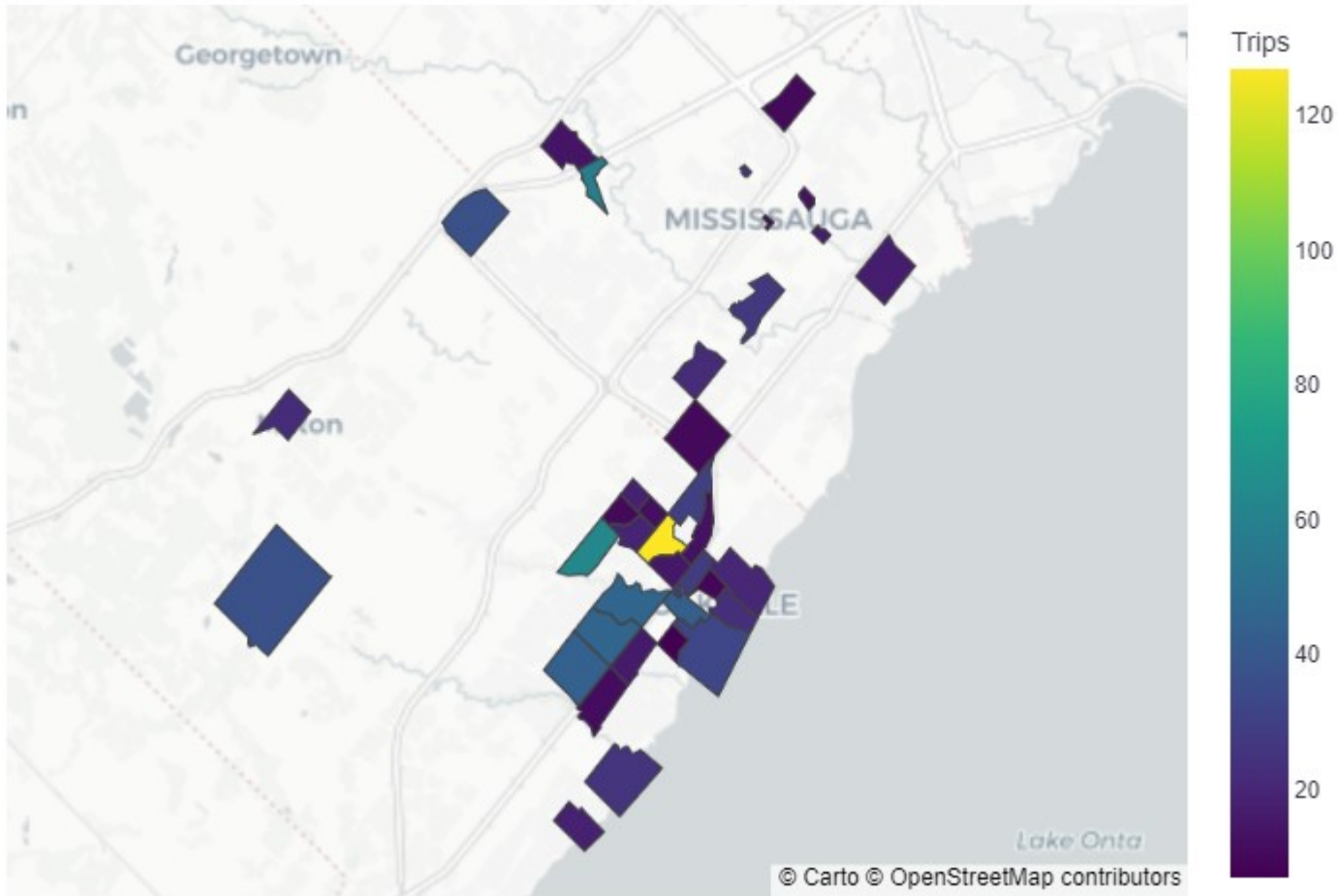
2016 TTS Midtown Oakville AM Peak Period Inbound Trips

Choropleth Map



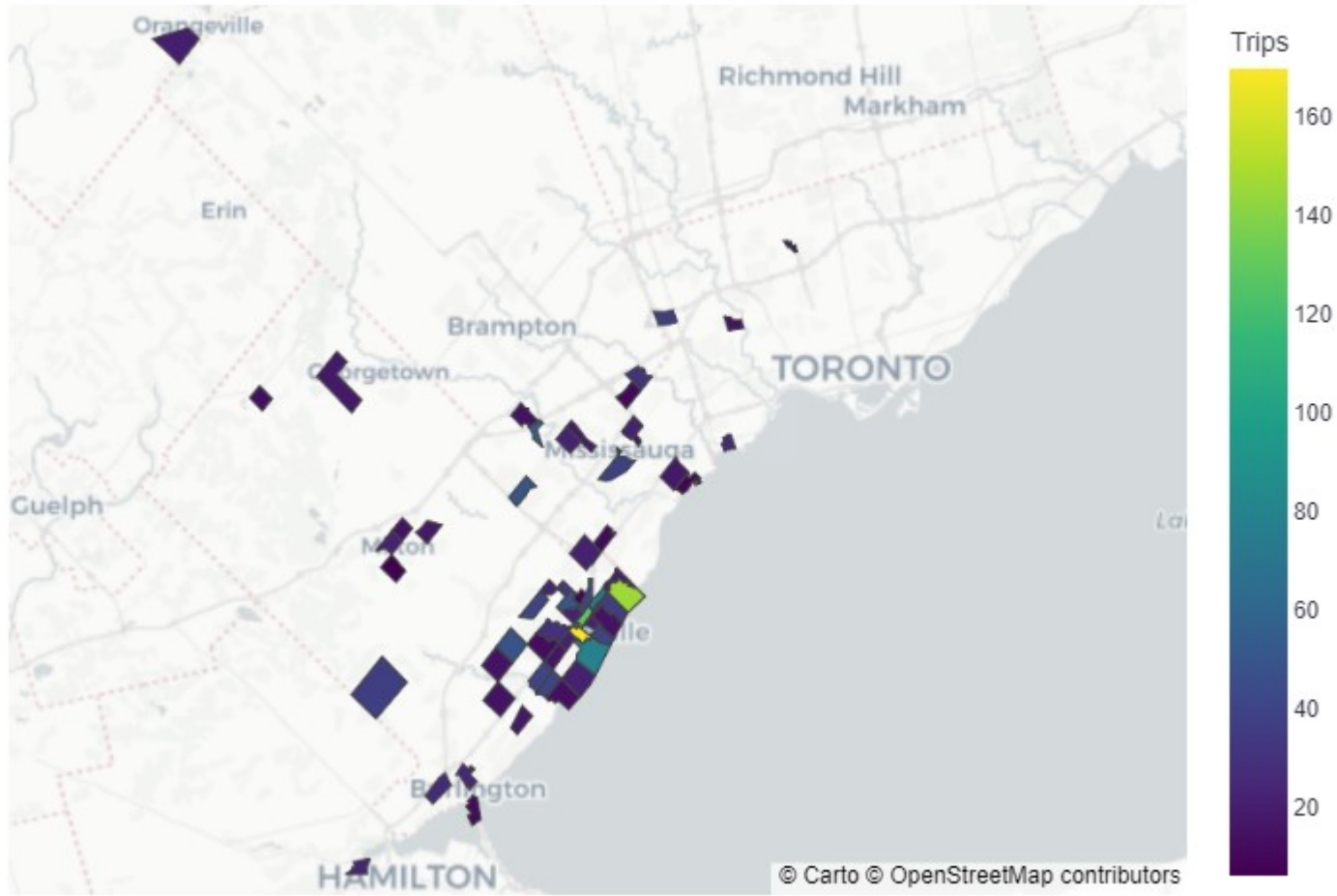
2016 TTS Midtown Oakville AM Peak Period Outbound Trips

Choropleth Map



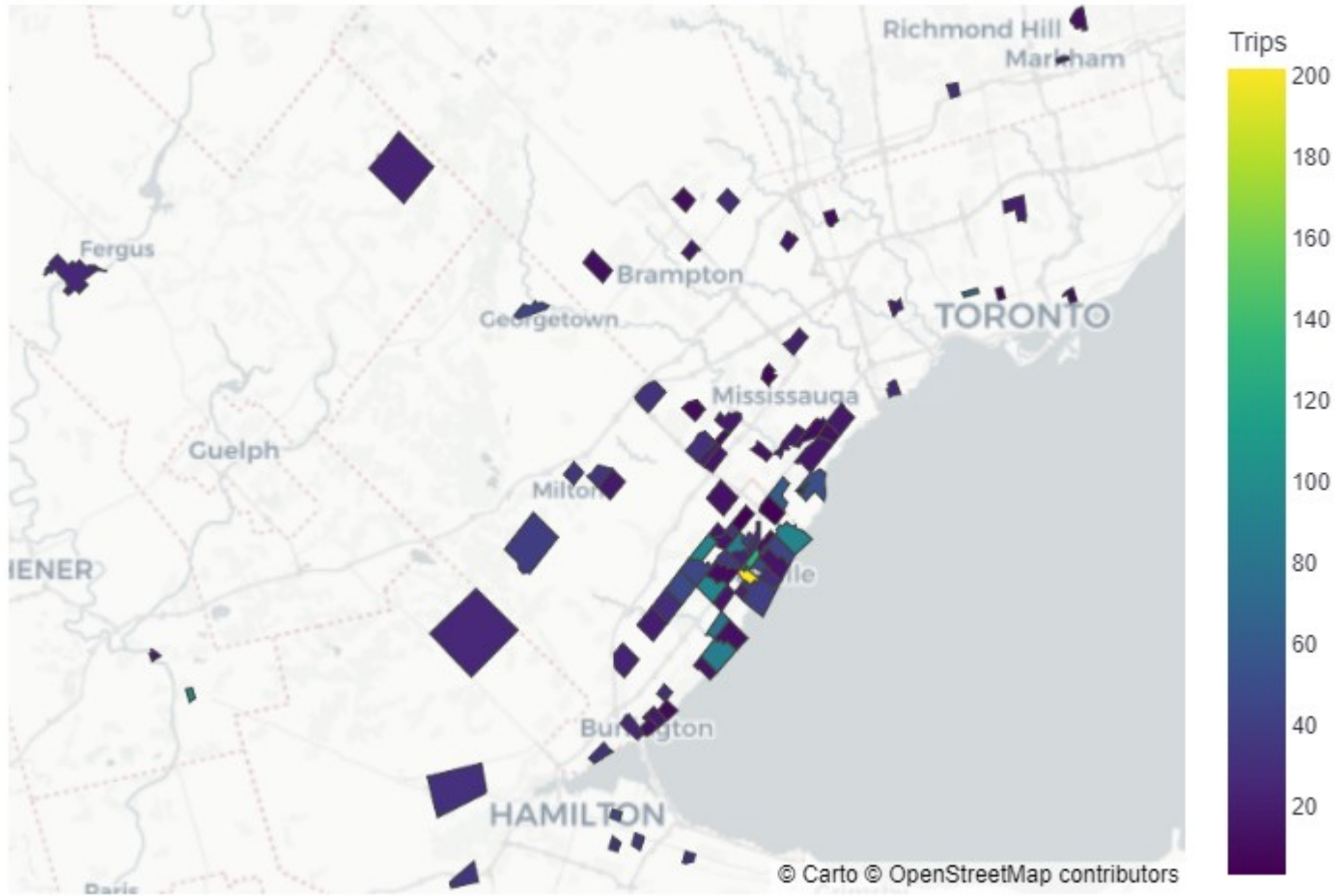
2016 TTS Midtown Oakville PM Peak Period Inbound Trips

Choropleth Map



2016 TTS Midtown Oakville PM Peak Period Outbound Trips

Choropleth Map



APPENDIX K

Signal Warrants

DRAFT

Input Data Sheet

Analysis Sheet

Results Sheet

Proposed Collision

What are the intersecting roadways?

South Service Road East and Davis Road

GO TO Justification:

What is the direction of the Main Road street?

North-South

When was the data collected?

2030 Future Total Traffic

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

2 or more

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

4

d.- What is the operating environment?

Urban

Population >= 10,000

AND

Speed < 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	0	0	81	1	0	0	23	4	97	1	0	1	0
8:00	0	0	81	1	0	0	23	4	97	1	0	1	0
9:00	0	0	81	1	0	0	23	4	97	1	0	1	0
12:00	0	0	81	1	0	0	23	4	97	1	0	1	0
13:00	0	0	81	1	0	0	23	4	97	1	0	1	0
16:00	0	0	81	1	0	0	23	4	97	1	0	1	0
17:00	0	0	81	1	0	0	23	4	97	1	0	1	0
18:00	0	0	81	1	0	0	23	4	97	1	0	1	0
Total	0	0	648	8	0	0	184	32	776	8	0	8	0

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

* Include only collisions that are susceptible to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume									
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	0	0	0	0	0	0	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 Lanes		2 or More Lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	12:00	13:00	16:00	17:00	18:00		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
1A	480	720	600	900	208	208	208	208	208	208	208	208		
	COMPLIANCE %				23	23	23	23	23	23	23	23	185	23
1B	120	170	120	170	3	3	3	3	3	3	3	3		
	COMPLIANCE %				2	2	2	2	2	2	2	2	14	2
Restricted Flow Signal Justification 1:					Both 1A and 1B 100% Fulfilled each of 8 hours Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 lanes		2 or More lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	12:00	13:00	16:00	17:00	18:00		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
2A	480	720	600	900	205	205	205	205	205	205	205	205		
	COMPLIANCE %				23	23	23	23	23	23	23	23	182	23
2B	50	75	50	75	2	2	2	2	2	2	2	2		
	COMPLIANCE %				3	3	3	3	3	3	3	3	21	3
Restricted Flow Signal Justification 2:					Both 2A and 2B 100% Fulfilled each of 8 hours Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Justification 3: Combination

Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimum Vehicular Volume	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
Justification 2	Delay Cross Traffic	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	NOT JUSTIFIED	

Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		X	Y (actual)	Y (warrant threshold)		
Justification 4	7:00	205	2	675	0 %	0 %
	8:00	205	2	675	0 %	
	9:00	205	2	675	0 %	
	12:00	205	2	675	0 %	

Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

Intersection: South Service Road East and Davis Road

Count Date: 2030 Future Total Traffic

Summary Results

Justification		Compliance		Signal Justified?	
				YES	NO
1. Minimum Vehicular Volume	A Total Volume	23	%	<input type="checkbox"/>	<input type="checkbox"/>
	B Crossing Volume	2	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	23	%	<input type="checkbox"/>	<input type="checkbox"/>
	B Crossing Road	3	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Combination	A Justificaton 1	2	%	<input type="checkbox"/>	<input type="checkbox"/>
	B Justification 2	3	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. 4-Hr Volume		0	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Collision Experience	0	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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6. Pedestrians	A Volume	Justification not met		<input type="checkbox"/>	<input type="checkbox"/>
	B Delay	Justification not met		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Input Data Sheet

Analysis Sheet

Results Sheet

Proposed Collision

GO TO Justification:

What are the intersecting roadways?

South Service Road East and Davis Road / QEW EB off-ramp

What is the direction of the Main Road street?

North-South

When was the data collected?

2035 Future Total Traffic

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

2 or more

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

4

d.- What is the operating environment?

Urban

Population >= 10,000

AND

Speed < 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	0	0	81	0	0	0	20	4	97	86	4	63	0
8:00	0	0	81	0	0	0	20	4	97	86	4	63	0
9:00	0	0	81	0	0	0	20	4	97	86	4	63	0
12:00	0	0	81	0	0	0	20	4	97	86	4	63	0
13:00	0	0	81	0	0	0	20	4	97	86	4	63	0
16:00	0	0	81	0	0	0	20	4	97	86	4	63	0
17:00	0	0	81	0	0	0	20	4	97	86	4	63	0
18:00	0	0	81	0	0	0	20	4	97	86	4	63	0
Total	0	0	648	0	0	0	160	32	776	688	32	504	0

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

* Include only collisions that are susceptible to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume									
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	0	0	0	0	0	0	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 Lanes		2 or More Lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	12:00	13:00	16:00	17:00	18:00		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
1A	480	720	600	900	355	355	355	355	355	355	355	355		
	COMPLIANCE %				39	39	39	39	39	39	39	39	316	39
1B	120	170	120	170	153	153	153	153	153	153	153	153		
	COMPLIANCE %				90	90	90	90	90	90	90	90	720	90
Restricted Flow Signal Justification 1:					Both 1A and 1B 100% Fullfilled each of 8 hours Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 lanes		2 or More lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	12:00	13:00	16:00	17:00	18:00		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>										
2A	480	720	600	900	202	202	202	202	202	202	202	202		
	COMPLIANCE %				22	22	22	22	22	22	22	22	180	22
2B	50	75	50	75	90	90	90	90	90	90	90	90		
	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
Restricted Flow Signal Justification 2:					Both 2A and 2B 100% Fullfilled each of 8 hours Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Justification 3: Combination

Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimum Vehicular Volume	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
Justification 2	Delay Cross Traffic	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	NOT JUSTIFIED	

Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		X	Y (actual)	Y (warrant threshold)		
Justification 4	7:00	202	153	677	23 %	23 %
	8:00	202	153	677	23 %	
	9:00	202	153	677	23 %	
	12:00	202	153	677	23 %	

Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

Intersection: South Service Road East and Davis Road / QEW EE Count Date: 2035 Future Total Traffic

Summary Results

Justification		Compliance		Signal Justified?	
				YES	NO
1. Minimum Vehicular Volume	A Total Volume	39	%	<input type="checkbox"/>	<input type="checkbox"/>
	B Crossing Volume	90	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	22	%	<input type="checkbox"/>	<input type="checkbox"/>
	B Crossing Road	100	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Combination	A Justificaton 1	39	%	<input type="checkbox"/>	<input type="checkbox"/>
	B Justification 2	22	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. 4-Hr Volume		23	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>

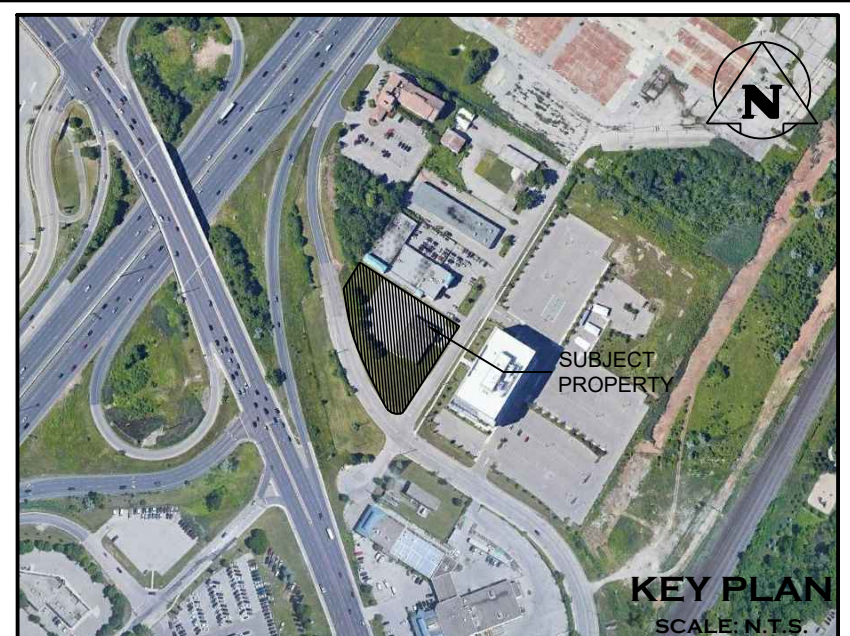
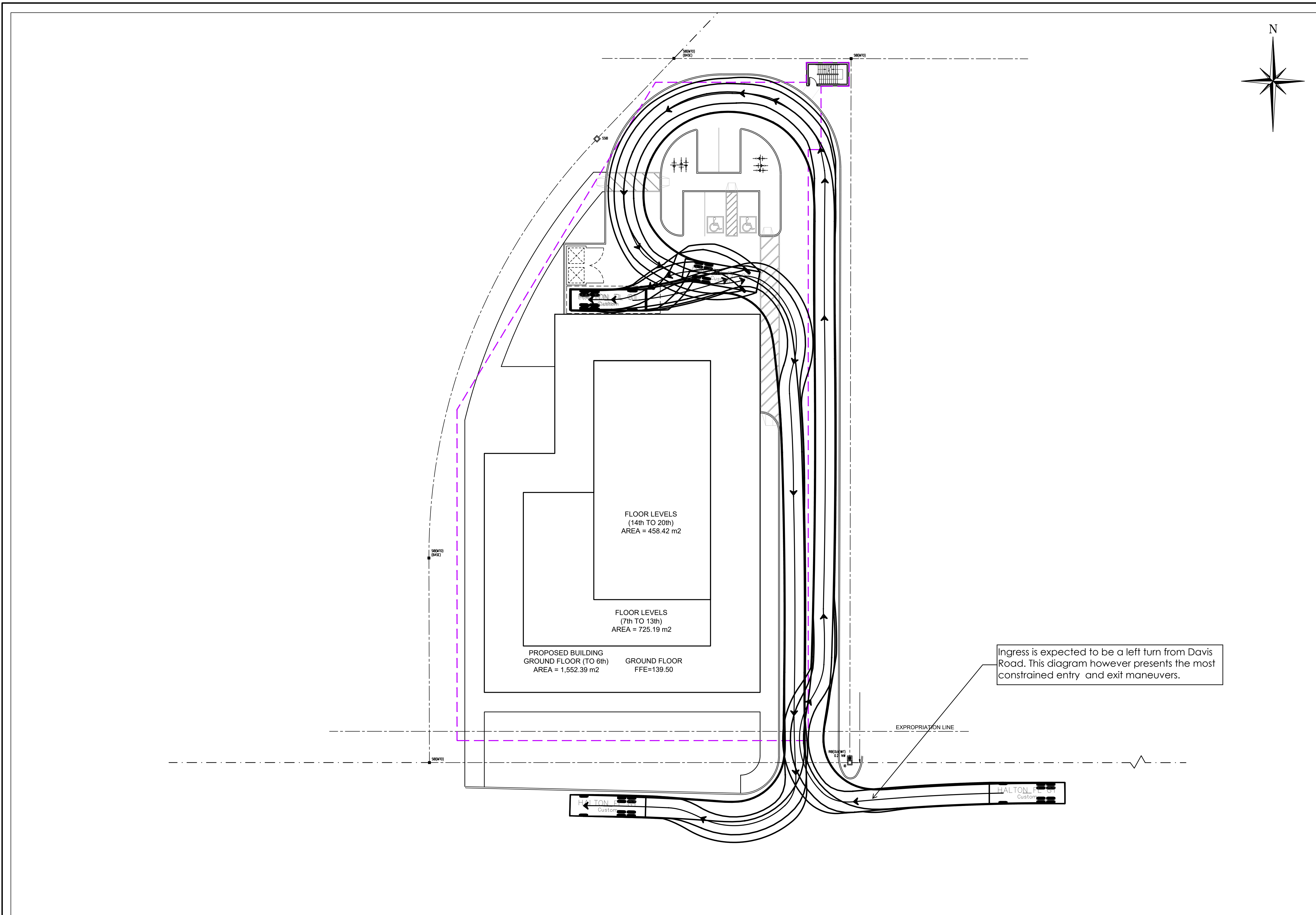
5. Collision Experience	0	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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6. Pedestrians	A Volume	Justification not met	<input type="checkbox"/>	<input type="checkbox"/>
	B Delay	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>

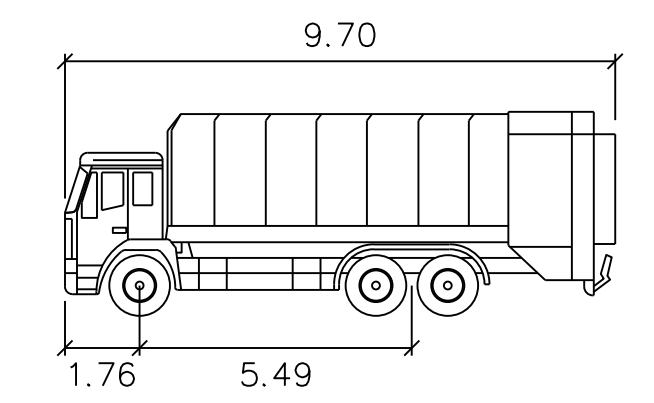
APPENDIX L

Vehicle Turning Diagrams

DRAFT



VEHICLE PROFILE



HALTON FL GT

	meters
Width	: 2.70
Track	: 2.70
Lock to Lock Time	: 6.0
Steering Angle	: 35.3

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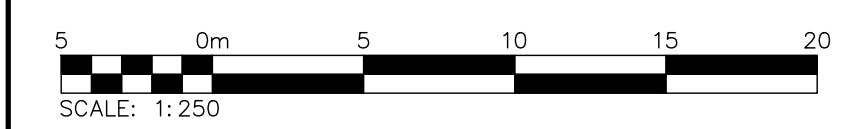
No.	ISSUE	DATE: MMM/DD/YYYY
0	ISSUED FOR REVIEW	05/03/2022

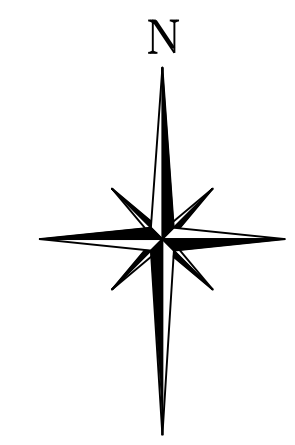
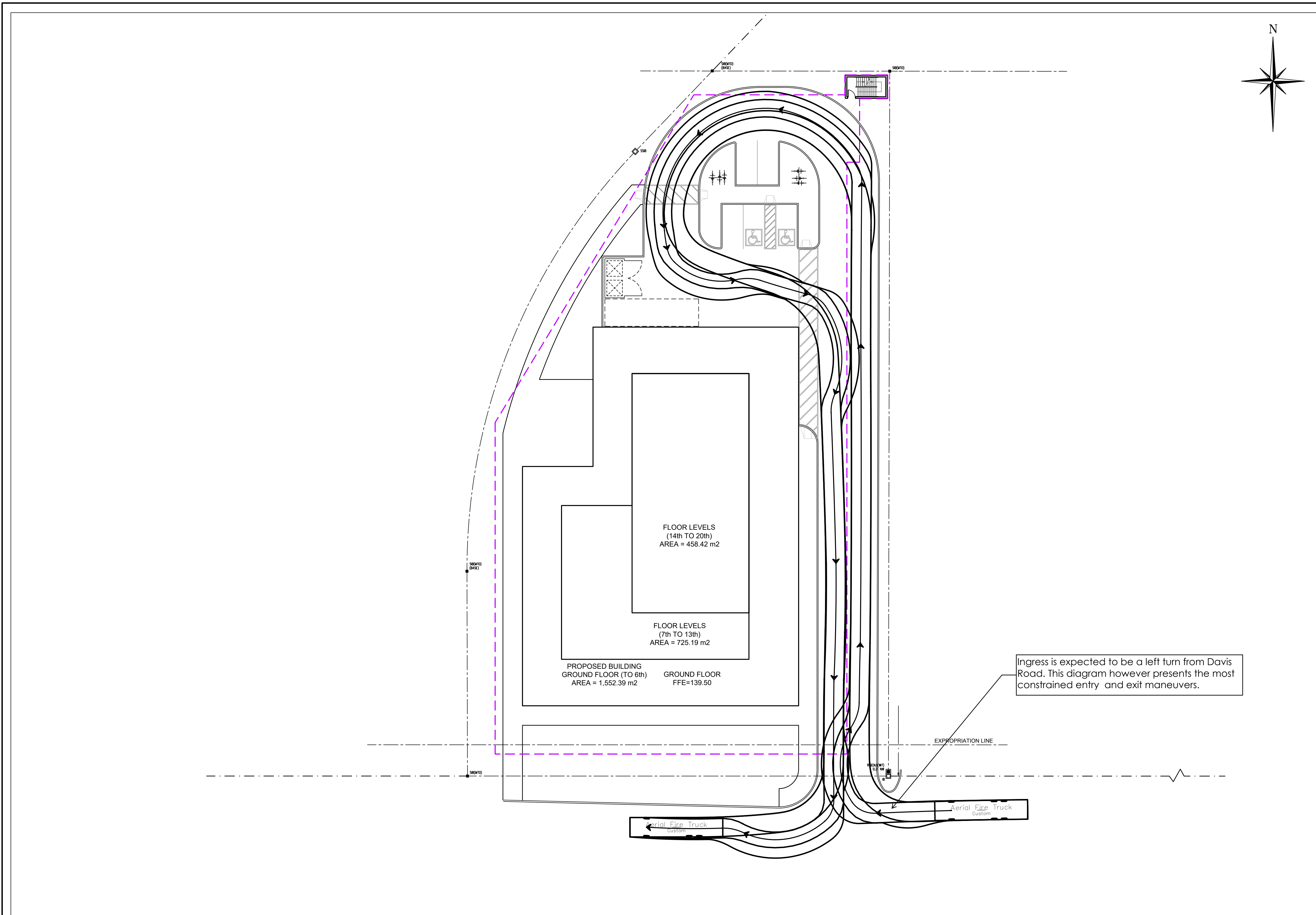
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Project
**349 DAVIS ROAD
TOWN OF OAKVILLE**

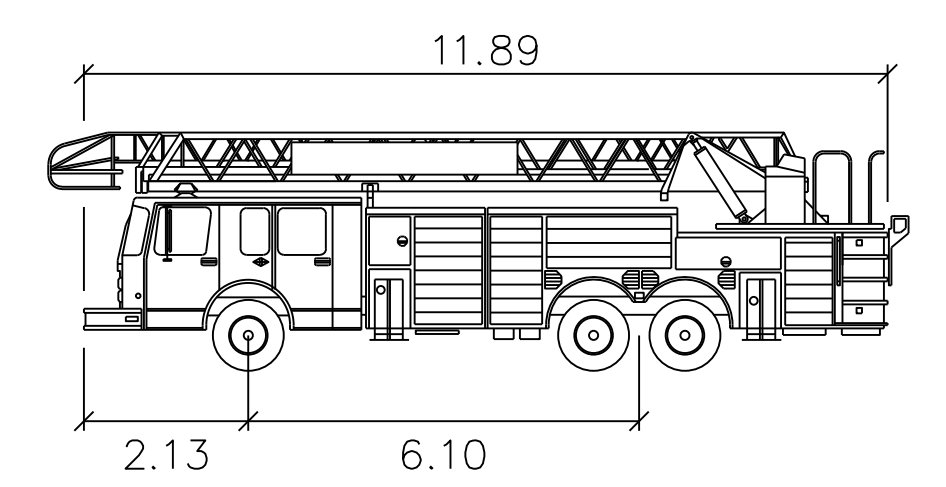
Drawing
**SITE CIRCULATION DIAGRAM
GARBAGE TRUCK**

Drawn By	A.D.	Design By	Project	2259-6324
Check By	A.H.	Check By	Scale	1:250 Drawing
				T300





VEHICLE PROFILE



Aerial Fire Truck

meters

Width : 2.49
Track : 2.49
Lock to Lock Time : 5.0
Steering Angle : 45.0

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0	ISSUED FOR REVIEW	05/03/2022

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Project
**349 DAVIS ROAD
TOWN OF OAKVILLE**

Drawing
**SITE CIRCULATION DIAGRAM
AERIAL FIRE TRUCK**

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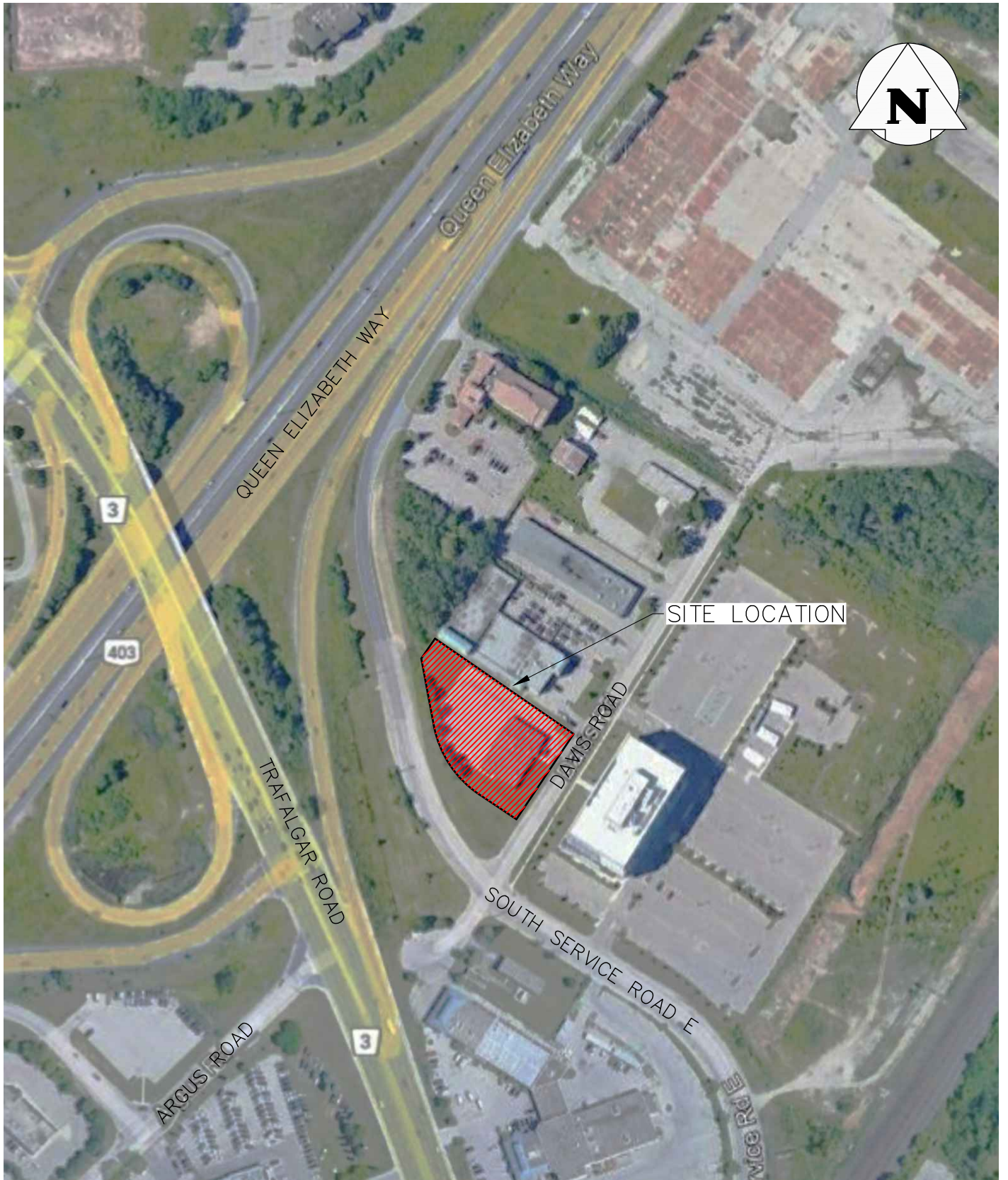
211 YONGE STREET
SUITE 301
TORONTO, ON, M5B 1M4
416-477-3392 T
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Check By	A.H.	Check By	Scale	1:250 Drawing



FIGURES

DRAFT



349 DAVIS ROAD
TOWN OF OAKVILLE

SITE LOCATION

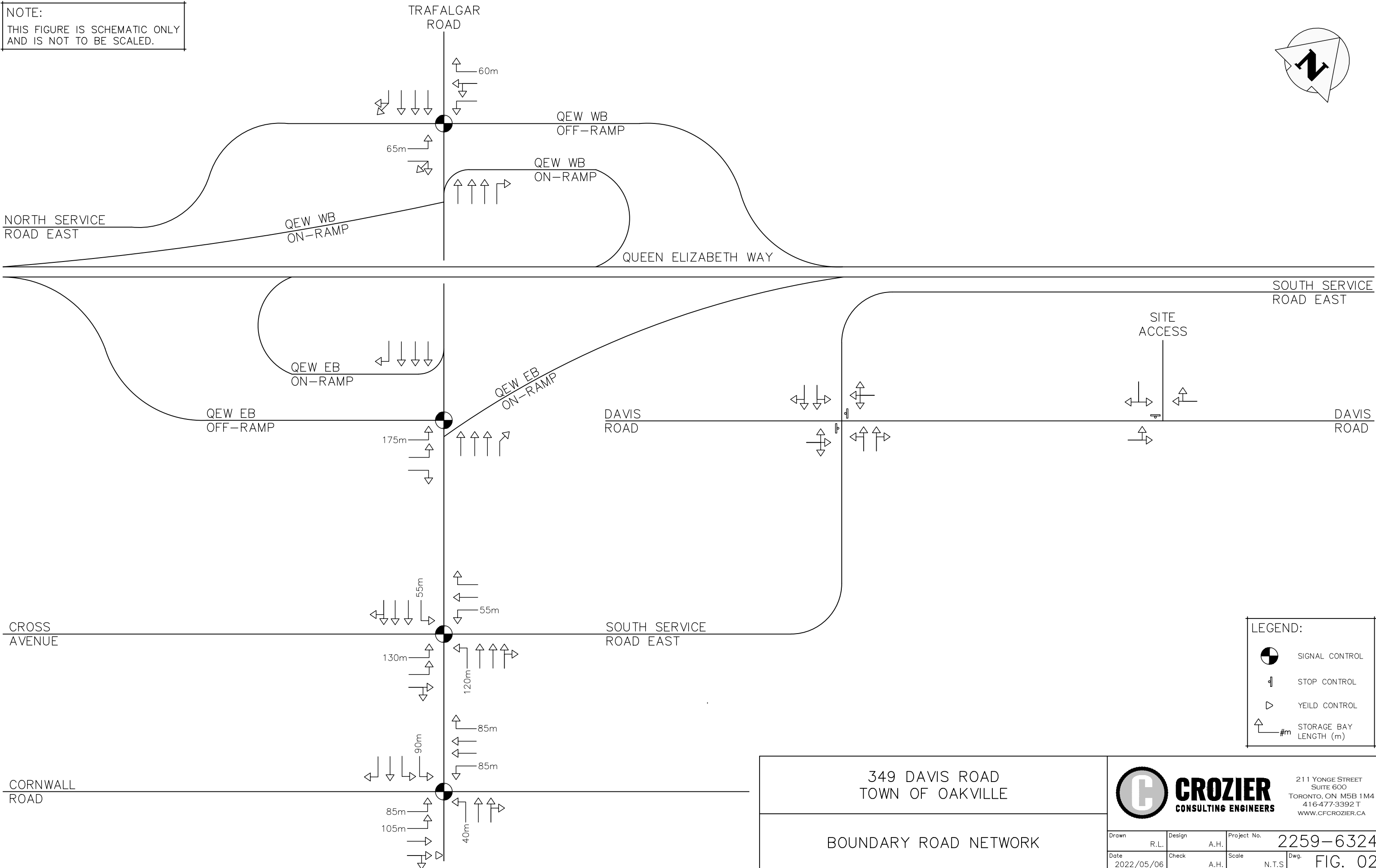
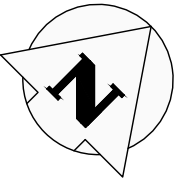


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Date	2022/05/06	Check	A.H.	Scale	N.T.S.	Dwg. FIG. 01

NOTE:
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AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- YIELD CONTROL
- STORAGE BAY LENGTH (m)

349 DAVIS ROAD
TOWN OF OAKVILLE

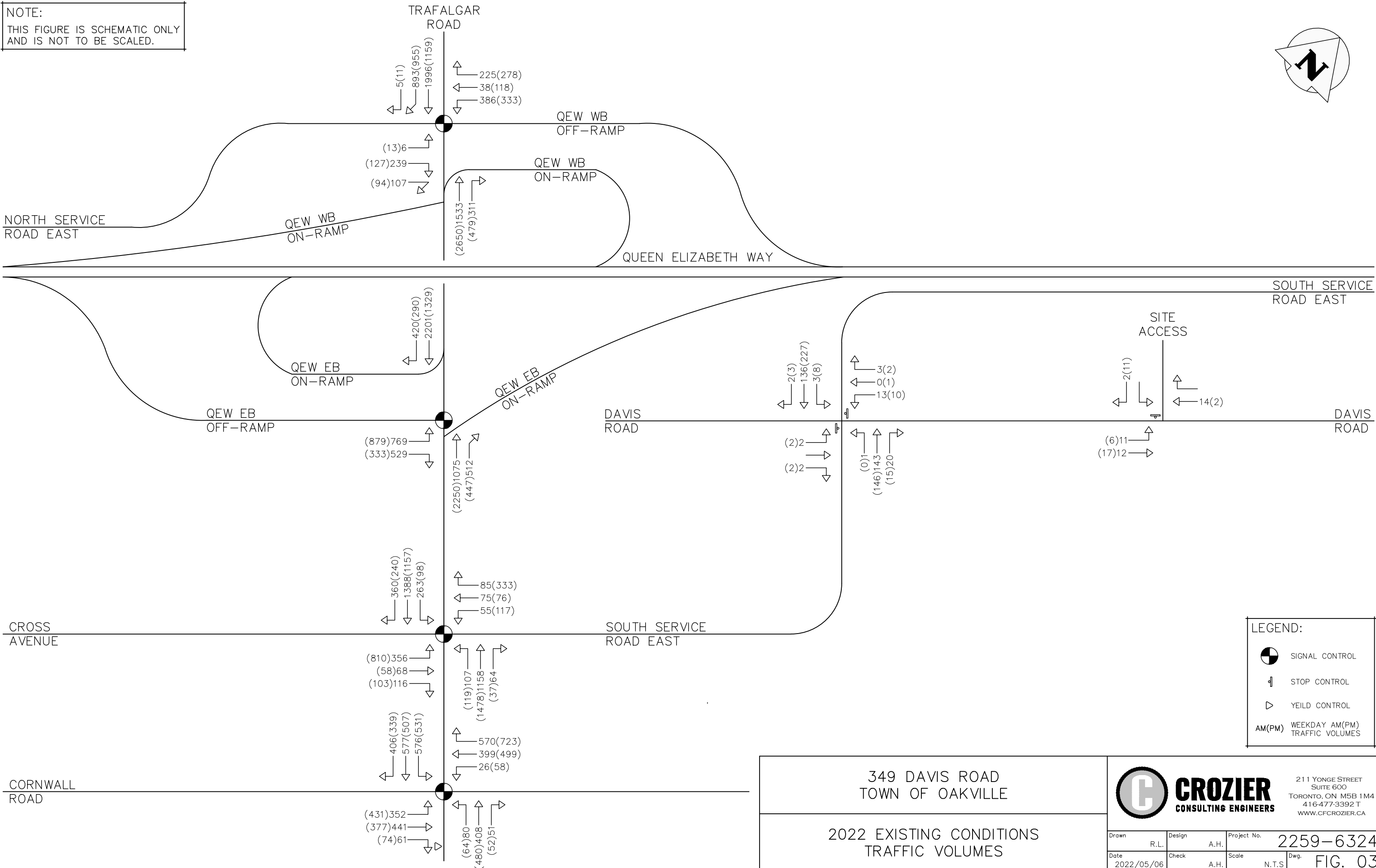
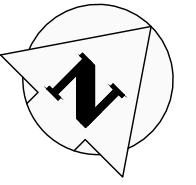
BOUNDARY ROAD NETWORK

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				Dwg.	FIG. 02

NOTE:
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LEGEND:

- Signal Control
- Stop Control
- Yield Control
- AM(PM) WEEKDAY AM(PM) TRAFFIC VOLUMES

349 DAVIS ROAD
TOWN OF OAKVILLE

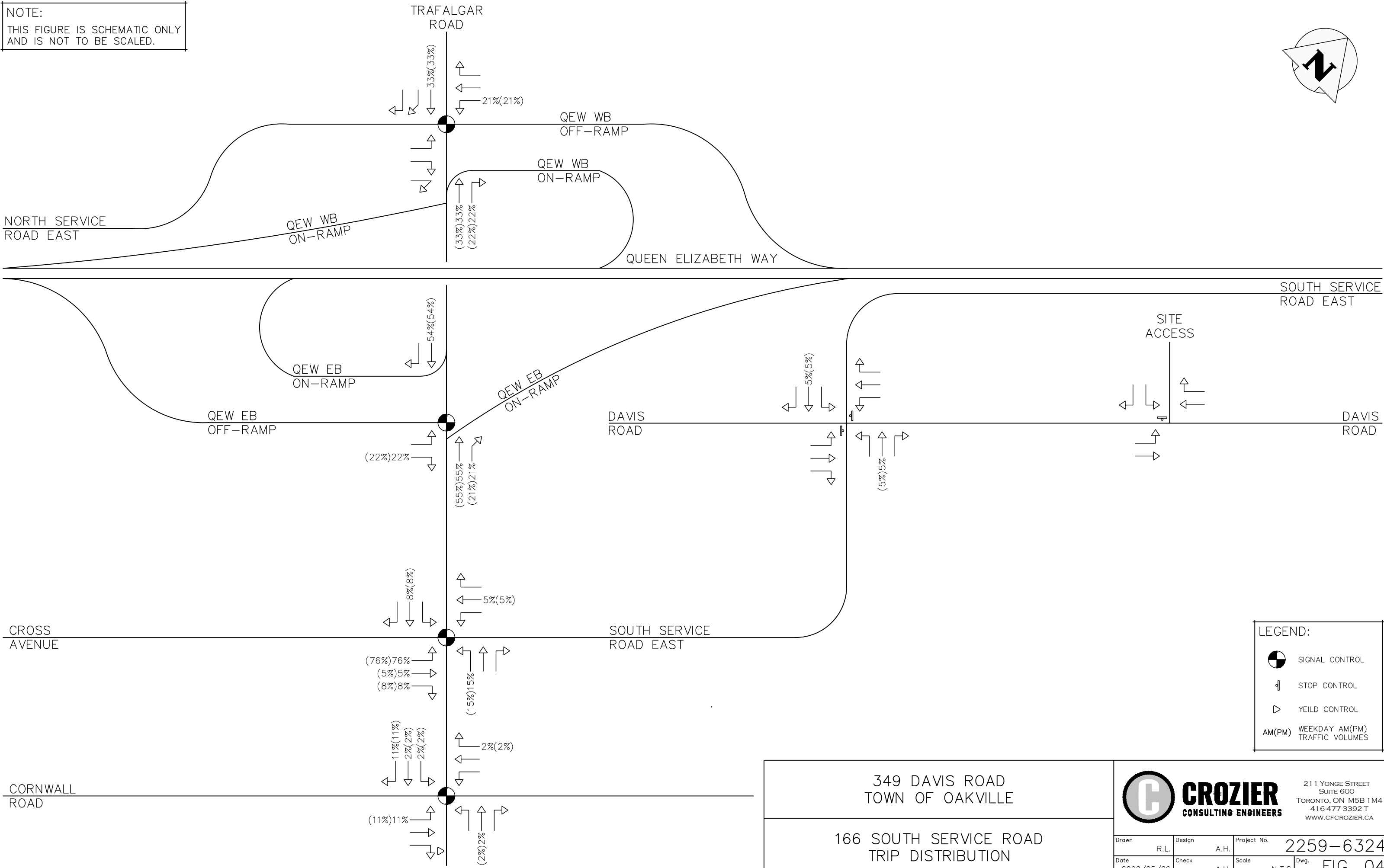
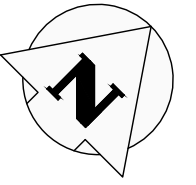
2022 EXISTING CONDITIONS
TRAFFIC VOLUMES

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Drawn	R.L.	Design	A.H.	Project No.	2259-6324
Date	2022/05/06	Check	A.H.	Scale	N.T.S.
				Dwg.	FIG. 03

NOTE:
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LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- YIELD CONTROL
- AM(PM) WEEKDAY AM(PM) TRAFFIC VOLUMES

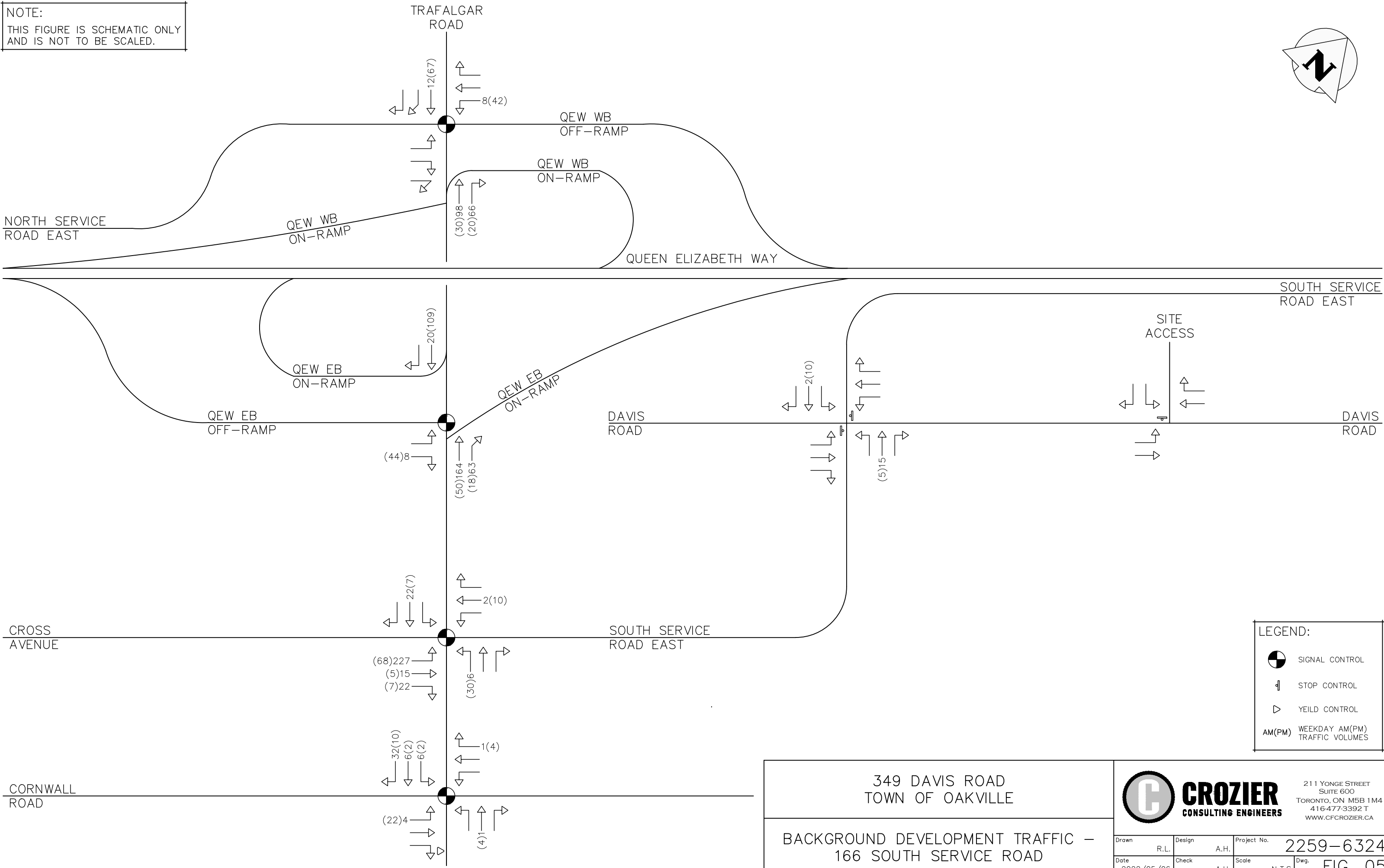
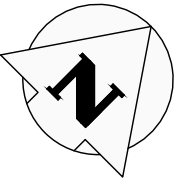
349 DAVIS ROAD
TOWN OF OAKVILLE

166 SOUTH SERVICE ROAD
TRIP DISTRIBUTION




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Drawn R.L.	Design A.H.	Project No. 2259-6324
Date 2022/05/06	Check A.H.	Scale N.T.S.
		Dwg. FIG. 04

NOTE:
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LEGEND:

-  SIGNAL CONTROL
-  STOP CONTROL
-  YIELD CONTROL
- AM(PM) WEEKDAY AM(PM) TRAFFIC VOLUMES

349 DAVIS ROAD
TOWN OF OAKVILLE

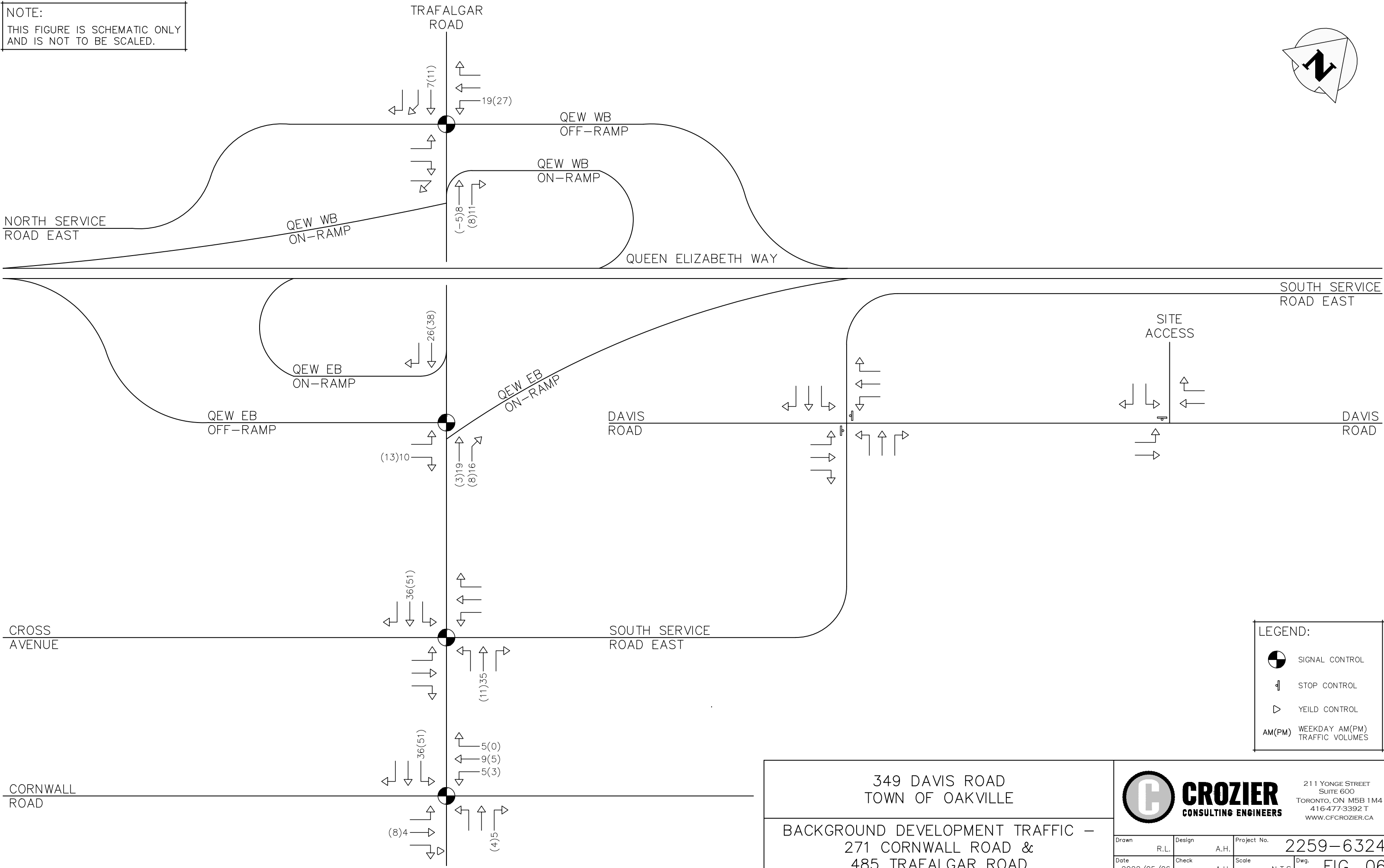
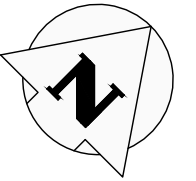
BACKGROUND DEVELOPMENT TRAFFIC –
166 SOUTH SERVICE ROAD






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Date	2022/05/06	Check	A.H.	Scale	N.T.S.
				Dwg.	FIG. 05

NOTE:
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LEGEND:

-  SIGNAL CONTROL
-  STOP CONTROL
-  YIELD CONTROL
- AM(PM) WEEKDAY AM(PM) TRAFFIC VOLUMES

349 DAVIS ROAD
TOWN OF OAKVILLE

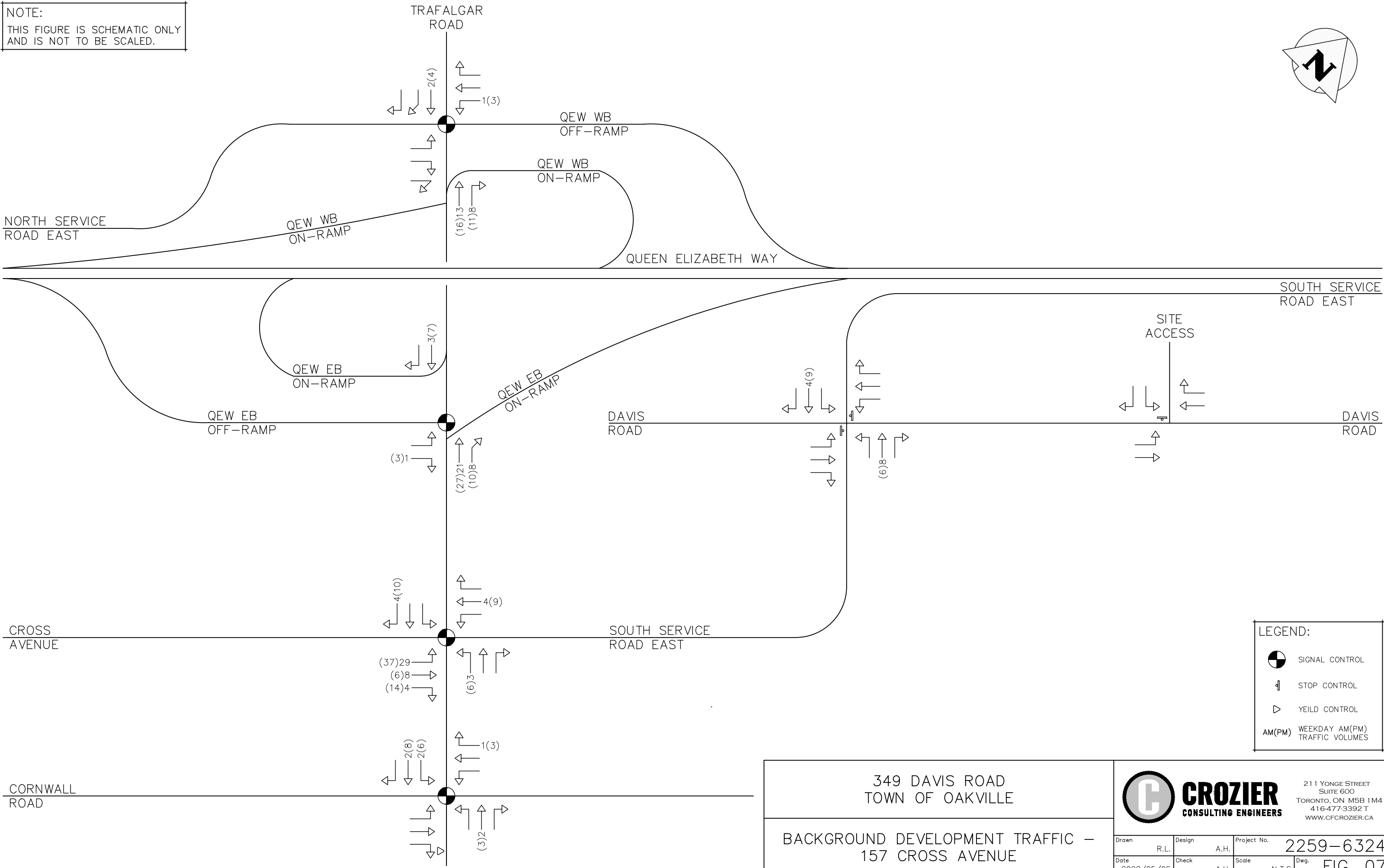
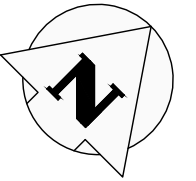
BACKGROUND DEVELOPMENT TRAFFIC –
271 CORNWALL ROAD &
485 TRAFALGAR ROAD



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Date	2022/05/06	Check	A.H.	Scale	N.T.S.
				Dwg.	FIG. 06

NOTE:
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AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- YIELD CONTROL
- AM(PM)** WEEKDAY AM(PM) TRAFFIC VOLUMES

349 DAVIS ROAD
TOWN OF OAKVILLE

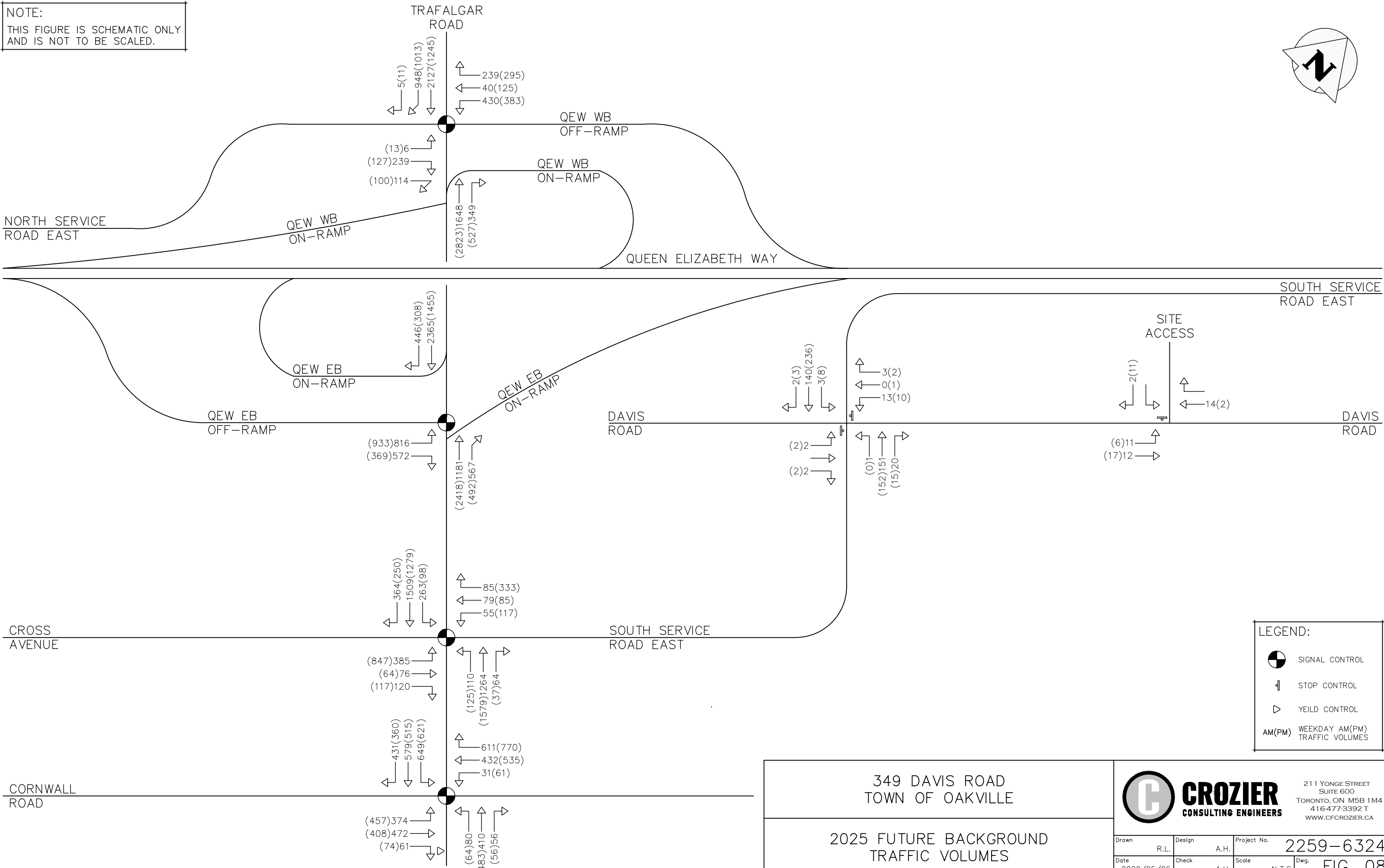
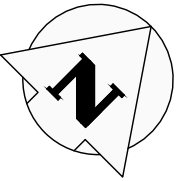
BACKGROUND DEVELOPMENT TRAFFIC –
157 CROSS AVENUE

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Date	2022/05/06	Check	A.H.	Scale	N.T.S.
					Dwg. FIG. 07

NOTE:
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AND IS NOT TO BE SCALED.



349 DAVIS ROAD
TOWN OF OAKVILLE

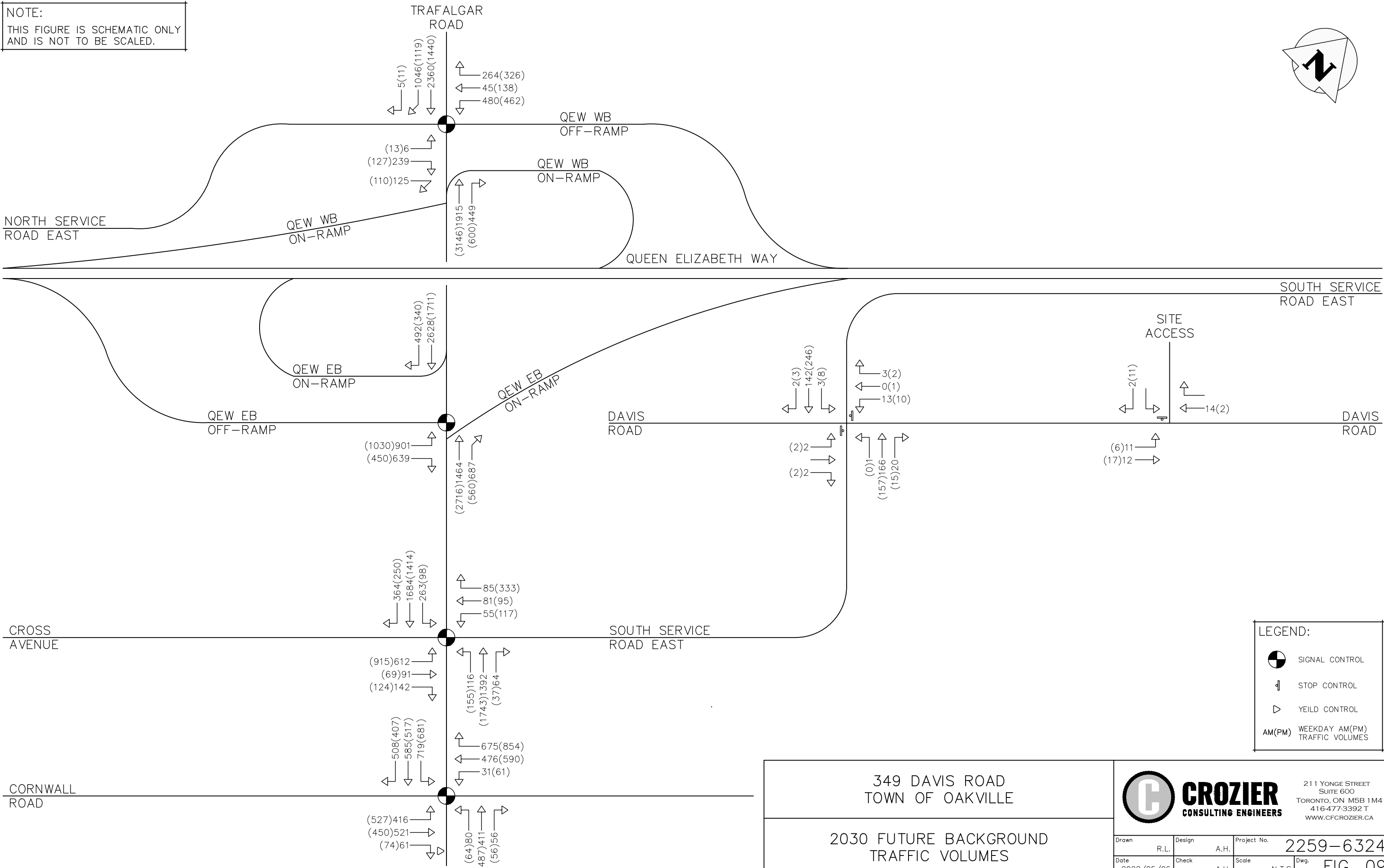
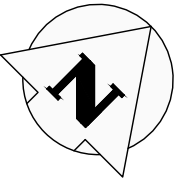
2025 FUTURE BACKGROUND
TRAFFIC VOLUMES

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Date	2022/05/06	Check	A.H.	Scale	N.T.S.
				Dwg.	FIG. 08

NOTE:
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AND IS NOT TO BE SCALED.

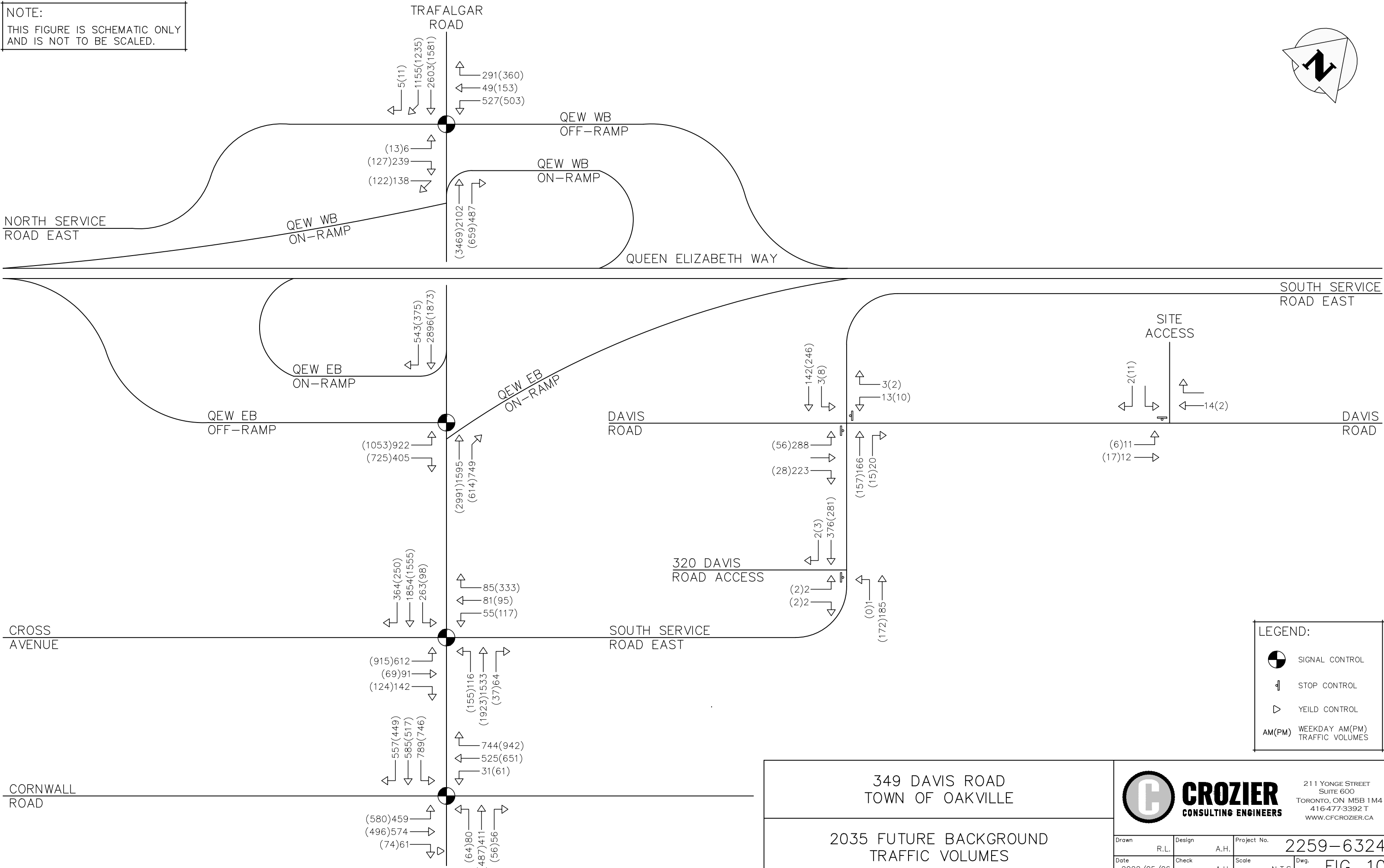
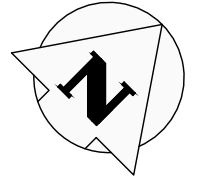


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Date	2022/05/06	Check	A.H.	Scale	N.T.S.
				Dwg.	FIG. 09

NOTE:
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LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- YIELD CONTROL
- AM(PM) WEEKDAY AM(PM) TRAFFIC VOLUMES

349 DAVIS ROAD
TOWN OF OAKVILLE

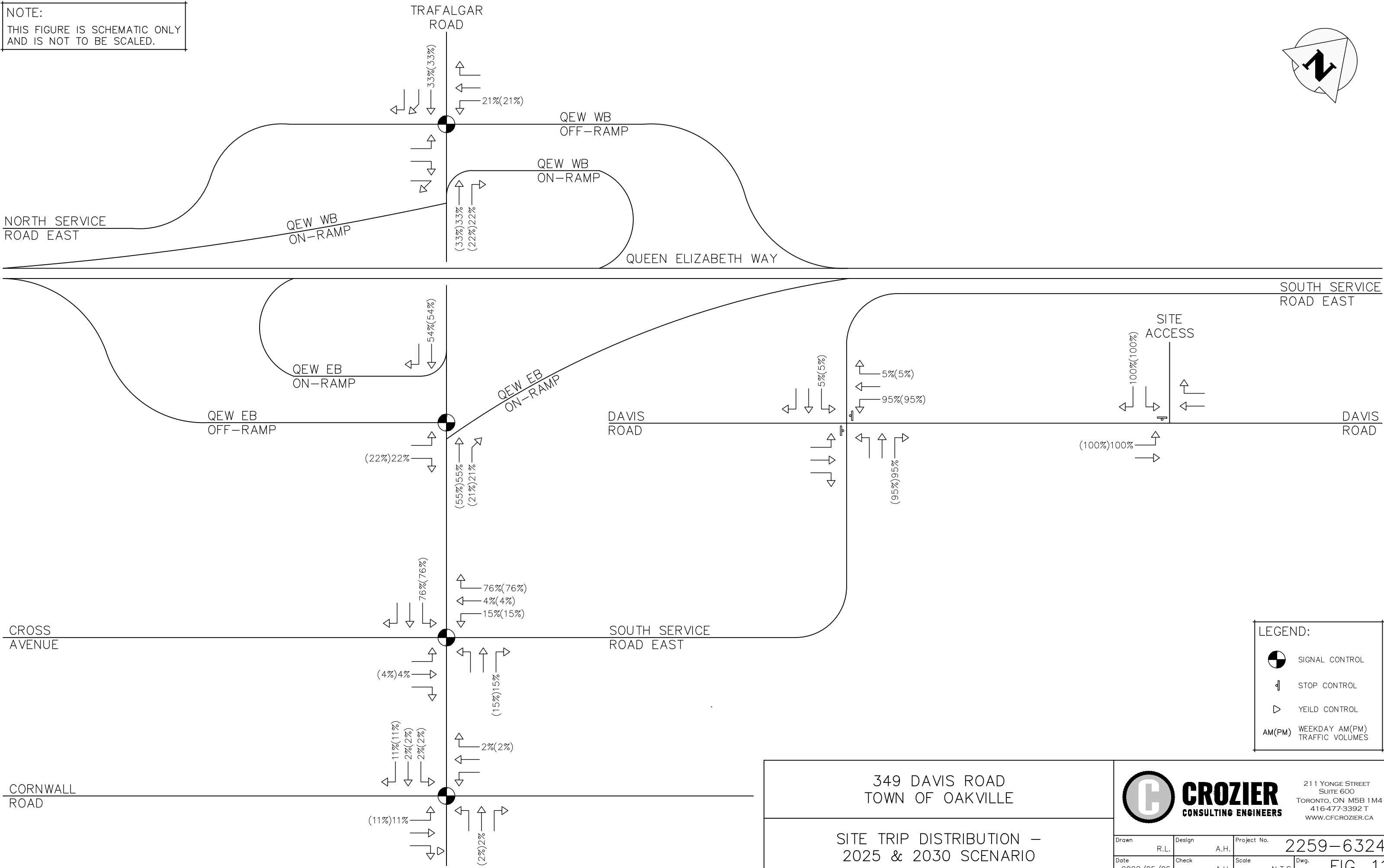
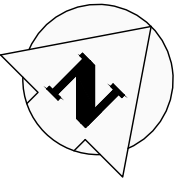
2035 FUTURE BACKGROUND
TRAFFIC VOLUMES

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Date	2022/05/06	Check	A.H.	Scale	N.T.S.
				Dwg.	FIG. 10

NOTE:
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LEGEND:

-  SIGNAL CONTROL
-  STOP CONTROL
-  YIELD CONTROL
- AM(PM)** WEEKDAY AM(PM) TRAFFIC VOLUMES

349 DAVIS ROAD
TOWN OF OAKVILLE

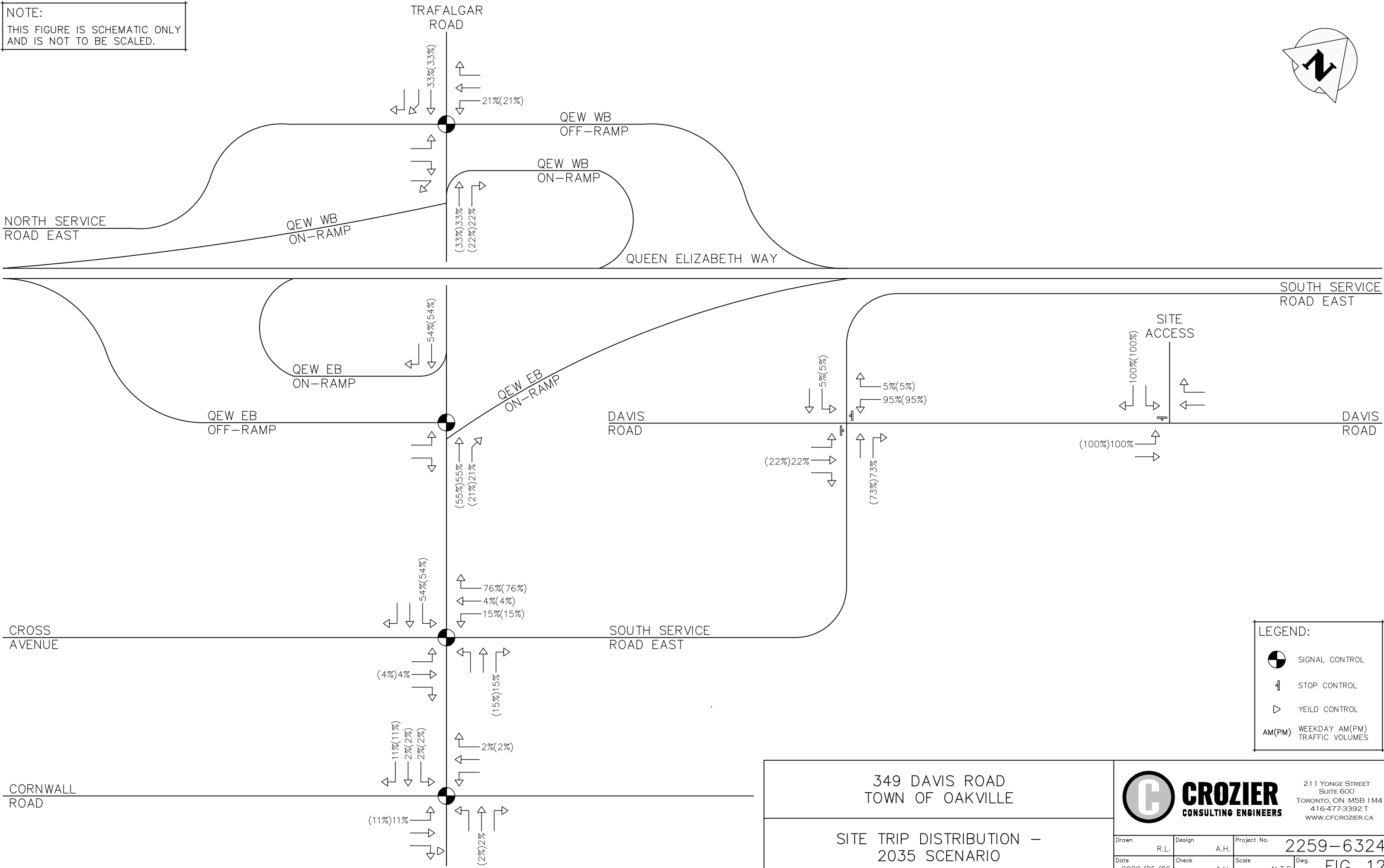
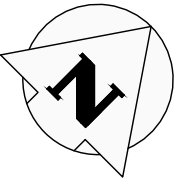
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2025 & 2030 SCENARIO



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Date 2022/05/06	Check A.H.	Scale N.T.S.
		Dwg. FIG. 11

NOTE:
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LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- YIELD CONTROL
- AM(PM) WEEKDAY AM(PM) TRAFFIC VOLUMES

349 DAVIS ROAD
TOWN OF OAKVILLE

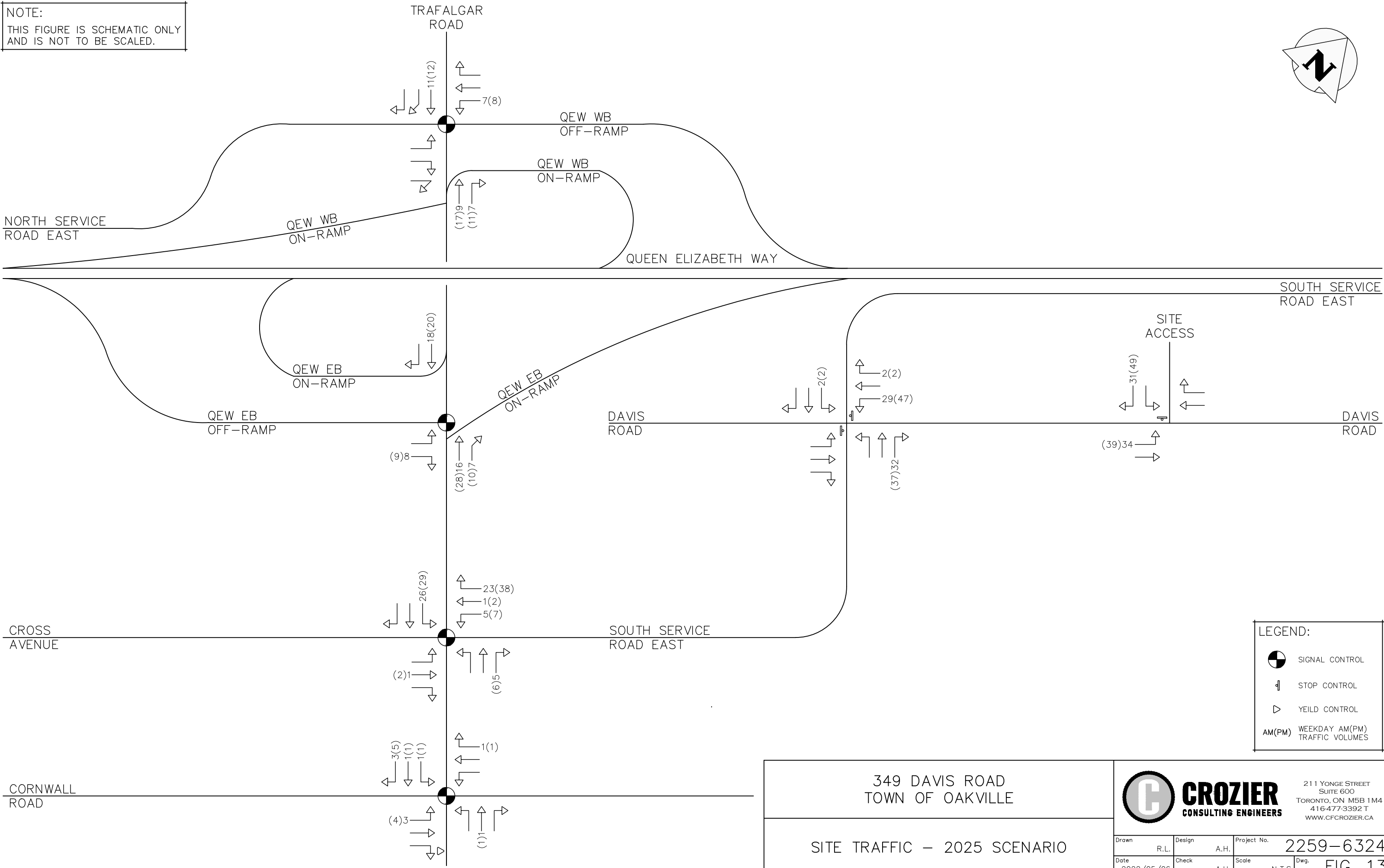
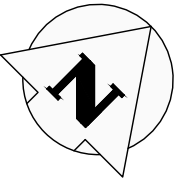
SITE TRIP DISTRIBUTION –
2035 SCENARIO

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Drawn	R.L.	Design	A.H.	Project No.	2259-6324
Date	2022/05/06	Check	A.H.	Scale	N.T.S.
				Dwg.	FIG. 12

NOTE:
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LEGEND:

-  SIGNAL CONTROL
-  STOP CONTROL
-  YIELD CONTROL
- AM(PM)** WEEKDAY AM(PM) TRAFFIC VOLUMES

349 DAVIS ROAD
TOWN OF OAKVILLE

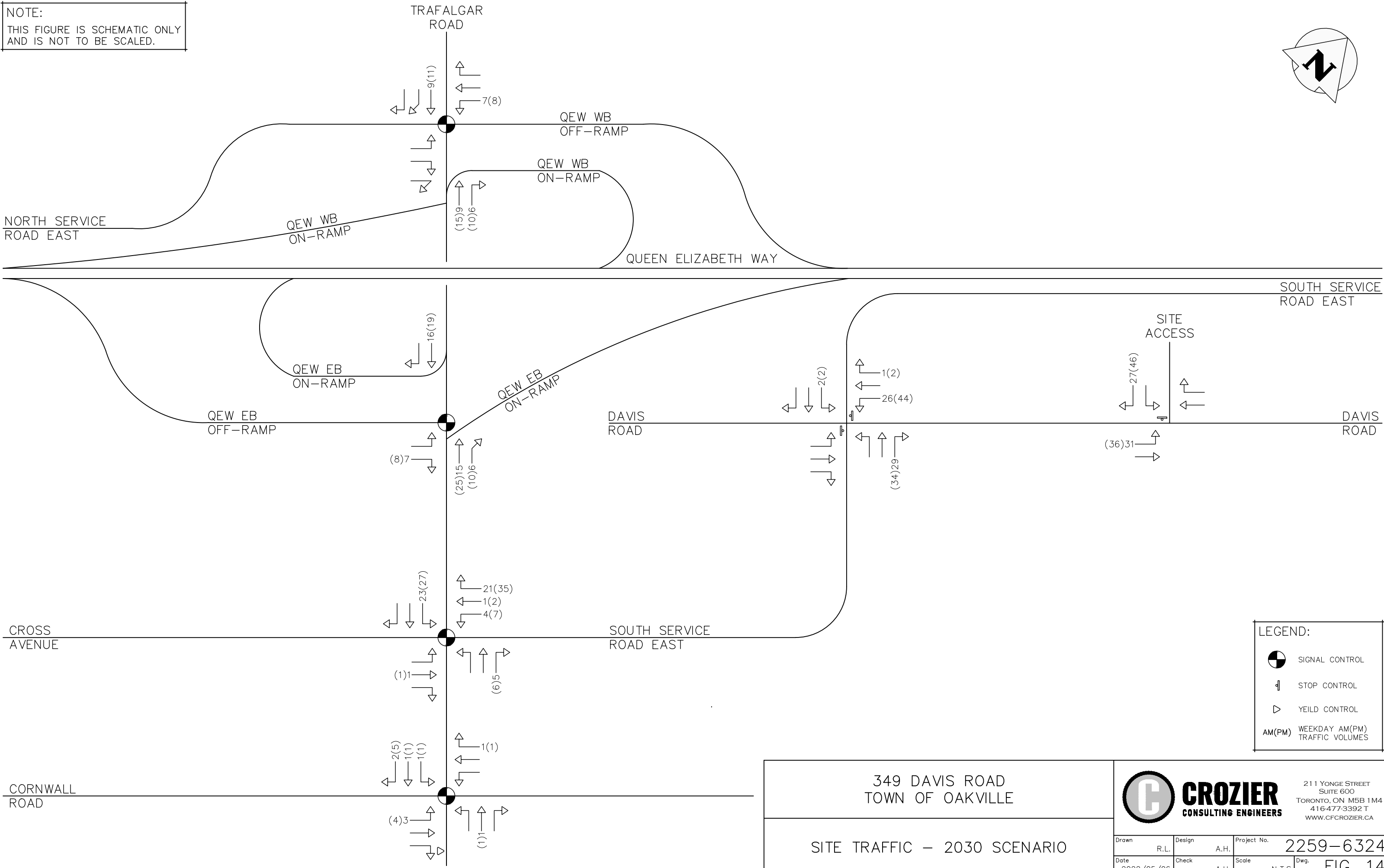
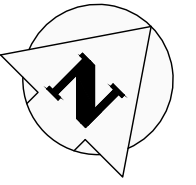
SITE TRAFFIC – 2025 SCENARIO






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Drawn R.L.	Design A.H.	Project No. 2259-6324
Date 2022/05/06	Check A.H.	Scale N.T.S.
		Dwg. FIG. 13

NOTE:
THIS FIGURE IS SCHEMATIC ONLY
AND IS NOT TO BE SCALED.



LEGEND:

-  SIGNAL CONTROL
-  STOP CONTROL
-  YIELD CONTROL
- AM(PM) WEEKDAY AM(PM) TRAFFIC VOLUMES

349 DAVIS ROAD
TOWN OF OAKVILLE

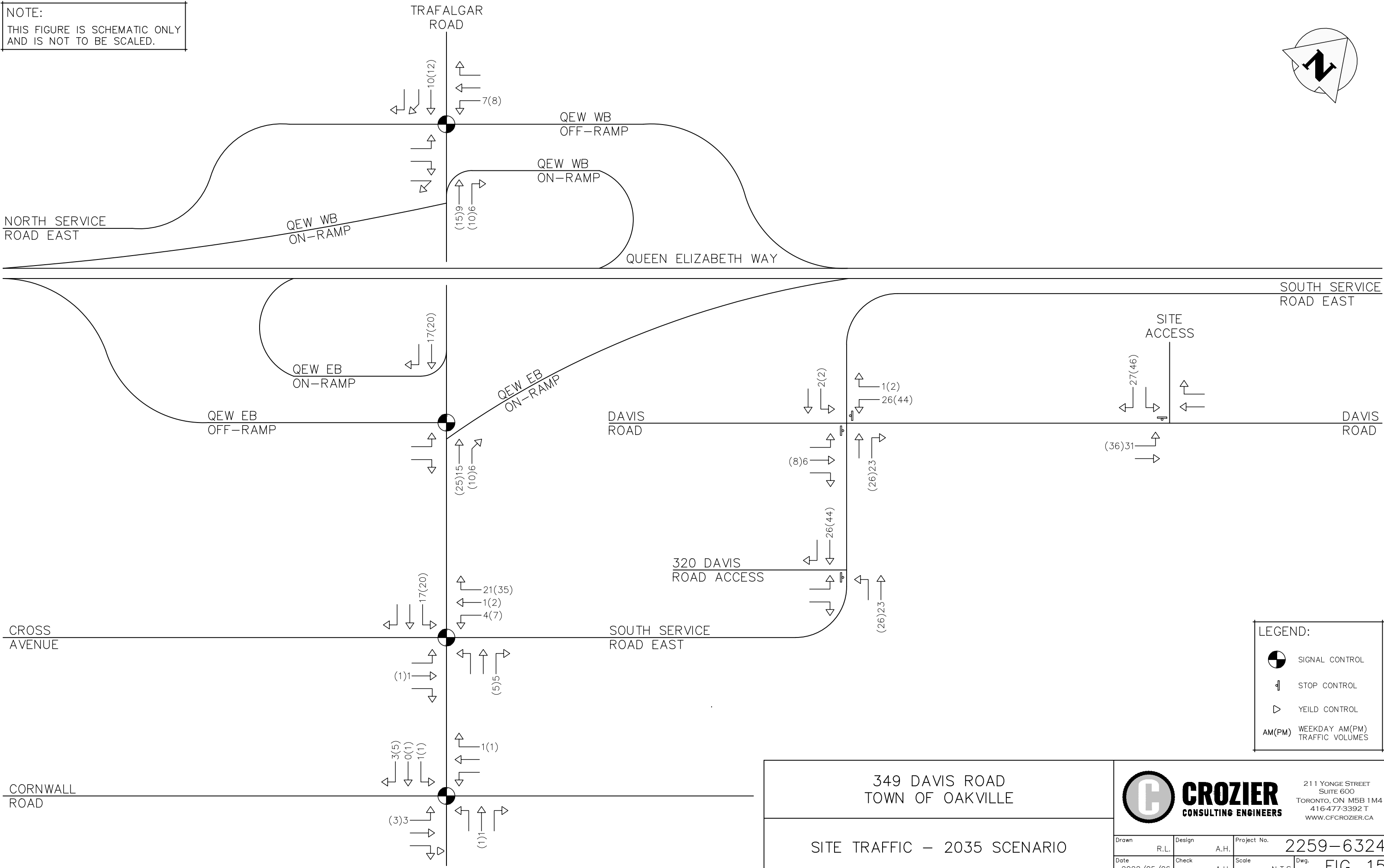
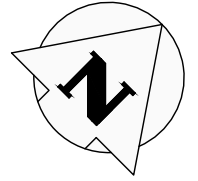
SITE TRAFFIC – 2030 SCENARIO






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Drawn	R.L.	Design	A.H.	Project No.	2259-6324
Date	2022/05/06	Check	A.H.	Scale	N.T.S.
				Dwg.	FIG. 14

NOTE:
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AND IS NOT TO BE SCALED.



LEGEND:

-  SIGNAL CONTROL
-  STOP CONTROL
-  YIELD CONTROL
- AM(PM) WEEKDAY AM(PM) TRAFFIC VOLUMES

349 DAVIS ROAD
TOWN OF OAKVILLE

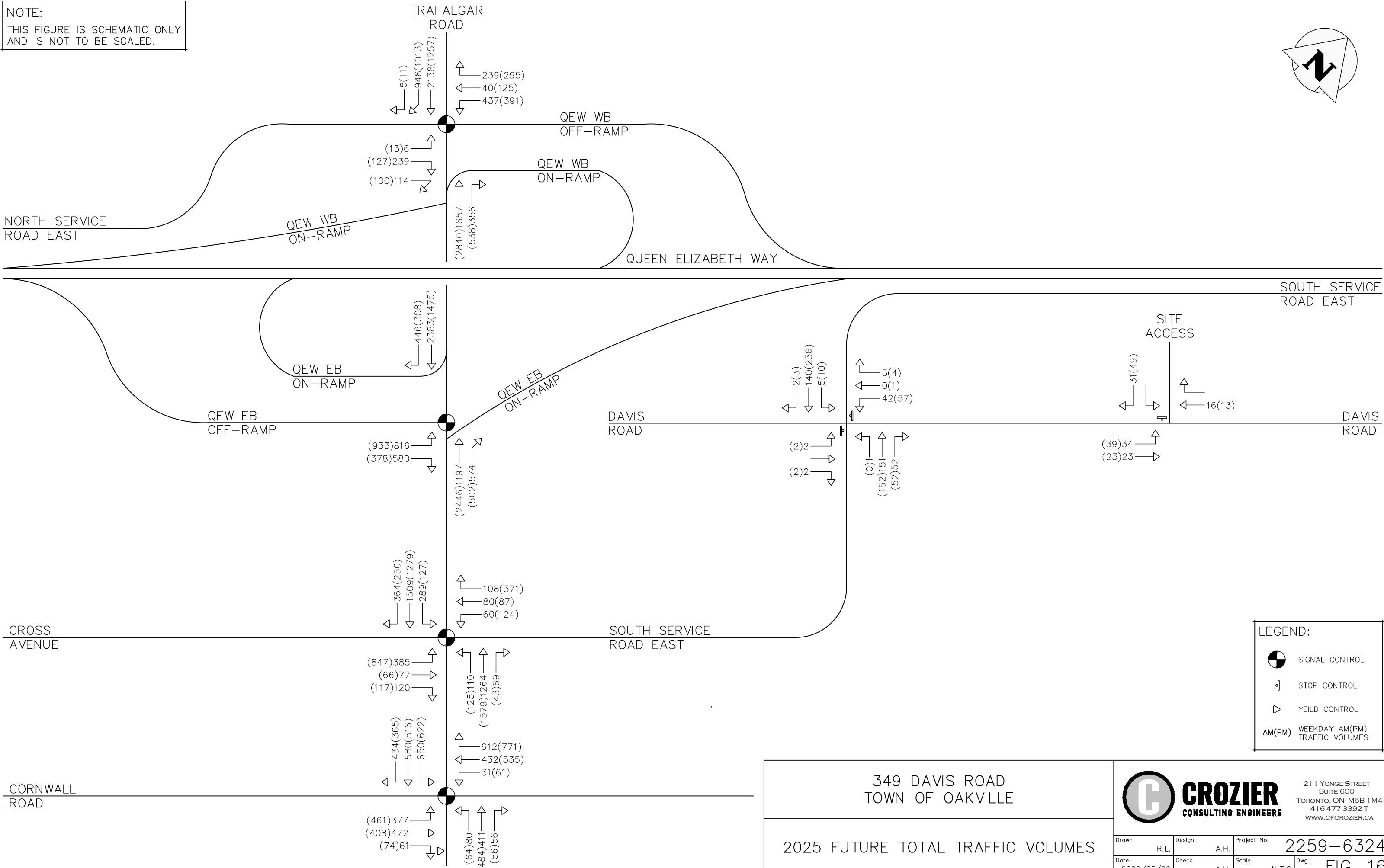
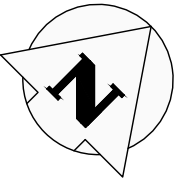
SITE TRAFFIC – 2035 SCENARIO



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Drawn	R.L.	Design	A.H.	Project No.	2259-6324	
Date	2022/05/06	Check	A.H.	Scale	N.T.S.	
					Dwg.	FIG. 15

NOTE:
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AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- YIELD CONTROL
- AM(PM) WEEKDAY AM(PM) TRAFFIC VOLUMES

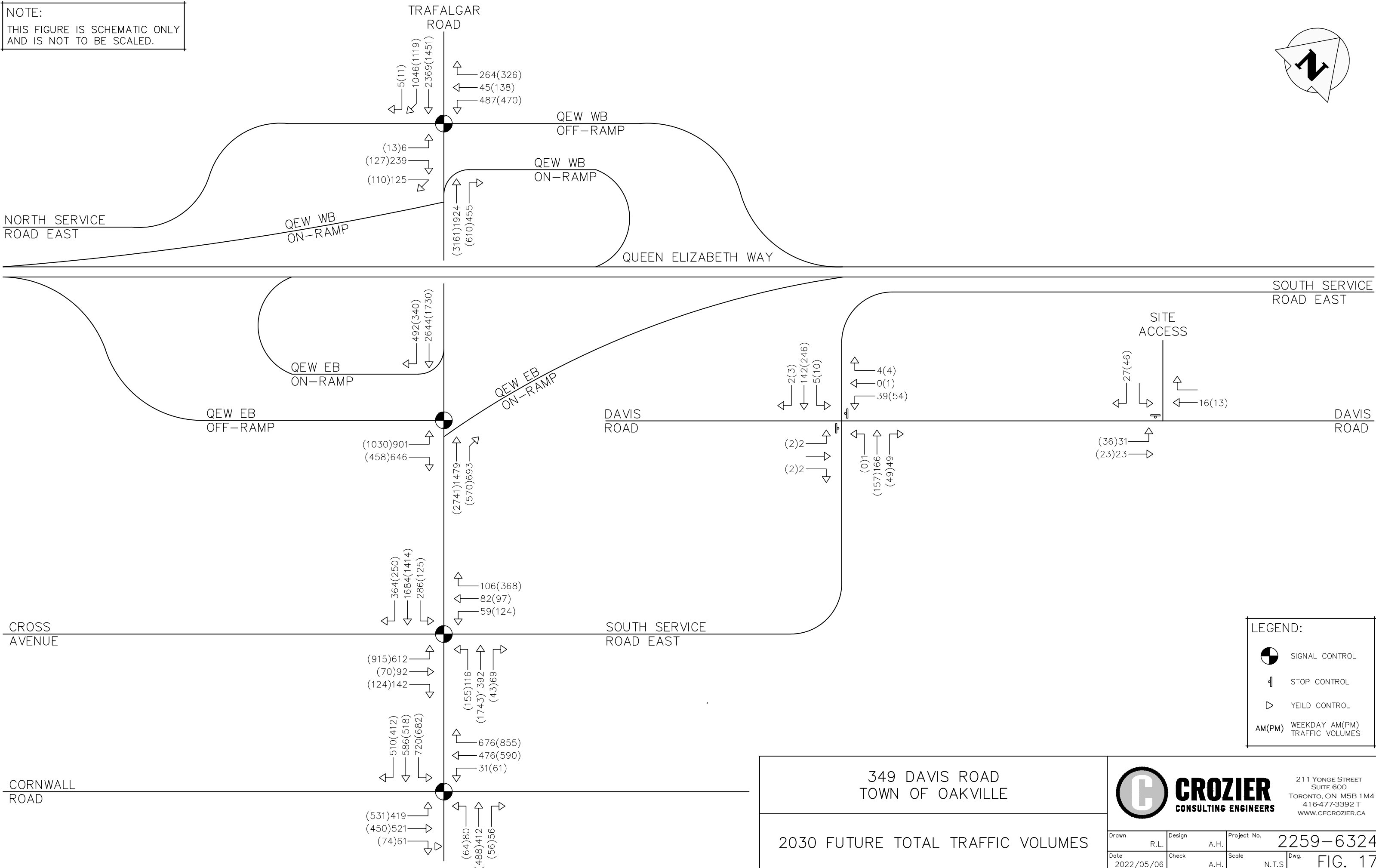
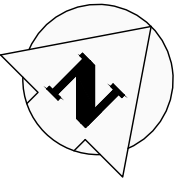
349 DAVIS ROAD
TOWN OF OAKVILLE

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Drawn	R.L.	Design	A.H.	Project No.	2259-6324
Date	2022/05/06	Check	A.H.	Scale	N.T.S.
					Dwg.
					FIG. 16

NOTE:
THIS FIGURE IS SCHEMATIC ONLY
AND IS NOT TO BE SCALED.

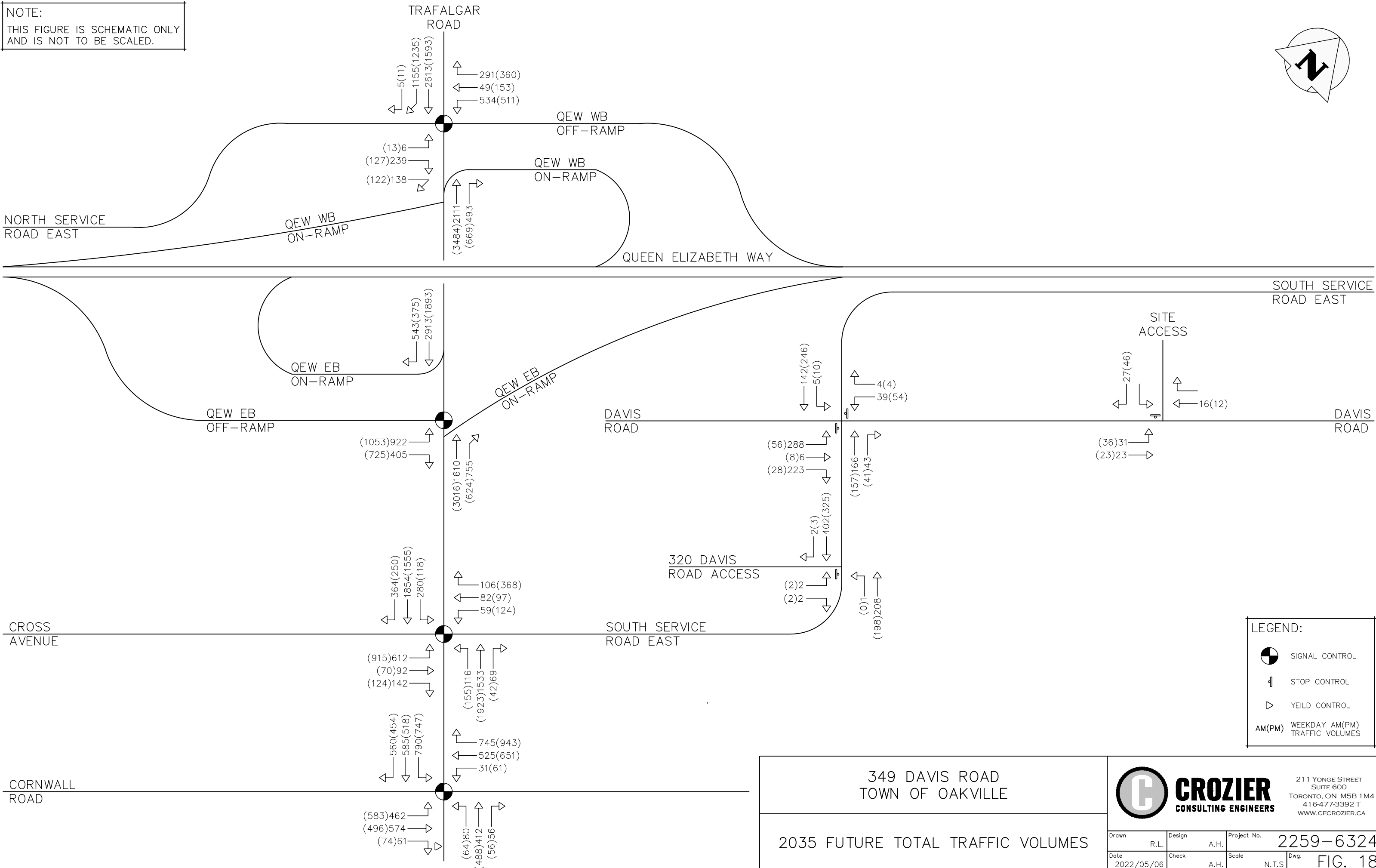
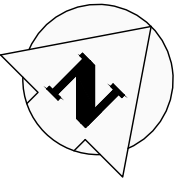


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Drawn	R.L.	Design	A.H.	Project No.	2259-6324
Date	2022/05/06	Check	A.H.	Scale	N.T.S.
				Dwg.	FIG. 17

NOTE:
THIS FIGURE IS SCHEMATIC ONLY
AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- YIELD CONTROL
- AM(PM) WEEKDAY AM(PM) TRAFFIC VOLUMES

349 DAVIS ROAD
TOWN OF OAKVILLE

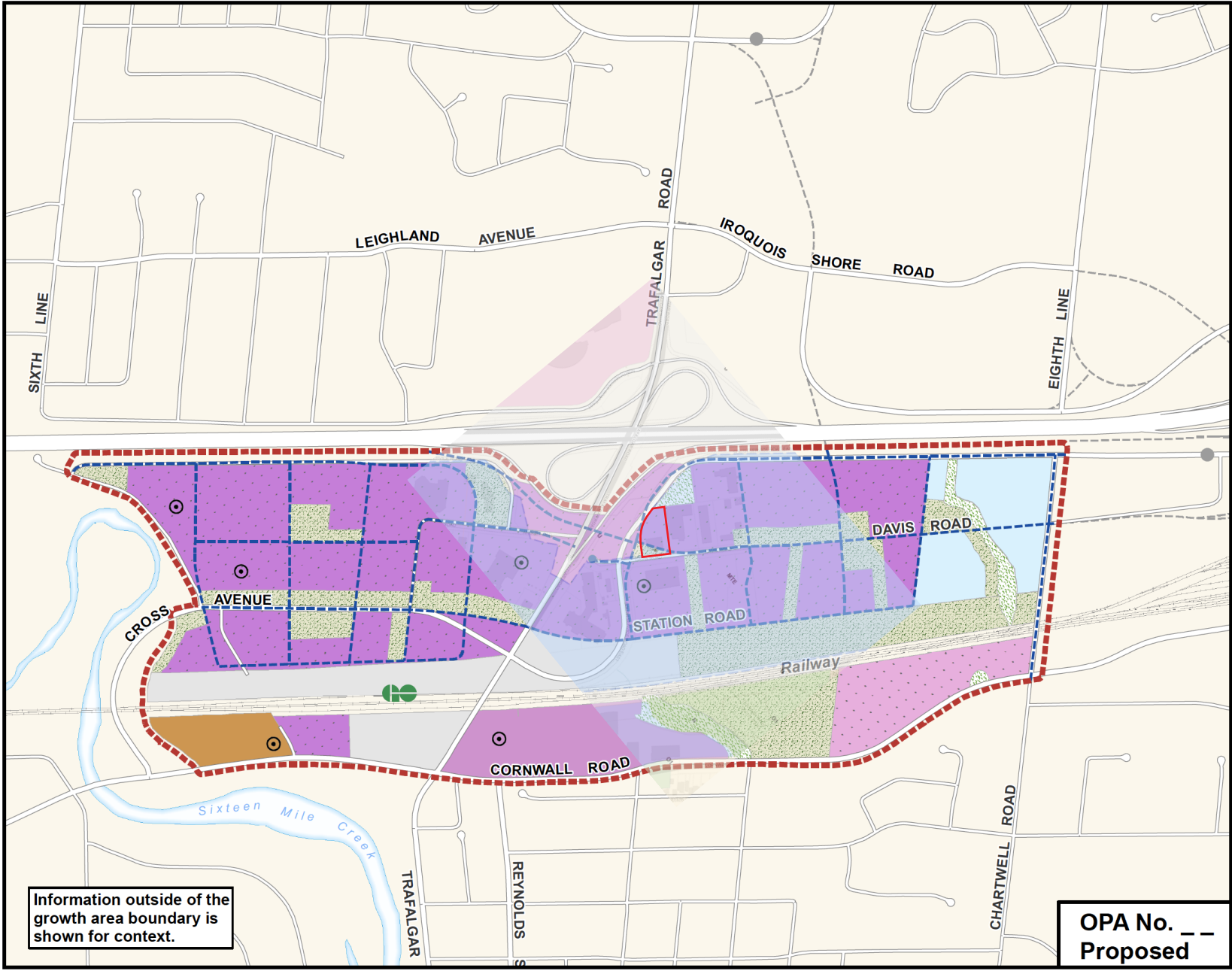
2035 FUTURE TOTAL TRAFFIC VOLUMES

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Drawn	R.L.	Design	A.H.	Project No.	2259-6324
Date	2022/05/06	Check	A.H.	Scale	N.T.S.
					Dwg.
					FIG. 18

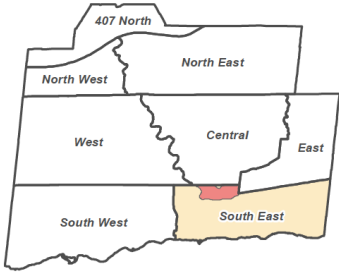
Schedule D
349 Davis Road Map Overlay



Information outside of the growth area boundary is shown for context.

OPA No. _ _
Proposed

SCHEDULE L1 MIDTOWN OAKVILLE LAND USE

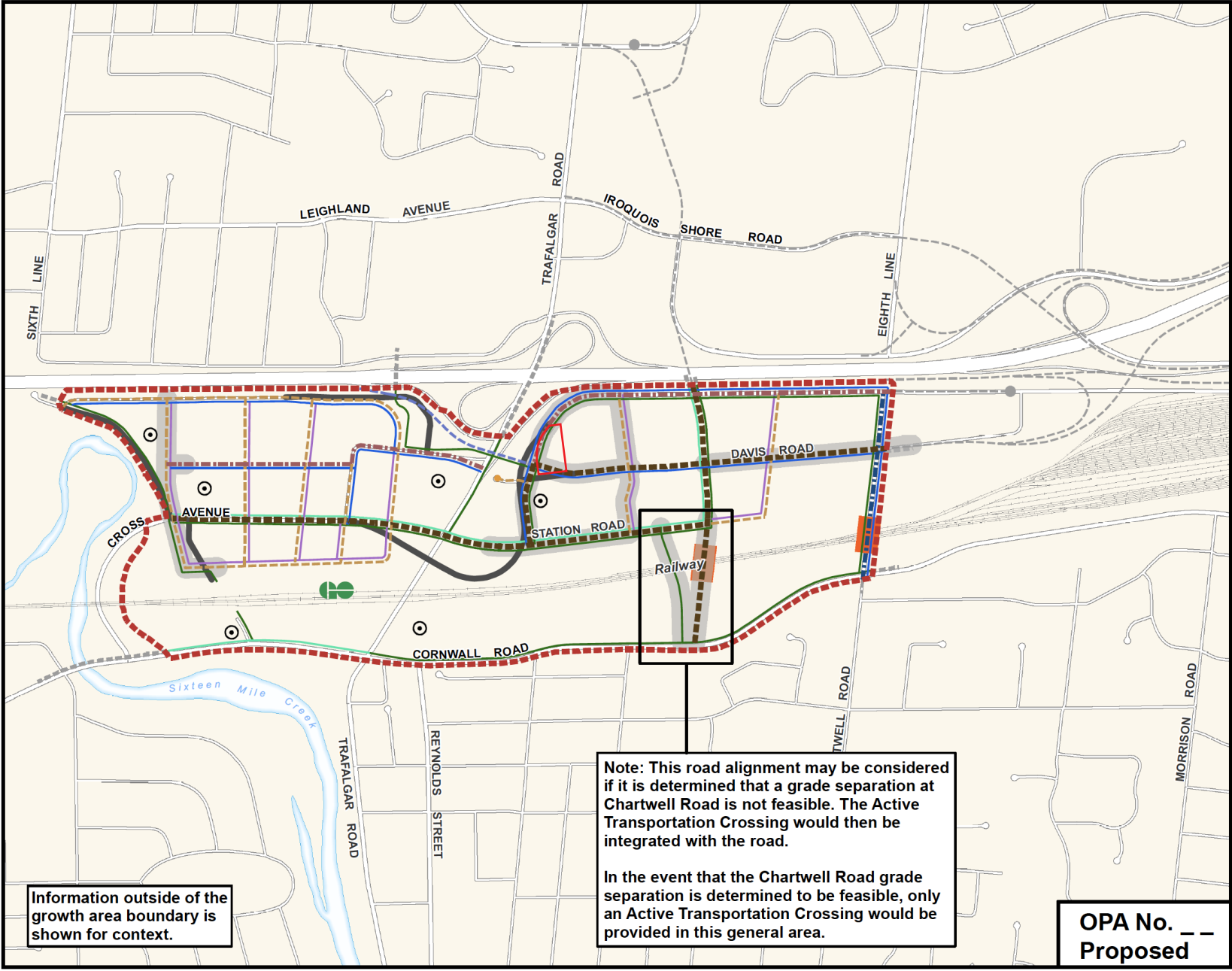


- URBAN GROWTH CENTRE / PROTECTED MAJOR TRANSIT STATION AREA / GROWTH AREA BOUNDARY
 - HIGH DENSITY RESIDENTIAL
 - COMMUNITY COMMERCIAL
 - URBAN CENTRE
 - URBAN CORE
 - OFFICE EMPLOYMENT
 - NATURAL AREA
 - PARKS AND OPEN SPACE
 - UTILITY
 - FUTURE ROADS
(Refer to Schedule L3 for more detail)
 - FUTURE CUL-DE-SAC
 - RAILWAY
 - MAJOR TRANSIT STATION
- REFER TO PART E, MIDTOWN OAKVILLE, FOR GROWTH AREA POLICIES
- REFER TO PART E, MIDTOWN OAKVILLE EXCEPTIONS



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MAY 12, 2022

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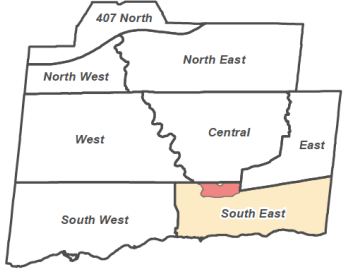
Information outside of the growth area boundary is shown for context.

Note: This road alignment may be considered if it is determined that a grade separation at Chartwell Road is not feasible. The Active Transportation Crossing would then be integrated with the road.

In the event that the Chartwell Road grade separation is determined to be feasible, only an Active Transportation Crossing would be provided in this general area.

OPA No. --
Proposed

SCHEDULE L3 MIDTOWN OAKVILLE TRANSPORTATION NETWORK

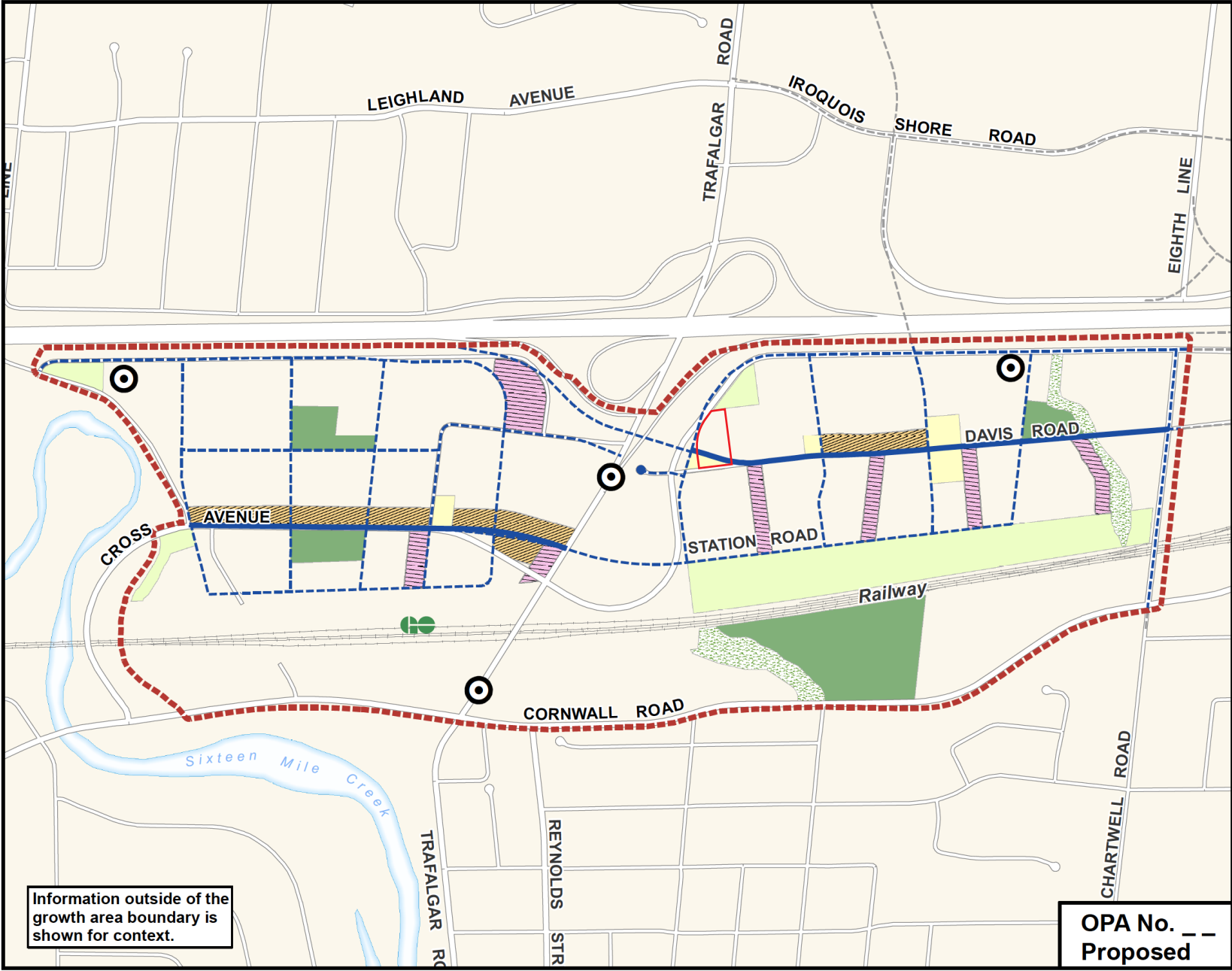


- URBAN GROWTH CENTRE / PROTECTED MAJOR TRANSIT STATION AREA GROWTH AREA BOUNDARY
- EXISTING ROAD NETWORK
- FUTURE 35m ARTERIAL (4-LANE)
- FUTURE 26m MINOR ARTERIAL (CHARTWELL)
- FUTURE 26m COLLECTOR (2-LANE)
- FUTURE 22m LOCAL ROAD (2-LANE)
- FUTURE RAMP
- FUTURE BUFFERED BIKE LANE
- FUTURE MULTI-USE TRAIL
- FUTURE BIKE LANE
- FUTURE SIGNED ROUTE
- FINAL ROAD ALIGNMENT SUBJECT TO FURTHER STUDY
- ROAD PROPOSED TO BE ABANDONED
- FUTURE CUL-DE-SAC
- FUTURE RAILWAY GRADE SEPARATION
- RAILWAY
- MAJOR TRANSIT STATION
- REFER TO PART E, MIDTOWN OAKVILLE FOR GROWTH AREA POLICIES
- REFER TO PART E, MIDTOWN OAKVILLE EXCEPTIONS



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MAY 12, 2022

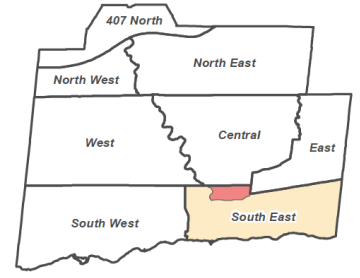
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Information outside of the growth area boundary is shown for context.

OPA No. _ _
Proposed

SCHEDULE L4 MIDTOWN OAKVILLE PUBLIC REALM



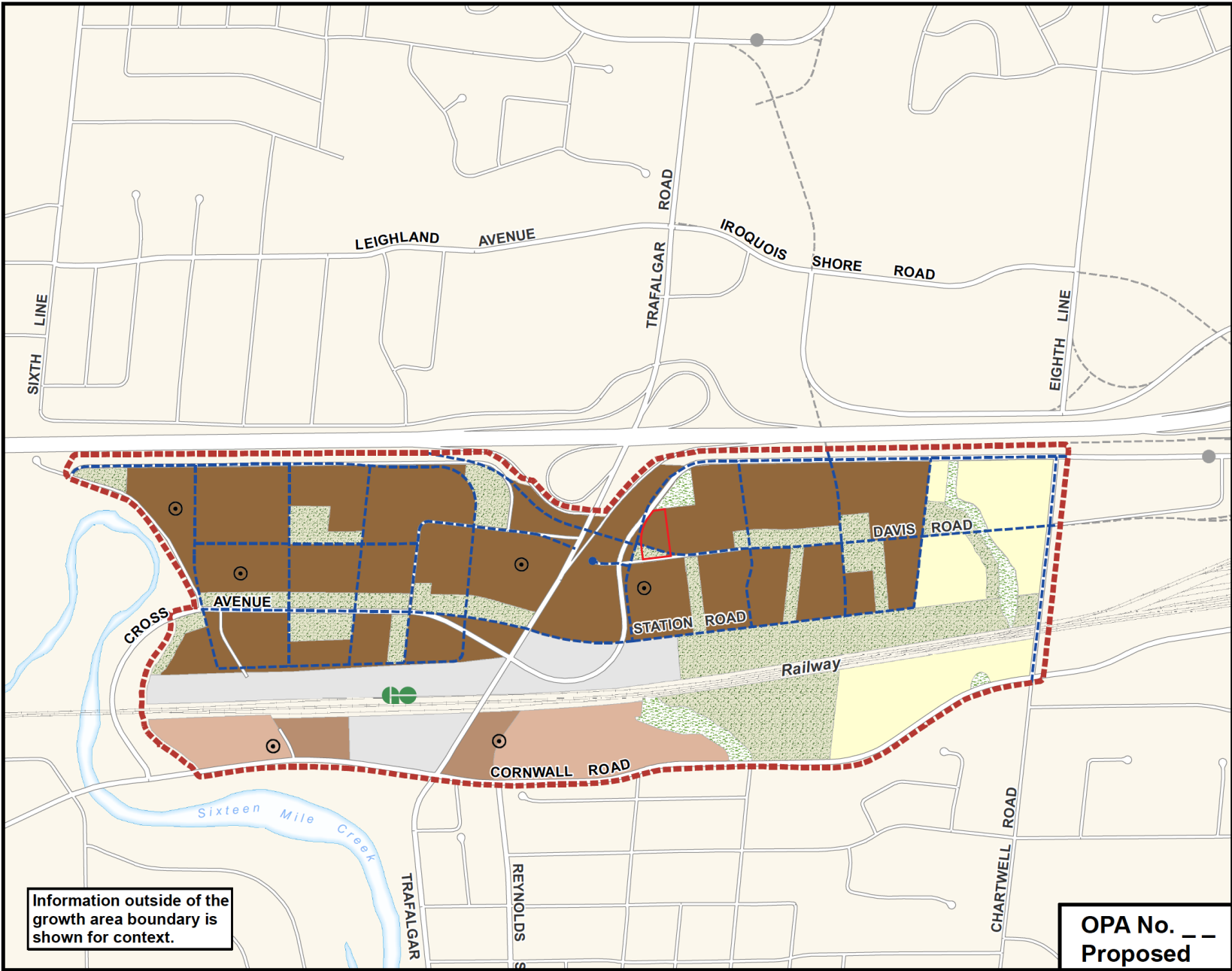
- URBAN GROWTH CENTRE / PROTECTED MAJOR TRANSIT STATION AREA / GROWTH AREA BOUNDARY
- MAIN STREET
- GATEWAY
- PROMENADE
- URBAN SQUARE
- PUBLIC COMMON
- CONNECTOR
- OPEN SPACE
- NATURAL AREA
- FUTURE ROADS (PER TO CORNER L4 SERVICE AREAS)
- RAILWAY
- MAJOR TRANSIT STATION

REFER TO PART E, MIDTOWN OAKVILLE FOR GROWTH AREA POLICIES



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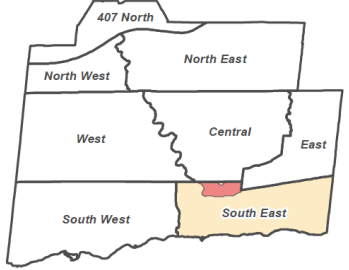
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Information outside of the growth area boundary is shown for context.

OPA No. _ _
Proposed

SCHEDULE L2 MIDTOWN OAKVILLE DENSITY



- URBAN GROWTH CENTRE / PROTECTED MAJOR TRANSIT STATION AREA / GROWTH AREA BOUNDARY
- 1.5 TO 4 FSI
- 2.5 TO 4 FSI
- 2.5 TO 6 FSI
- 4.0 TO 10 FSI *
- NATURAL AREA
- PARKS AND OPEN SPACE
- DENSITY COMPATIBLE WITH UTILITY CORRIDOR
- FUTURE ROADS
(Refer to Schedule L3 for more detail)
- FUTURE CUL-DE-SAC
- RAILWAY
- MAJOR TRANSIT STATION
- REFER TO PART E, MIDTOWN OAKVILLE EXCEPTIONS

* ADDITIONAL DENSITY MAY BE PERMITTED. REFER TO PART E, MIDTOWN OAKVILLE, FOR GROWTH AREA POLICIES



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BOUSFIELDS INC.

June 7, 2022

Sent Via Email to: TownClerk@Oakville.ca

Geoff Abma, Senior Planner
Town of Oakville
1225 Trafalgar Road,
Oakville, ON L6H 0H3

Dear Mr. Abma,

Re: *Item 6.2: Midtown Oakville Growth Area Review*
Draft Proposed Town-initiated Official Plan Amendment

We are writing on behalf of Distrikt Developments (“Distrikt”) with respect to the Midtown Oakville Growth Area Review, specifically the draft proposed Town-initiated Official Plan Amendment (“draft OPA”) dated May 12, 2022. Distrikt is a significant land owner in the Midtown Oakville area, owning approximately 7.5 acres of land in proximity to the GO Station, with the potential to acquire additional lands. On May 30, 2022, our office filed a combined Official Plan and Zoning By-law Amendment application on behalf of Distrikt for the lands at the northeast corner of Cross Avenue and Argus Road (municipally known as 217 - 227 Cross Avenue and 571-595 Argus Road). The proposal seeks to redevelop the lands with a comprehensive, mixed-use development comprised of three towers and a significant privately-owned publicly accessible open space (POPS). Distrikt is also working on filing another application for a three-tower mixed-use development in the node shortly.

Distrikt is generally encouraged by the direction of the revised draft Official Plan Amendment and is of the opinion that many of the previous barriers to redevelopment have been addressed in the most recent draft however, respectively submits the following comments on the revised proposed policies related to the parkland / public realm, built form, density and public service facilities. Our comments are discussed in greater detail below.

Public Realm / Parkland Policies

The draft OPA introduces a number of new policies related to the public realm, as well as the inclusion of Schedule L4 (Public Realm). Policy 20.3.3(i) provides that “parkland dedication shall be provided in the form of land where promenades, public commons, urban squares and connectors are identified on Schedule L4 and may be required in other locations” (our emphasis). The language “shall be” suggests that the location of

these dedications are mandated to be provided in a specific location, in accordance with Schedule L4, however, verbal discussions with staff have suggested that the locations shown on L4 are conceptual only. This language is unclear and we request flexible terminology in this regard. Further to this, the draft OPA provides that in addition to the parkland identified on Schedule L4, a minimum of 5% of the site area should be provided as a POPS (Policy 20.3.3(m)). Both policies, as currently written, are not clear as to whether these contributions can be credited towards the requirements for parkland dedication required under Section 42 of the *Planning Act*. In addition, Policy 20.3.3(m) does not specify whether the 5% is based on net or gross site area. **As such, we request flexible terminology such as “should be” rather than “shall be” for Policy 20.3.3(i). As well, we request Town Staff provide clarification as to the relationship between the contributions identified in Policies 20.3.3(i) and (m) and the requirements of Section 42 of the *Planning Act*, as well as revise Policy 20.3.3(m) to state that the proportion of land provided as POPS is based off gross site area.**

In addition to the above, we request that Town Staff provide direction on whether the abovementioned dedications can be encumbered. In this regard, other municipalities, such as Vaughan, are exploring partial credit for encumbered parkland and POPS.

With respect to Policy 20.3.3(j), the proposed language is not explicit as to whether an OPA would be required if the public realm elements shown on Schedule L4 were to be changed in terms of their location, size, or configuration. **As such, we request Town Staff revise the policy to include language similar to Policy 20.3.5(d), as it relates to the public realm elements shown on Schedule L4, which allows for such flexibility without a site-specific OPA.**

Finally, Policy 20.3.3(k) provides that the promenades identified for Cross Avenue and David Road should have a minimum width of 20 metres. While we understand the policy’s intent to achieve a vibrant streetscape with a wide pedestrian zone and potential for patios etc. along these rights-of-way, it has been our experience that such a streetscape can be achieved with widths far less than 20 metres. Certain Secondary Plans in Toronto for instance require a 5-metre building setback, in addition to the public sidewalk width, in order to achieve the abovementioned streetscape. **As such, we request Town Staff consider revising the policy to be less numerically prescriptive and to share the planned design for these promenades.**

Built Form Policies

Policy 20.3.7(a) states that “it is intended that some of the Town’s tallest buildings will be in Midtown Oakville” (our emphasis). This statement conflicts with the opening section of the built form policies which states that “the tallest buildings in Oakville will be located in Midtown Oakville” (our emphasis). The wording of Policy 30.3.7(a) could be interpreted to imply that not all of the tallest buildings will be in Midtown Oakville. **As such, we suggest that Town Staff to consider revising Policy 30.3.7(a) to be consistent with the other sections of the Plan by removing the phrase “some of”.**

Next, Policy 20.3.7(d) prescribes a minimum 25metre variation in building height for multi-tower sites, blocks or towers in proximity to one another. We agree in principal that variation in building height will contribute to a distinct skyline however, we would **request that Town Staff consider revising the policy to be less numerically prescriptive, as 25 metres is a fairly significant height variation (approximately 8 storeys), and simply state the encouragement of a variation in building heights and leave the site-specific analysis to determine the appropriate variation in building height.**

Policy 20.3.7(e) introduces the concept of a “height peak” within Midtown Oakville. We are pleased with the introduction of this concept, and **respectively ask that Town Staff to also consider including that lands along the northerly edge of the node adjacent to the QEW highway be included within the height peak. These lands would also be suitable for the tallest buildings while minimizing any potential built form impacts. Additionally, we note that these lands will also be subject to not only a large land conveyance for the realignment of South Service Road East, they will also be subject to an additional 14-metre Ministry of Transportation (MTO) building setback from the southerly edge of this new road alignment thereby significantly reducing the developable area of land for these sites.**

Policy 20.3.7(f) relates to the height of podium buildings, and mirrors language found in the Livable By Design Manual (2019). The policy provides that podium heights “for tall buildings should be no greater than 80% of the width of the adjacent right-of-way and shall not exceed 6-storeys...” (our emphasis). As the right-of-way widths for the Midtown road network on Schedule L3 have been widened even further in the draft OPA, limiting the podium heights to 6-storeys despite increasing the planned right-of-way widths in Midtown is punitive. **As such, we request that Town Staff revise the policy to remove the 6-storey limit for podium base buildings.**

Development Density Policies

While we appreciate that Town Staff removed the minimum and maximum height requirements from the OPA, it remains unclear as to how the Town arrived at the density ranges shown on Schedule L2. **As such, we request that Town Staff share the background studies prepared to determine the density limits for Midtown Oakville as the density limits appear to be on the low side given they are based on net site area and the large conveyances for roads and parkland may be required.**

With respect to Policy 20.3.8 and Schedule L2, it is not clear if when calculating floor space index if the site area is the gross or net site area. **We recommend that it be based on gross site area** to recognize the varying city building contributions that may be provided by various landowners and so as not to penalize those landowners who may contribute more. We recognize that Policy 20.3.8(d) allows for the ability to transfer density as discussed in more detail below.

Policy 20.3.8(d) refers only to “public local roads” in terms of the ability to transfer density for that conveyed portion of lands and does not allow for the density transfer for minor, collector, and arterial roads planned for Midtown Oakville. **As such, we request that the Town revise the policy to allow it to apply to the area of all public road conveyances. This policy appears to be far more punitive than the previous draft OPA which allowed for increased density proportionally with the wider right-of-ways. For example, Cross Avenue now has a 35-metre right-of-way and is a key component to the transportation network. Why wouldn't there be a density transfer permitted for this city building element? We also note that this policy refers to “gross floor area” whereas the remainder of the OPA uses “net floor area”.**

Policy 20.3.8(e) provides a list of floor areas that are exempt from the calculation of floor space index. For the purposes of an OPA policy, the additional details within subsection (ii) which state “designed specifically to accommodate...” are ambiguous and not necessary. In addition, the list of floor areas provided in this policy does not include other non-residential uses that the Town is trying to encourage such as community facilities, grocery stores, day cares, and hotel uses. **As such, we request that the Town revise Policy 20.3.8(e)(ii) to delete the text following “3-bedroom units” in (ii), and consider including additional non-res uses, such as those mentioned above, as permitted floor areas except from the calculation of floor space index.**

Public Service Facility Policies

As it relates to public service facilities, Policy 20.3.10(d) states that “development may be required to contribute to the delivery of community service facility needs identified through the planning application process or other Town master plan or strategy...” (our emphasis). The policy does not expand on how this contribution would be made, and if any credits would be made available to a landowner for the delivery of such facility needs. **As such, we request that Town Staff provide flexibility in the language to state “development should contribute...” rather than “may be required to contribute...”, and we request clarification as to how such contributions will be made and if credits will be available to the landowner for providing such community facilities.**

Parking Policies

Policy 20.3.13(a) states that “Reduced and maximum parking standards shall be considered in the implementing zoning”. Given the recent emphasis on reducing parking standards, specifically where sites have excellent access to transit such as this node, **we are of the opinion and request that the language should be stronger such as “In recognition of this urban growth centre’s access to rapid transit, reduced and maximum parking standards are strongly encouraged in order to minimize the use of automobiles and encourage the use of transit”.**

We thank you for the opportunity to continue to participate in the Midtown Oakville Growth Area Review process and to comment on the draft proposed Town-initiated Official Plan Amendment. We respectfully request the Town consider our suggested amendments in a subsequent future draft of the OPA.

We would be happy to meet with you to discuss our comments. If you have any questions regarding this letter, please do not hesitate to contact the undersigned.

Yours very truly,
Bousfields Inc.



Tyler Grinyer, MCIP, RPP

cc: *Sasha Lauzon, Distrikt Developments*
Marcus Boekelman, Distrikt Developments

Delegation to Council June 7th 2022 , Midtown , Item 6.2 of the Agenda

Mayor Burton, Members of Council, Ladies and Gentlemen.

Good evening. My name is David Mallen, representing **CMGRA**, and I thank you for the opportunity to speak with you tonight concerning **Midtown**, and specifically the **Draft OPA** and the associated **staff report**. I will endeavour to be brief as I only have a few points at this preliminary stage.

1. I would like to make it clear from the outset that **CMGRA** supports the redevelopment of Midtown as a “strategic and urban growth area, a major transit station area, developed as a complete community, a new and different part of our Town”. We understand the Provincial requirement to accommodate 20600 people and jobs by 2031.
2. **CMGRA** believes that this redevelopment project will be more successful, if our whole Oakville community supports the Town in its efforts to ensure Midtown achieves all of the plan objectives, and does become a “complete community” within our Town. A community that offers and supports opportunities for people of all ages and abilities to conveniently access most of the necessities for daily living, including an appropriate mix of jobs, local stores and services, a full range of housing, transportation options, public service facilities, and is “age friendly”. This will be an excellent outcome and compatible with “Livable Oakville”, as well as the Provincial mandate.
3. However, our current assessment is that our community is largely unaware of plans for Midtown redevelopment. Unfortunately, prospective developer`s presentations have caused surprise, alarm, and some incredulity, (no doubt unintentionally), regarding their announcements of 12-60 plus storey towers, as in many cases this is the first time that many people have become aware of such plans.
4. At this time we respectfully “ask” that Council, assisted by staff, undertake to communicate with the Oakville community the plans for development of Midtown. At the present time the available “plans “ are limited to zoning plans and extensive (aspirational) discussion in the planning report. Our objective is to generate informed discussion at the community level, that will encourage and facilitate support to the plans. (CMGRA will assist in any way that we can with this endeavour). We further ask that **Council take a leadership role** in explaining more of the specifics of the plans, the “what, when, where, why, who and how much”? Additionally to explain how Midtown will be integral with Livable Oakville, in order to improve the general understanding amongst the community for the Midtown project. (Based on our experience so far, leaving this important role to the developers alone will not generate support and acceptance, but may give rise to suspicion and apprehension, which, although unintentional, will not be helpful).
5. Specifically P49/50 of the staff report proposes Area Design plans. It is our suggestion that the Town initiate these, (not the developer, although of course developers may have significant input). And that as a minimum these be communicated to the public for comment. Additionally P53 proposes “unlocking barriers to development”, through working groups. Why not share these with the public? Council may even wish to consider Councillors, or members of the public being included in these working groups.

Thank you for your time and I will endeavour to respond to your questions.

From: John a Rosart <Johna@rosartproperties.com>

Sent: June 7, 2022 11:51 AM

To: Town Clerks <TownClerk@oakville.ca>

Cc: Geoff Abma <geoff.abma@oakville.ca>

Subject: Opa-midtown Oakville

Dear sir/madam:

I wish as a resident of south Oakville and property owner within the midtown core to have my rights of appeal preserved, gain notice of the decision to amend the proposed official plan and register our (rosart properties inc.) concern at the proposals for a grade separated facility across the qew west of Trafalgar road and the impact of future roads realignment of the qew off ramp eastbound to Trafalgar road .

Respectfully,

John rosart

