



BURNSIDE

**Upper West Side – Urban Expansion
Combined Transportation Study
Hamilton, Ontario**

Upper West Side Landowners Group

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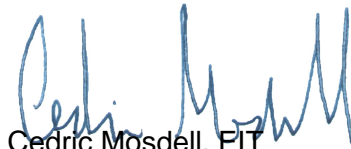
Upper West Side Landowners Group

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**July 2020
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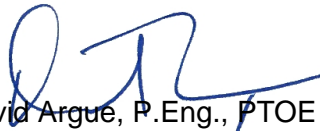
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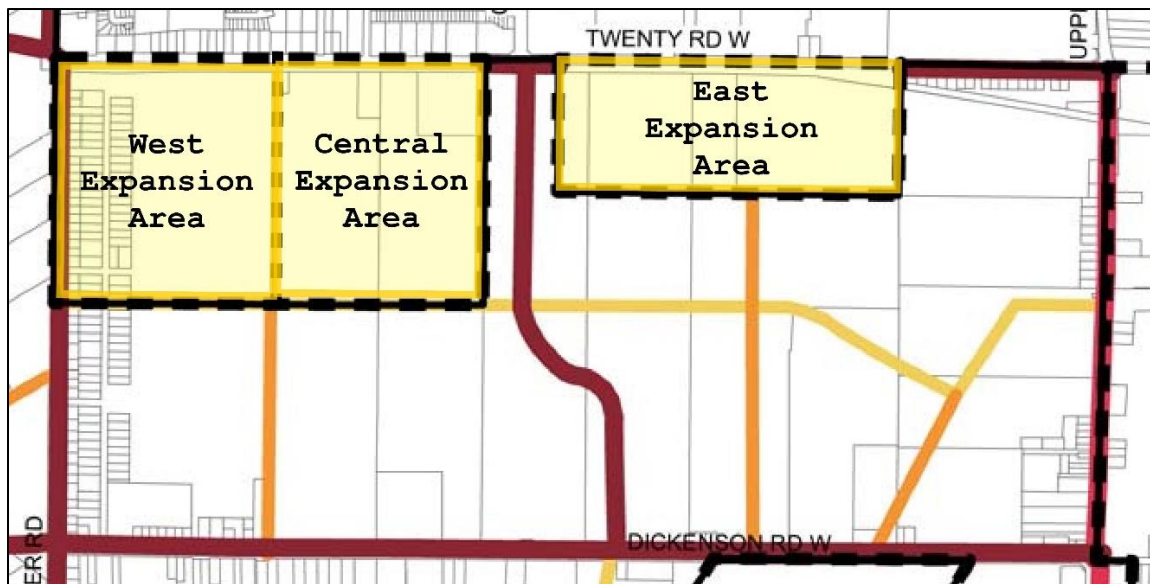
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1.0 Introduction

The Upper West Side Landowners Group (“Landowners”) are landowners in the overall block area bounded by Glancaster Road to the west, Dickenson Road West (referred to as Dickenson Road in this study) to the south, Upper James Street to the east, and Twenty Road West (referred to as Twenty Road in this study) to the north. The area within the above confines is referred to as the Block. This area is within the Airport Employment Growth District Secondary Plan (“AEGDSP”).

Through the AEGDSP there were some lands left out of the City of Hamilton (“City”) urban boundary and not included within the AEGDSP. These lands are essentially within the urban boundary on all sides. The Landowners are applying to include the lands within the City’s urban boundary. The lands are specifically referred to as the West Expansion Area, Central Expansion Area, and East Expansion Area within this report. An excerpt from the AEGDSP is shown in Figure 1 that also shows the proposed road network from the AEGDSP with the West, Central and East Expansion Areas highlighted.

Figure 1: West, Central, and East Expansion Area



R.J. Burnside & Associates Limited (“Burnside”) has been retained to assess the transportation impacts and benefits of incorporating the West, Central and East Expansion Area within the urban boundary.

In our review, we find it is appropriate to bring the lands within the urban boundary. There will be more opportunity to provide an integrated pedestrian, cycling and transit

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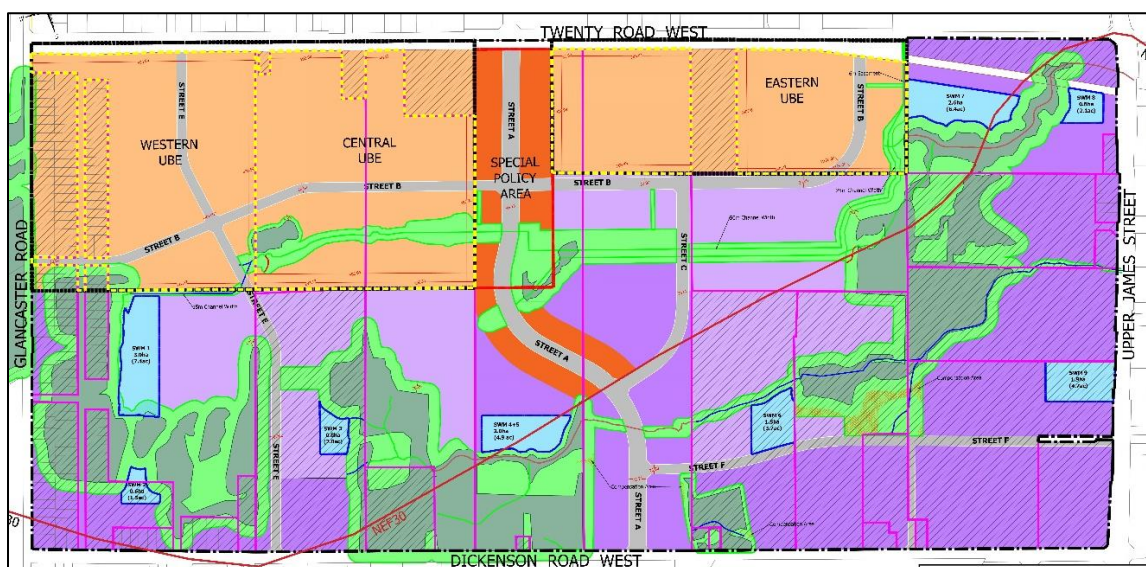
network and create more massing to promote alternative modes. The road network will accommodate the additional development within each Expansion Area. The inclusion of each Expansion Area supports development of a logical street network within the Block and provides connections to the surrounding areas.

The existing West Expansion Area is primarily occupied by the former Glancaster Golf Club, which closed in 2015, and twenty-five single-family homes. The existing Central Expansion Area is primarily occupied by farmlands with three single-family homes. The existing East Expansion Area is primarily occupied by farmlands with a single-family home. To the immediate north are residential homes. John C. Munro Hamilton International Airport and future development lands are to the south of the development and to the east are farmlands mixed with a few single-family homes that are future development lands.

The proposed development concept for the West, Central and East Expansion Areas include changes to the road network as illustrated in Figure 2. There are a number of studies that are occurring including an Integrated Municipal Class Environmental Assessment ("Integrated EA") for the arterial and collector road network within the Block. That study will look at the road network needs in terms of accommodating traffic volumes more closely. There are also the following additional studies that will be undertaken at the appropriate times:

- Transportation studies for the various subdivision plans within the Block. There has been an application for the subdivision that is within the Garth Road extension.
- Transportation issues will be further assessed through the completion of the Secondary Plan. This will also include the development of design for the local roads.

Figure 2: West, Central and East Expansion Plan



2.0 Response To City Comments

The City provided transportation comments in an email, dated April 9, 2020 and, in a memo, dated April 15, 2020. We have reviewed their comments and provide the following responses. City comments are in italics.

Hamilton Transit Comments dated April 9, 2020

1. *While previous AEGD TMP's and SP's have identified a series of new/extended conventional transit routes operating on select streets, the implementation of HSR conventional fixed routes would require:*

- a. *That the subject lands be incorporated into the Urban Transit Area (UTA).*
- b. *Further study to confirm the land use density/mix is able to generate sufficient transit customers to meet/maintain route productivity service standards.*
- c. *Transit operating budget approval, on an annual basis.*

The 2016 TMP, which carries forward the transit network recommendations in the 2011 TMP, shows proposed transit routes throughout the AEGDSP. Transit service was identified on Twenty Road West and the east-west collector road through the block west of Garth Street extension. Since the 2016 TMP did not include the lands of the West, Central and East Expansion Area, but transit service was identified on those two roads, it appears that development would approve the availability of transit customers generated by the land uses proposed. Therefore, the Expansion Areas should provide additional transit customers to further support the proposed transit routes.

2. *Lands within the UTA are subject to transit rates, collected thru property tax, based on a community's share of the HSR system net operating costs and a property's assessed value.*

Acknowledged.

3. *Where route extensions/new routes are not sustainable, consideration can be given to the expansion of the existing Trans-Cab service zone, again requiring expansion of the UTA and operating budget approval.*

Acknowledged. This option will be evaluated during Integrated EA.

4. *With respect to the Transportation Study documents prepared for the East and Central Whitebelt's, please be advised that:*

- a. *There is no fixed timeline for the introduction of full A Line BRT service.*
- b. *All streets will require construction to urban standards, including accessible concrete sidewalks on both sides and the provision of*

- adequate pedestrian illumination.*
- c. All traffic calming measures and roundabouts being contemplated on arterial and collector roads must be able to accommodate a 12.3m standard transit bus.*
 - d. Section 12.0 Transit Assessment requires updating to reflect existing HSR service levels.*

Acknowledged. Details regarding roadway geometry, sidewalk location, traffic calming measure and roundabouts will be further refined as the various applications proceed on the lands. The Transit Assessment section has been updated to reflect the HSR service levels at the time this Transportation Study was submitted. It is understood that HSR will change transit levels from time to time; therefore, the transit service identified was collected prior to publishing the report.

- 5. Given financial constraints related to transit operations, it is challenging to implement attractive transit service at the commencement of urban development in former rural areas. Ideally, improvements in land use density/mix deep within existing urban areas helps transit to better contribute to the achievement of City-wide modal split targets, while maintaining acceptable net operating costs. We remain hopeful that Council's current examination of Area Rating will result in positive outcomes to guide the future provision of conventional transit services within Hamilton.*

An evaluation of the lands will be undertaken through the process to determine supportable levels of development.

Transportation Planning Comments dated April 15, 2020.

- 1. Transportation Planning recommends the application not proceed to formal application until the road network is revised to the satisfaction of the Manager of Transportation Planning. Transportation Planning does not support the proposed amendment to the Official Plan with the road network proposed with under FC-20-029.*

To allow the environmental assessment to properly work, the road network will be developed as part of the Integrated EA. In our opinion, inclusion of these Whitebelt lands are supportable from a transportation perspective and the details of the road network can be developed through the Integrated EA.

- 2. Transportation Planning notes that the general expansion of the Urban Boundary contradicts sustainability initiatives within the Transportation Planning department. The difficulty of providing sustainable modes of transportation within areas currently outside of the Urban Boundary promotes reliance on passenger vehicles and is unfavorable when considering vehicular congestion reduction and overall climate change initiatives.*

We are confused by this statement when the lands were originally included the AEGDSP and only removed through negotiations through the Ontario Municipal Board ("OMB") process. These lands are completely surrounded by the Urban Boundary and are more like holes in the boundary. When the AEGDSP identified transit along the edges expansion are boundaries, yet having no development and therefore not transit ridership, it is difficult to fathom how inclusion of the Expansion Areas would not be supportable of sustainable modes of transportation. Inclusion provides the ability to have better connectivity and be more supportive of alternative modes of transportation other than the automobile.

3. *The preliminary Transportation Study provided by the Applicant dated February 2020 notes that the 'Central' lands are subject to an Integrated Municipal Environmental Assessment (integrated EA). The study also notes that the arterial and collector road network within the Block will be addressed within the integrated EA.*

Acknowledged.

4. *City of Hamilton staff is actively reviewing the Airport Employment Growth District (AEGD) Road Network which has been previously revised in the Airport Employment Growth District Transportation Master Plan (AEGD-TMP) Implementation Update, dated December 2017. As part of this review, the City of Hamilton is exploring potential reconfiguration, designation and alignment of the previously recommended road network within the AEGD lands. The applicant shall coordinate amendments made to the AEGD road network as a result of the ongoing AEGD-TMP update process, with Transportation Planning, before proceeding to formal application.*

Acknowledged and we look forward to working with and sharing information with the City. The Integrated EA will form how the road network is developed with the block.

5. *It is to be noted that the proposed road network with the subject Formal Consultation does not conform to the Airport Employment Growth District Transportation Master Plan (AEGD TMP) Implementation Update (Airport Employment Growth District Secondary Plan Road Classification Map B.8-3), dated December 2017 and the approved road network for the Airport Employment Growth District, as shown in Figure 26 of the AEGD TMP. To ensure adequate access and traffic circulation is provided, that the local network is efficiently and safely connected to the arterial system, and that consistency is maintained for all development parcels throughout the subject block, it is recommended that the applicant complies with the UHOP and AEGD Secondary Plan and adopt the approved road network. The following discrepancies are noted between the proposed road network and the AEGD:*
 - e. *The location of Street B (Collector 6N) has been shifted northerly, which does not serve the intended purpose of provision of accessibility and connectivity for all modes of transportation and all development lands*

within the subject block. The proposed location of Street B reduces transit accessibility for development lands located between Dickenson Road and Street B, provided that Street B identifies as a transit route through a transit feasibility study.

- f. Given the developments under review for parcels located along the north side of Dickenson Road and the presence of natural constraints, Street F cannot be constructed as proposed.*
- g. AEGD TMP identifies the need for the north-south collector (collector 6E) at mid-point between Garth Street and Upper James St., which extends from Dickenson Road to Twenty Road West. The purpose of the Collector 6E corridor is to provide access to development lands while maintaining route redundancy in the network for increased efficiency and serve as a transit route. Street C, with the proposed configuration, will not serve the intended purposes.*

The collector and arterial road network within the block will be determined through the Integrated EA process, which includes consideration of environmental impacts. Studies being undertaken are further defining environmental features and sensitivities within the block.

- 6. Transportation Planning does not support the proposed amendment to the Official Plan to permit privately-initiated interim Urban Boundary expansions prior to the completion of the City's Municipal Comprehensive Review (MCR) without the inclusion of additional provisions related to Transportation concerns, such as however not limited to the following:*
 - a. Provisions to include complete community design incorporating mixed-use neighbourhoods meeting minimum density requirements. Communities must incorporate a variety of dwelling types, institutional and employment opportunities.*
 - b. Inclusion for a higher degree of active transportation facilities and connectivity between communities (e.g. protected cycling facilities on all roadways, separate from pedestrian facilities).*
 - c. Evaluation of infrastructure capacity from a Transportation perspective relating to roadway capacity and the need for future improvements through a robust Transportation Impact Study. Transportation Planning notes that roadway capacity reviews may require more significant macro modelling analysis to assess travel patterns and the operations of roadways within a larger study area as a result of the increase passenger vehicle demand historically associated with suburban areas. The Applicant has noted that an integrated Municipal Environmental Assessment is occurring for the Central lands.*
 - d. Feasibility review for connectivity and opportunities considering public transit as well as future BLAST corridors. Alternative transit options shall also be considered.*

The additional provisions listed above, if applicable, will be further evaluated and detailed during the various application stages.

7. *Transportation Planning will require a Transportation Impact Study (TIS) be submitted to support the proposed Official Plan Amendment application, however Transportation Planning will not accept a TIS or TIS terms of reference prior to road network revisions for the subject lands and adjacent eastern and western lands. Any TIS and/or proposed Official Plan Amendment shall show a road network supported by Transportation Planning.*

Upon conformity with the road network within the AEGD and in order review the complete affects, a TIS shall be conducted to review the impact on the surrounding network of the entire westerly, central and easterly subject lands with the proposed Official Plan Amendments. It is the Transportation Consultant's responsibility to submit a scope of work to tplanning@hamilton.ca for review and receive approval prior to commencement on the report. The TIS shall be completed to the satisfaction and approval of the Manager of Transportation Planning.



The Integrated EA has already been initiation for the block, which will define the future road network within the block. Consultation occurred with the City for the Integrated EA.

8. *Hamilton Street Railway (HSR) does not currently operate along Glancaster Road or Twenty Road West. The Applicant shall provide but is not limited to a transit assessment regarding the implementation of future transit facilities, provide details on the projected transit ridership according to similar areas within the City of Hamilton and proposed routing as supplementary material within the TIS report.*

The 2016 TMP, which carries forward the transit network recommendations in the 2011 TMP, shows HSR Bus Route 34 proposed along Glancaster Road and Bus Route 35 proposed along Twenty Road West. Since the 2016 TMP did not include the lands of the West, Central and East Expansion Area, it appears a transit assessment and projected transit ridership should have already been satisfied even without the Expansion Areas. Therefore, the Expansion Areas should meet or exceed the project transit ridership along Glancaster Road and Twenty Road West.

9. *Transportation Planning requires a Transportation Demand Management (TDM) report to be submitted to support the proposed Official Plan Amendment application. The Applicant is required to submit a TDM Report highlighting how the subject lands (central) will incorporate TDM measures and initiatives. The TDM shall elaborate on the proposed TDM measures targeting specific land use types separately from each other (commercial vs. residential). Please refer to the TDM for Development located at <https://www.hamilton.ca/develop->*

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property/policies- guidelines/transportation-demand-management-land-development-guidelines.

A detailed TDM report will be submitted during the various stages which will recommend TDM measures and initiatives specific to the Expansion Areas. Detail will become more refined as applications become more refined.

10. *The TDM report can present TDM measures and their projected efforts to reduce future operational deficiencies as identified in the conclusions of the TIS. All TDM measures recommended shall be indicated and illustrated on all site plans submitted as part of any future submission and shall be recommended / completed to the satisfaction and approval of the Manager of Transportation Planning.*

As noted in the above response, a detailed TDM report will be submitted during the Site Plan Application stages, which will recommend TDM measures and initiatives specific to the Expansion Areas.

11. *Approximately, 1.0 metres are to be dedicated to the right-of-way on Twenty Road West, as per the Council Approved Urban Official Plan: Schedule C-2 - Future Right-of-Way Dedications. Glancaster Road West is to be 27.0 metres between Smith Road to Upper James Street. According to Official Plan Amendment (OPA) 35 & 109 road widenings along Twenty Road West shall only be taken on the south side of the roadway. A survey conducted by an Ontario Land Surveyor and at the Applicant's expense will determine the ultimate dimensions for the right-of-way widening(s).*

Acknowledged. These would be identified with Plan of Subdivision or Site Plan applications.

12. *The City of Hamilton is actively reviewing the Airport Employment Growth District (AEGD) Road Network which has been previously revised in the Airport Employment Growth District Transportation Master Plan Implementation Update, dated December 2017. As part of this review, the City of Hamilton is exploring potential reconfiguration, designation and alignment of the previously recommended road network within the AEGD lands.*

The Applicant shall conform to any revised AEGD road network revisions as brought forward by the City of Hamilton. Transportation Planning shall provide details to the Applicant to ensure connections between the subject lands and the AEGD lands are adequate.

Acknowledged and we look forward to working with the City to develop a supportable road network within the block, which will be defined by the Integrated EA. This approach

is being undertaken as permitted rather than an individual environmental assessment as it provides for efficiencies in development of the plan.

13. *All proposed municipal right-of-way dedications within the subject lands connecting to future right-of-way within the AEGD shall match the right-of-way as per the Council Approved Urban Official Plan: Volume 2, Chapter B – Airport Employment Growth District, Table 13: Secondary Plan Area Future Right-of-Way Dedications.*

The roadway right-of-ways will be confirmed through the Integrated EA.

14. *All proposed 'Local Roads' shall have a right-of-way width of 20.117 metres as per the Council Approved Urban Official Plan: Chapter C - City Wide Systems and Designations, 4.5 Road Network Functional Classification, 4.5.2. Local Roads. The 20.117 metre right-of-way shall be illustrated and indicated on all future plans submitted as part of any future submission.*

Noted. It will be provided on the Plans of Subdivision at the appropriate stage; however, at this stage the local road networks are typically not detailed out.

15. *All proposed 'Collector Roads' shall have a right-of-way width of 26.213 as per the Council Approved Urban Official Plan: Chapter C - City Wide Systems and Designations, 4.5 Road Network Functional Classification, 4.5.2. Collector Roads. The 26.213 metre right-of-way shall be illustrated and indicated on all future plans submitted as part of any future submission.*

The roadway right-of-way will be confirmed through the Integrated EA.

16. *All local roads which will terminate either temporarily or permanently with a dead end will require a cul-de-sac to enable turning of garbage trucks, snow removal equipment and emergency vehicles. Local roads for residential use require 18.0 metre minimum right-of-way radius and 13.0 metre minimum pavement radius.*

Noted and this would be addressed at a Plan of Subdivision stage.

17. *All proposed roads proposed roads intersecting with a local road shall have Daylighting Triangles of 4.57 metres x 4.57 metres dedicated to the municipal right-of-way, as per the Council Approved Urban Official Plan: Chapter C - City Wide Systems and Designations 4.5 Road Network Functional Classification; Daylighting Triangles 4.5.7. Daylighting Triangles shall be illustrated and indicated on all future plans submitted as part of any re-submissions.*

Noted and this would be addressed at a Plan of Subdivision stage.

18. *All proposed roads proposed roads intersecting with a collector road shall have Daylighting Triangles of 9.14 metres x 9.14 metres dedicated to the municipal right- of-way, as per the Council Approved Urban Official Plan: Chapter C - City Wide Systems and Designations 4.5 Road Network Functional Classification; Daylighting Triangles 4.5.7. Daylighting Triangles shall be illustrated and indicated on all future plans submitted as part of any re-submissions.*

Noted and this would be addressed at a Plan of Subdivision stage.

19. *All proposed roads proposed roads intersecting with an arterial road shall have Daylighting Triangles of 12.19 metres x 12.19 metres dedicated to the municipal right-of-way, as per the Council Approved Urban Official Plan: Chapter C - City Wide Systems and Designations 4.5 Road Network Functional Classification; Daylighting Triangles 4.5.7. Daylighting Triangles shall be illustrated and indicated on all future plans submitted as part of any re-submissions.*

Noted and this would be addressed at a Plan of Subdivision stage.

3.0 AEGDSP Transportation Master Plans

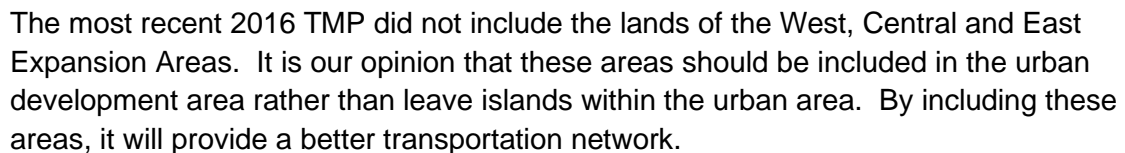
The City is encouraging employment intensification in the AEGDSP through a hybrid of prestige and light industrial business park development. The City planned for significant employment growth of 28,000 employees by 2031. The City undertook two transportation master plans in anticipation of the planned growth including:

- June 2011 Transportation Master Plan (2011 TMP), prepared by Dillion Consulting.
- December 2016 Transportation Master Plan Implementation Updated (2016 TMP), prepared by Dillion Consulting.

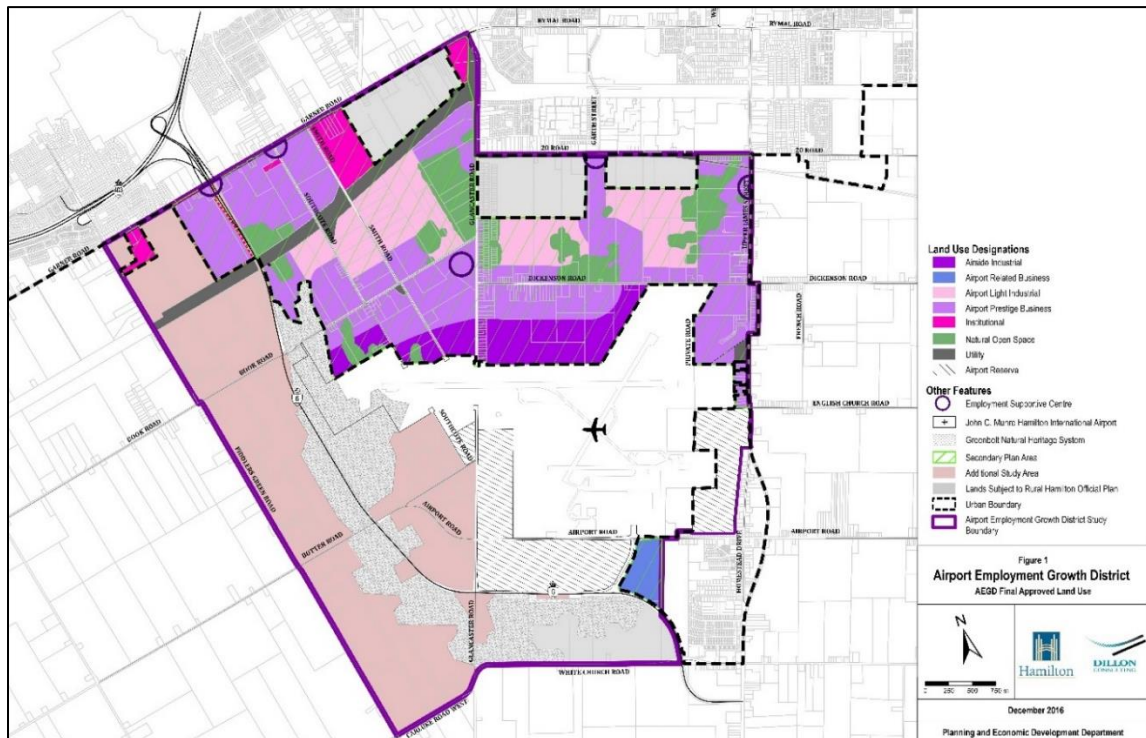
As discussed with the City and through their comments, they are currently revisiting and may potentially update the AEGDSP transportation master plan. This may result in change in road and EA classification. However, there are no timelines or results yet.

4.0 2011 TMP versus 2016 TMP

As illustrated in Figure 3, each of the Expansion Areas were included in the 2011 TMP, however they were removed from the 2016 TMP as shown in Figure 4. The areas were removed through the consultation process; however, it leaves a void in the urban area. Due to this, the projected trips generated in the 2011 TMP is more conservative in comparison to the 2016 TMP.



The key difference is the current proposal for the West, Central and East Expansion Areas are proposed to be residential uses rather than employment uses illustrated in the 2011 TMP. However, because of the size of the areas, the projected trips generated between the two land uses will not result in any identifiable impact. All other lands are to remain as employment uses; hence, the generated trips for the remaining lands will be the same. Therefore, the proposed uses will have a similar impact to the local road network and will have similar findings in the 2011 TMP.

Figure 4: 2016 AEGD Land Use Plan (Figure 1 in 2016 TMP)

5.0 Review of Road Network Recommendations

Currently, Twenty Road is an east-west minor arterial road, under the jurisdiction of the City. The roadway consists of a 2-lane rural cross section with a posted limit of 60 km/h. A sidewalk is provided on the northside of the road and terminates 100 m west of Garth Street and 100 m east of Effort Trail. Stopping is prohibited on the south side of Twenty Road.

Under future conditions, the 2016 TMP recommends that Twenty Road be widened from 2-lanes to 4 lanes between Glancaster Road to Upper James Street, which is consistent with the 2011 TMP.

Peak traffic volume projections on Twenty Road during the AM peak hour for the 2031 was 1530 vehicles in the 2011 TMP and 1100 vehicles in the 2016 TMP. There was a reduction in traffic in the 2016 TMP, which would make sense as two urban areas were excluded. Allowing for the 2011 TMP traffic projects, the planned road network could accommodate the development, which includes the West, Central and East Expansion Areas. Therefore, the road network can accommodate inclusion of the West, Central and East Expansion Areas.

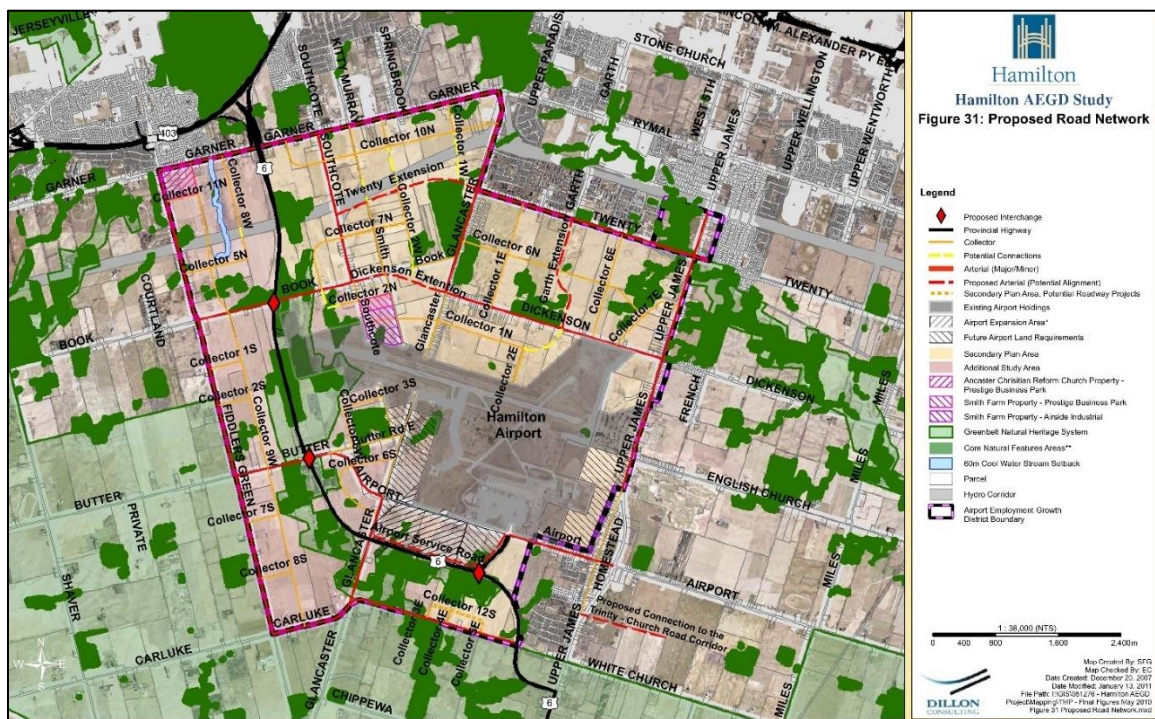
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Garth Street is proposed to be extended from its existing terminus to the north and swing to the west south of Dickenson Road. Through the Block, Garth Street Extension would be an arterial road. The inclusion of the West, Central and East Expansion Areas would not affect this.

6.0 Road Network Connectivity

The recommended road network connectivity in the 2011 TMP is shown in Figure 5 as excerpted.

Figure 5: AEGD Recommended Road Network (Figure 31 in 2011 TMP)



A continuous north-south collector was provided between the West and Central Expansion Areas and another continuous north-south collector was provided through the East Expansion Area. With the 2016 TMP, these collectors were removed through the lands (see Figure 1). Essentially under the approved AEGDSP, the collector road is brought to the south limit of each Expansion Area. As such these roads serve no purpose within each Expansion Area.

By including the West, Central and East Expansion Area within the Block, it is possible to make both connections to Twenty Road as collector roads. As shown in Figure 2, a roadway connection is extended through the West Expansion Area, but this road could just as easily be through the Central Expansion Area. Also shown in Figure 2, a roadway connection is extended through the East Expansion Area.

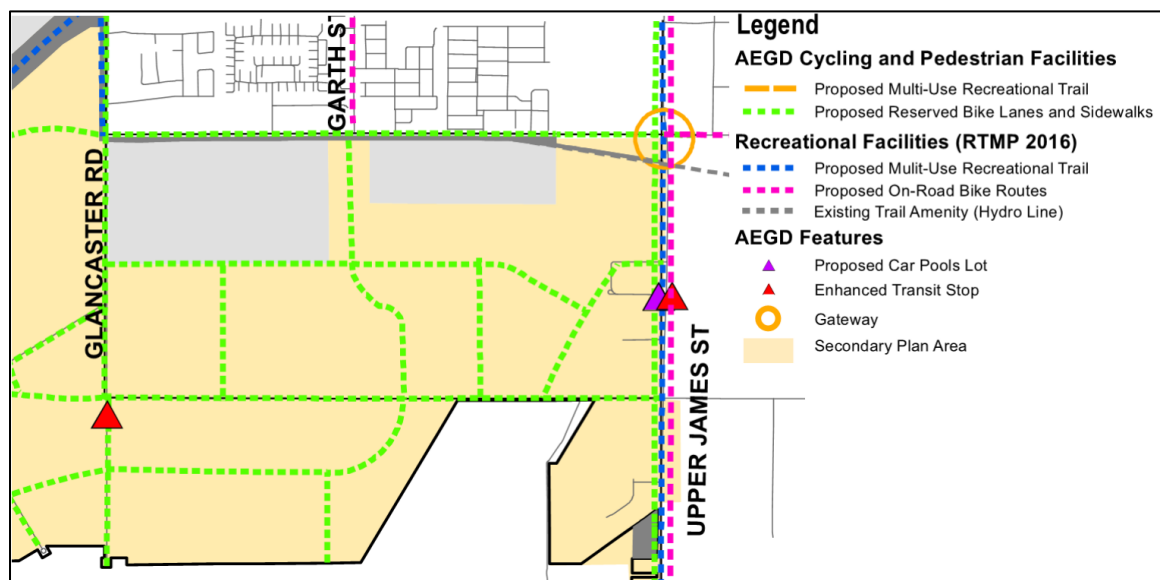
The 2011 TMP and 2016 TMP had a collector road extend from Glancaster Road to Upper James Street. However, there are environmentally sensitive lands on the east side of the Block. The proposal for the Block would result in the east-west collector road not crossing the environmentally sensitive lands but swinging to the north within the East Expansion Area and connecting to Twenty Road opposite Natalia Avenue. Also, within the West and Central Expansion Areas, it is possible to shift the east-west collector road north and provide for development on both sides to make best use of resources. The 2016 TMP only provides for development south of the collector road.

It is our opinion that the plan for the West, Central and East Expansion Areas provide better connectivity and disperses traffic evenly amongst the road network.

7.0 Cycling Route Analysis

The AEGDSP TMP and the City's *Cycling Master Plan* indicated that bike lanes will be implemented on Twenty Road, Dickenson Road, Glancaster Road and Garth Street extension as well as the collector roads south of the east-west collector road. A multi-use trail and on-road bike lanes are identified on Upper James Street. This is illustrated in Figure 6, which is an excerpt from the 2016 TMP cycling network (Figure 7). The timeline for bike lanes and multi-use trail has not been confirmed as part of the City's capital programming schedule.

Figure 6: 2016 TMP Cycling Network (excerpt Figure 7)



Street B and E in the proposed West, Central and East Expansion Areas can be designed to accommodate reserved bike lanes, which would provide additional

connectivity to Twenty Road. This design inclusion will encourage and meet the active transportation initiatives of the City.

Detailed review and evaluation of the cycling network will be conducted during the Integrated EA study. The cycling route analysis for the Block would look at the potential cycling routes utilizing the AEGDSP as a basis. The type of cycling accommodation would also be identified and described.

8.0 Parking Analysis

Parking is intended to be supplied at the City's Zoning By-law requirements.

9.0 Pedestrian Route and Sidewalk Analysis

Pedestrian access in the form of sidewalks would be provided on both sides of all streets within the West, Central and East Expansion Areas as per City standards. The sidewalks will also connect building entrances and proposed transit stops with connections provided to Twenty Road where transit service will be provided. With development of subdivision plans and Integrated EA, a trail system would be identified to provide connectivity with and adjacent to each Expansion Area.

To ensure that pedestrians will feel safe and be encouraged to utilize the sidewalk facilities, the designs will be based on the City's *Pedestrian Mobility Plan*, dated December 2012, and incorporate the City's design standards. This document takes into consideration Transportation Association of Canada (TAC)'s *Best Practices for the Technical Delivery of Long-Term Planning Studies in Canada Report*, dated October 2008. This includes:

- Consider a sidewalk width that accommodates for two people walking side by side, adults carrying children and for individuals on wheelchairs / walkers.
- Implement a buffer area (a physical separation between roadway and sidewalk) to increase pedestrian's comfort and safety level.
- Provision of pedestrian illumination along the pedestrian routes.
- The maximum recommended block length is approximately 120 m to support pedestrian activity.
- Provide protected intersection crossing.

In addition, a detailed assessment of the pedestrian route will be conducted during the Secondary Plan study. This would include a review of locations and streets where sidewalks are needed. City design standards for sidewalks and the evaluation of potential pedestrian origin and destination points would also be taken into consideration.

10.0 Roadway / Development Safety Audit

All internal roads will be designed to meet urban standards in order to ensure efficient traffic flow and create a safe environment. Currently, along Twenty Road, there are only two signalized intersections at Garth Street and Upper James Street. With development of the AEGDSP, traffic volumes along Twenty Road will increase, which is supported by the need to widen Twenty Road.

The Villages of Glancaster, a residential development, is located on the north side of Twenty Road with one connection to Twenty Road via Silverbirch Boulevard. With development of the West and Central Expansion Areas, it is possible to develop a local road connection to Twenty Road to align opposite Silverbirch Boulevard, which will create the opportunity for traffic signals and to improve safety, operations, and connectivity.

Twenty Place, a residential development, is located on the north side of Twenty Road and they have two connections to Twenty Road via Natalia Avenue and Twentyplace Boulevard. With development of the East Expansion Area, it is possible to align a collector road opposite Natalia Avenue and create a signalized access to improve safety and operations.

11.0 Neighbourhood Roundabout Analysis

Roundabout analysis will be reviewed and considered for the entire block during the Integrated EA process. The Street B / Street C intersection has potential for the implementation of roundabout.

12.0 Neighbourhood Traffic Calming Options

Traffic calming including the type of traffic calming methods and location will be reviewed when subdivision plans are developed and through the Integrated EA process for the collector / arterial road system. Horizontal features will be considered for collector and arterial roads, which is consistent with the City's Transportation Master Plan. Gateway features at the entrance point from Twenty Road will be investigated and will be done in consultation with the overall Block to develop a cohesive community.

13.0 Transit Assessment

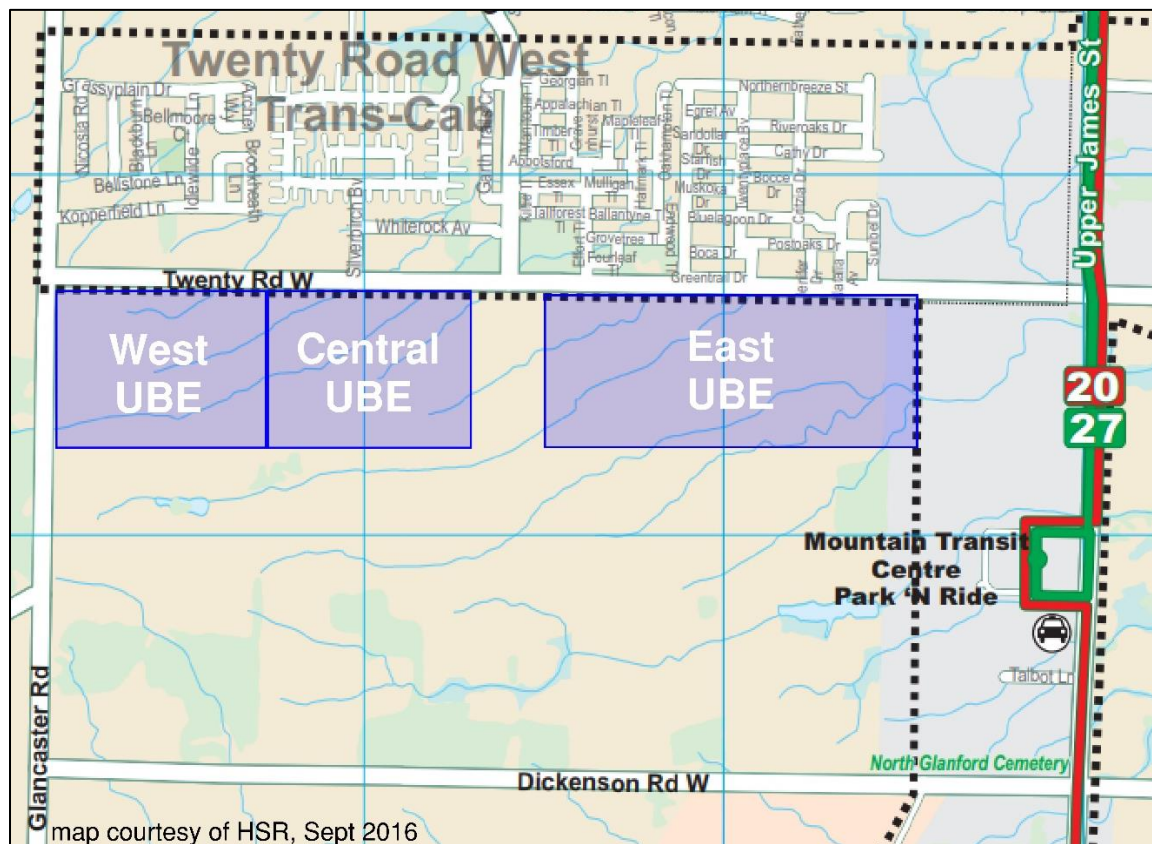
The closest transit routes to the site are Route #27 (Upper James) and Route #20 (A Line Express) operated by Hamilton Street Railway (HSR). There is a transit stop located on the west side of Upper James Street, north of Twenty Road and a transit stop located on the east side of Upper James, south of Twenty Road. Route #27 has a service frequency of 20 minutes and Route #20 has a frequency of 30 minutes for the

weekday AM and PM peak hours. These routes can also be accessed at the Mountain Transit Centre, which is less than 5-minute drive away and offers park and ride services.

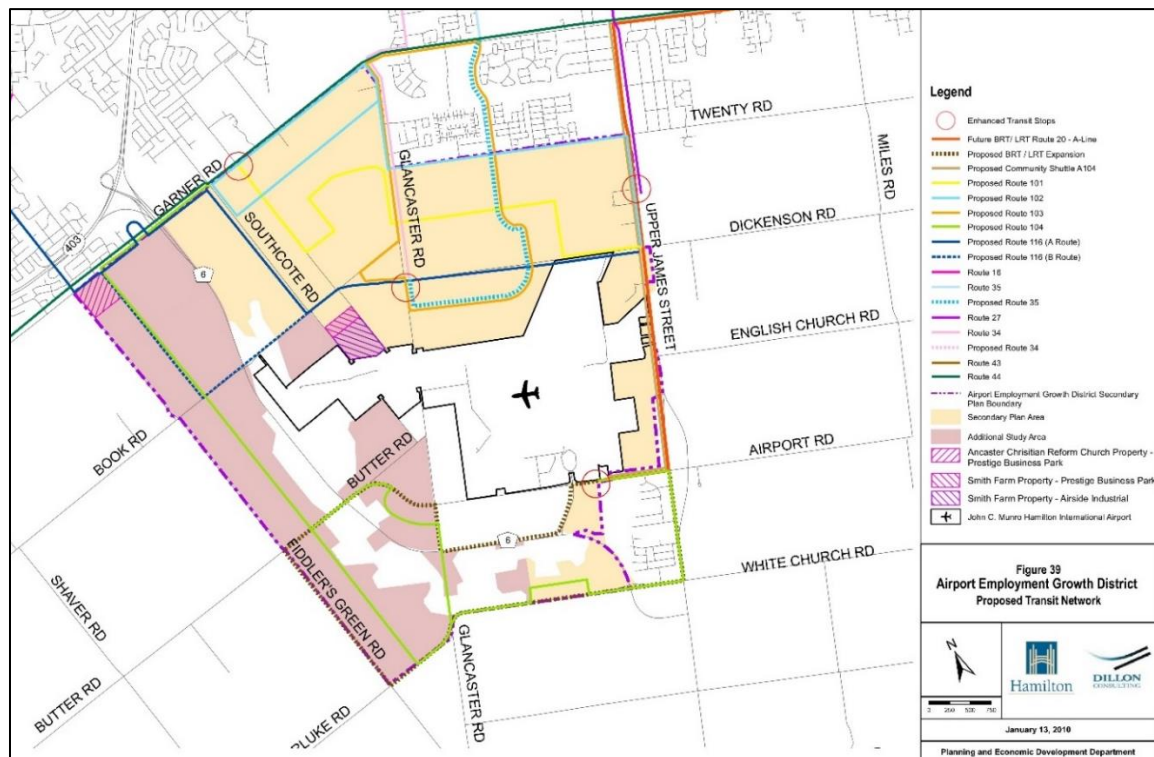
Trans-Cab also provides services for areas of the City not served by regular transit. The Trans-Cab will pick up the user at a booked time and connect them to a regular HSR route.

All the routes are illustrated in Figure 7.

Figure 7: Existing Transit Route



The transit network from the 2011 TMP was carried forward into the 2016 TMP recommendations, which is illustrated in Figure 8. Transit service would be provided along Garth Road extension as well as Twenty Road and the east-west collector road (Street B) internal to the plan. A single loaded (development only on one side of the road) Street B, which excludes the expansion area is much less effective than a double loaded road (development on both sides of the road), which would be the case as proposed with the West and Central Expansion Areas.

Figure 8: AEGD Recommended Transit Network (Figure 39 in 2011 TMP)

The West, Central and East Expansion Area plans would help achieve transit objectives by placing more customers along the Twenty Road route and the east-west collector road (Street B) route by increasing the amount of development along the road. The coverage achieved within the West, Central and East Expansion Areas are shown in Figure 9, Figure 10 and Figure 11, respectively, with the blue circles indicating transit coverage within 400 m of the center of the circle. It is assumed that transit stops would occur at the roadway intersections along Twenty Road, Glanaster Road and Garth Street extension.

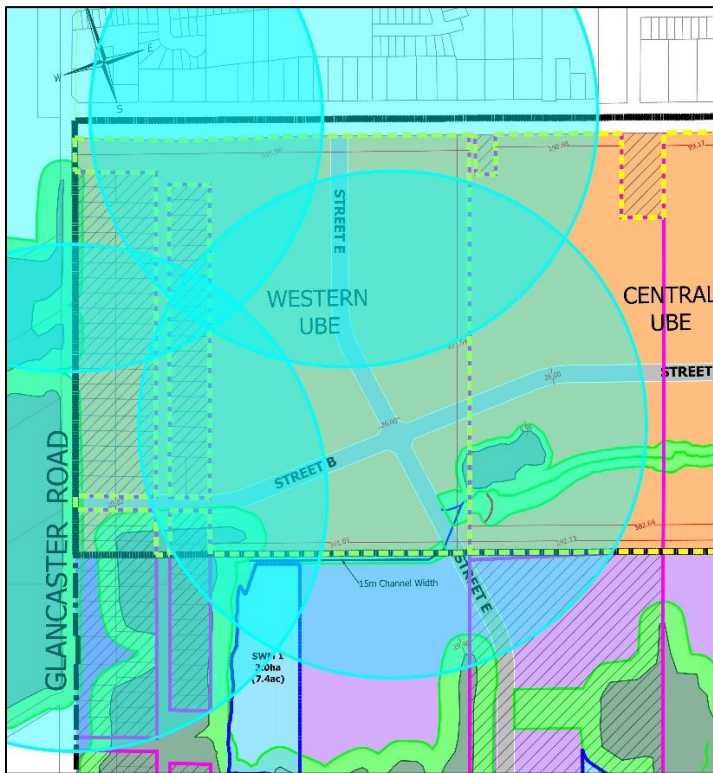
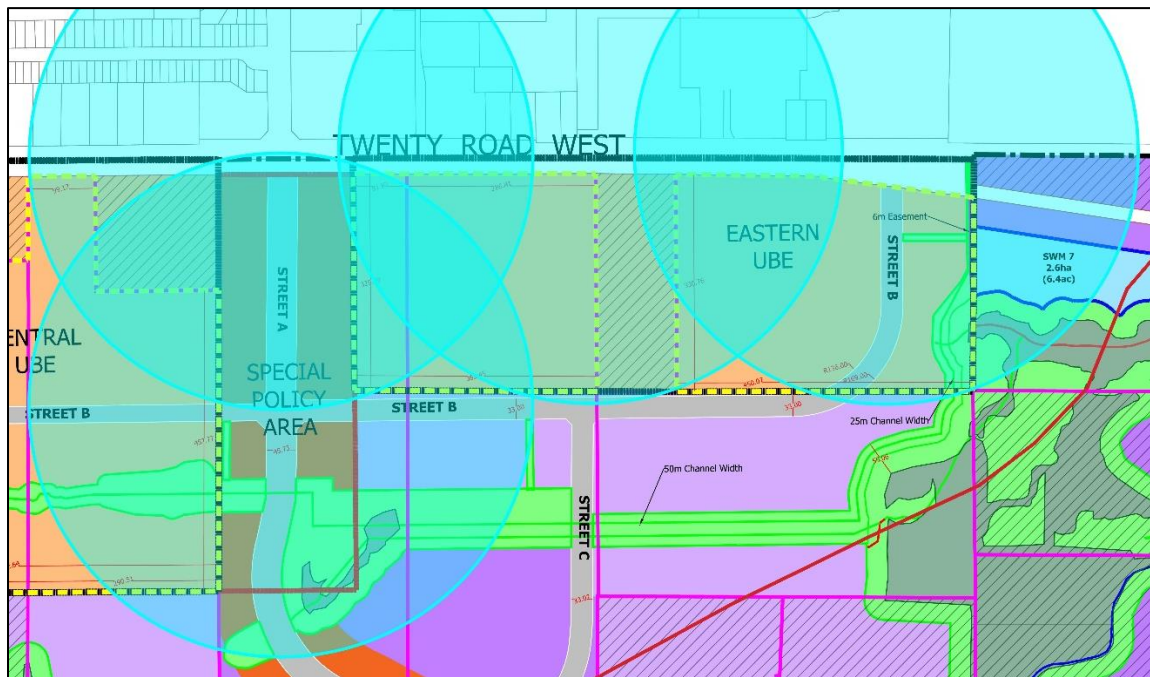
Figure 9: West Expansion Area Transit Coverage**Figure 10: Central Expansion Area Transit Coverage**

Figure 11: East Expansion Area Transit Coverage

As illustrated in Figure 9 and Figure 10, the entire West and Central Expansion Areas would be within the transit coverage area. As illustrated in Figure 11, about 95% of the East Expansion Area would be within the transit coverage area, with only one very small area that would be outside the coverage area. The development can access transit routes along Twenty Road, Glancaster Road, Garth Street extension and Street B using pedestrian sidewalks that would be provide within the block.

Although not part of the coverage, the proposed Bus Rapid Transit (BRT) line on Upper James Street is close to each of the Expansion Areas. The BRT on Upper James is one of the City's planned route, A-line. It will provide connections directly to John C. Munro Hamilton International Airport and West Harbour GO Station. The A-line is scheduled for opening in 2024 with 10-minute headways, which will provide excellent service to this area and specifically the subject lands. This expected timing of the BRT is consistent with the projected built-out of the proposed development. The location of this development has advantages for the future BRT as it will assist to provide future ridership along this BRT corridor. The development lands close proximity and easy access to Upper James Street will allow future ridership from the development to take advantage of the proposed BRT A-line to access the waterfront, airport and other rapid transit lines.

14.0 Transportation Demand Management

The proposed urban boundary expansion will incorporate transit, pedestrian and cyclist friendly design elements to discourage dependency on the single-occupancy vehicle. This compliments the City's overall transportation vision to achieve a greater sustainable transportation system by promoting and encouraging alternative modes of travel, including walking, cycling and transit. The site will also follow guidelines recommended in the AEGD Eco Design Guide including:

- Pedestrian connections along all roadways and between transit stops.
- Provide illumination along the pedestrian pathway to the stop.
- Weather-protected waiting areas at transit stops.
- Benches in the transit waiting areas.
- Bicycle racks to be located at or near transit stops.
- Display transit information including timetables at the transit stops.
- Provision of a transit pass for new homeowners.
- Ensuring a connected pedestrian and cycling network.

TDM measures will be better defined as development plans on the lands become confirmed.

15.0 Next Steps

The Integrated EA study is being undertaken for the block to determine the transportation network and requirements within the Block. The Integrated EA plan will identify road transportation needs (lanes, sidewalks, traffic control, etc.) as well as develop a preferred plan (alignment and geometrics) for the arterial and collector road network within the block. Through the various inputs into the Integrated EA, the road layout and geometry will be confirmed.

Development of the Integrated EA will allow plan of subdivisions to be developed, refined, and submitted. As part of these applications, the necessary transportation study will accompany the application that will provide further details relative to the application lands.

16.0 Conclusions and Recommendations

Currently, the West, Central and East Expansion Areas are vacant areas in the City's urban boundary with the urban boundary surrounding it. Leaving it out removes the potential of having development on Twenty Road corridor to support transit along the road and improve multi-modal movement.

The collector and arterial road network for the Block will be assessed as part of the Integrated EA. Recommendations coming out of this study will conclude the road configuration necessary plus types of intersection (i.e. consideration of roundabouts). However, it is our opinion that the West, Central and East Expansion Areas can be accommodated from a transportation perspective.

It is our opinion that:

- The proposed uses will have a similar impact upon the local road network that was contemplated in the 2011 TMP. The external road network identified in the 2016 TMP is capable of supporting the West, Central and East Expansion Areas.
- The West, Central and East Expansion Areas will support transit along Twenty Road with the entire West and Central Expansion Areas covered by transit and about 95% of the East Expansion Area covered by transit.
- The pedestrian and cycling trail system can be achieved that will support City objectives.
- There would be minor impacts on the proposed transit system, but adjustments could be made to accommodate the transit system.

TDM measures will be further refined as development within the West, Central and East Expansion Areas become better defined and will consider:

- Pedestrian connections along all roadways and between the transit stops.
- Provide illumination along the pedestrian pathway to the stop.
- Weather-protected waiting areas at transit stops.
- Benches in the transit waiting areas.
- Bicycle racks to be located at or near transit stops.
- Display transit information including timetables at the transit stops.
- Provision of a transit pass for new homeowners.
- Ensuring a connected pedestrian and cycling network.

Some of these initiatives will require support and accommodation by the City and other external companies.

