



March 7, 2022

Reference Number: 20253

Joe Nanos

Director, Development Planning
Tridel
4800 Dufferin Street
Toronto, ON M3H 559

Dear Mr. Nanos,

**RE: Transportation Impact Assessment (TIA) Update
Proposed Seniors Residence Development
1280 Dundas Street West, Town of Oakville**

LEA Consulting Ltd. (LEA) is pleased to present this Transportation Impact Assessment (TIA) Update for the proposed seniors residence development located at 1280 Dundas Street West in the Town of Oakville.

By way of background, LEA had previously prepared a TIA dated September 2020. This update has been necessitated by a resubmission of the rezoning application for the proposed development. This resubmission addresses the Town's Engineering & Construction Services (ECS) comments dated February 2, 2021 (provided in **Appendix A**).

Overall, LEA has concluded that since a small change to the proposed unit count has occurred, an update to the technical findings of the previous TIA Update dated September 2020 is not required. Accordingly, this letter will proceed by comparing the previous and currently proposed site statistics, providing an update to the future background and future total results, an update to the functional design review, as well as a pedestrian circulation plan.

1 PROPOSED DEVELOPMENT

Since the previous TIA submission dated September 2020, a decrease in the proposed unit count and the proposed parking supply has occurred. **Table 1-1** summarizes the comparison of the site statistics.

Table 1-1: Proposed Development Statistics

Land Use	Previous	Current	Difference
Retirement Home	315	315	-
Independent Living Units	27	24	-3
Total Residential	342	339	-3
<i>Parking</i>	<i>226</i>	<i>222</i>	<i>-4</i>



2 INTERSECTION CAPACITY ANALYSIS

The Town of Oakville has requested that the traffic consultant recommend an appropriate cycle length based on a simulation assessment for implementation at the study intersection of Dundas Street West and Fourth Line for future conditions, as high delays are noted for the WBL movement. Based on a review of the Transportation Impact Assessment (TIA) prepared for the background developments located at 1357-1359 Dundas Street West, it is our understanding that the Dundas Street West corridor has a cycle length of 120 seconds. Accordingly, in order to reduce delay in a different way than changing the cycle length, LEA has considered changing the protected (Prot) turn type for the left-turns to permitted + protected (PM+PT). The results are summarized in the following subsections for future background and future total, respectively.

2.1 FUTURE BACKGROUND

Revised intersection capacity analysis results for the future background scenarios are shown in **Table 2-1**. Detailed results are provided in **Appendix B**.

Table 2-1: Future Background Capacity Analysis – Signalized Intersections

Intersection	Weekday AM Peak Hour								
	V/C	Delay (s)	LOS	Movement	V/C	Delay (s)	LOS	Queue (m)	
								50 th	95 th
Fourth Line & Dundas Street West	0.89	17.6	B	EBL	0.10	5.2	A	0.6	2.4
				EBTR	0.94	21.1	C	170.5	373.4
				WBL	0.13	23.6	C	0.4	1.9
				WBT	0.55	8.3	A	48.7	108.8
				NBL	0.13	49.2	D	3.0	9.2
				NBTR	0.01	47.9	D	0.0	0.0
				SBL	0.60	57.4	E	21.8	38.2
SBTR	0.02	48.1	D	0.0	0.0				
Intersection	Weekday PM Peak Hour								
	V/C	Delay (s)	LOS	Movement	V/C	Delay (s)	LOS	Queue (m)	
								50 th	95 th
Fourth Line & Dundas Street West	0.84	14.1	B	EBL	0.33	24.4	C	1.6	7.6
				EBTR	0.40	5.1	A	29.0	68.8
				WBL	0.03	4.1	A	0.3	1.2
				WBT	0.89	16.6	B	220.1	338.3
				NBL	0.16	52.7	D	4.0	11.2
				NBTR	0.01	51.4	D	0.0	0.0
				SBL	0.53	58.1	E	13.5	26.6
SBTR	0.01	51.4	D	0.0	0.0				

Under future background traffic conditions, with the implementation of the permitted + protected (PM+PT) turn type for EBL and WBL movements, the Fourth Line and Dundas Street West intersection is expected to operate well, with an overall level of service (LOS) “B” during both peak hours. All individual movements are operating with short delays and residual capacity, which is an improvement from the previously assessed protected (Prot) turn type.



2.2 FUTURE TOTAL

Revised intersection capacity analysis results for the future total scenarios are shown in **Table 2-2**. Detailed results are provided in **Appendix C**.

Table 2-2: Revised Future Total Capacity Analysis – Signalized Intersections

Intersection	Weekday AM Peak Hour								
	V/C	Delay (s)	LOS	Movement	V/C	Delay (s)	LOS	Queue (m)	
								50 th	95 th
Fourth Line & Dundas Street West	0.90	20.8	C	EBL	0.10	5.4	A	0.6	2.4
				EBTR	0.97	25.9	C	178.3	381.2
				WBL	0.14	27.4	C	0.6	2.3
				WBT	0.55	8.3	A	49.0	108.8
				NBL	0.26	50.6	D	6.0	14.9
				NBTR	0.01	47.9	D	0.0	0.0
				SBL	0.60	57.3	E	21.8	38.2
				SBTR	0.02	48.0	D	0.0	0.0
Intersection	Weekday PM Peak Hour								
	V/C	Delay (s)	LOS	Movement	V/C	Delay (s)	LOS	Queue (m)	
								50 th	95 th
Fourth Line & Dundas Street West	0.84	15.5	B	EBL	0.32	24.8	C	1.6	7.9
				EBTR	0.41	5.9	A	31.1	74.0
				WBL	0.09	4.2	A	0.7	2.6
				WBT	0.90	17.6	B	226.6	343.2
				NBL	0.58	60.1	E	15.6	29.7
				NBTR	0.01	50.8	D	0.0	0.0
				SBL	0.49	56.1	E	13.4	26.3
				SBTR	0.01	50.8	D	0.0	0.0

Under future total traffic conditions, with the implementation of the permitted + protected (PM+PT) turn type for EBL and WBL movements, the Fourth Line and Dundas Street West intersection is expected to operate well, with an overall level of service (LOS) “C” or better during both peak hours. All individual movements are operating with short delays and residual capacity, which is an improvement from the previously assessed protected (Prot) turn type.



3 VEHICLE PARKING

The vehicle parking requirements for the subject site were determined based on the Town of Oakville’s Zoning By-law 2014-014. The parking requirements and proposed supply for the entire development is summarized in **Table 3-1**.

Table 3-1: Vehicle Parking Summary

Use	Unit Type	Units	Required Parking Rate	Required Parking	Proposed Supply
Residential	Retirement Home	315	0.33 per assisted living unit and dwelling unit	104	161 + 6 accessible parking spaces + 1 shuttle bus parking
	Independent Living Units	24	2.0 per dwelling unit	48	54
Total Vehicular Parking				152	222

In accordance with Zoning By-Law 2014-014, the subject site is required to provide a total of 152 parking spaces consisting of 104 spaces for the retirement home suites and 48 spaces for the independent living units. The development is proposing a total of 222 parking spaces providing a surplus of 70 parking spaces. It is noted that of the total number of parking spaces required, 25% of the parking spaces required shall be designated as visitors parking spaces.

4 BICYCLE PARKING

The bicycle parking requirements within Town of Oakville Zoning By-law 2014-014 were reviewed and applied to the entire development, as summarized in **Table 4-1**.

Table 4-1: Bicycle Parking Requirements

Land Use	Units	Rate	Requirement	Proposed Supply
Long Term Care Facility	315	The lesser of 5 or 0.25 per assisted living unit or dwelling unit	5	5
Total Bicycle Parking			5	5

Based on the By-law requirements, the subject site is required to provide five (5) bicycle spaces. The proposed supply satisfies the By-law requirement.

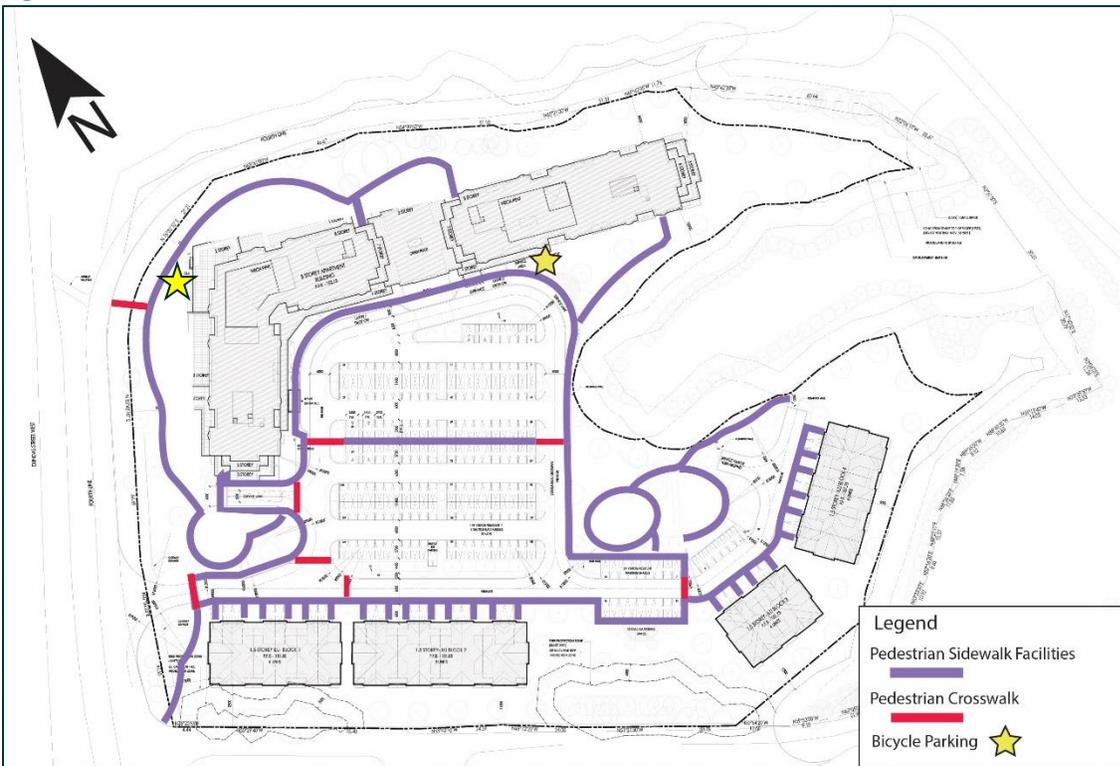


5 PEDESTRIAN CIRCULATION PLAN

As requested by Transportation Services, LEA has provided a pedestrian circulation plan to highlight the pedestrian circulation throughout the proposed development, including the sidewalk facilities, bicycle parking, and pedestrian crosswalks available.

Figure 5-1 illustrates that there is good pedestrian circulation located within the proposed development, with multiple pedestrian connections proposed to the surrounding trail system providing opportunities for active transportation, including cycling and walking. The proposed development is located along Dundas Street West, which is an identified transit route with a multi-use trail. Bicycle parking is also proposed to be located adjacent to the apartment building entrance, offering easy accessibility for pedestrians to utilize the cycling network in the surrounding area. In addition, as requested by Transportation Services, the architect has included a pedestrian sidewalk connection across the main driveway to Fourth Line for people needing to access the bus stops along Dundas Street is included in the proposed development.

Figure 5-1: Pedestrian Circulation Plan





6 LOADING AND FUNCTIONAL DESIGN REVIEW

According to the Town of Oakville's Zoning By-law 2014-014, there is no minimum number of loading spaces required. Should loading spaces be provided, the following regulations apply:

- a) The minimum dimensions of a loading space are 3.5 metres in width and 12.0 metres in length, with a minimum vertical clearance of 4.2 metres.
- b) A loading space shall abut the building for which the loading space is provided.
- c) A loading space shall be set back 7.5 metres from any Residential Zone, except if it is located entirely within a structure. This subsection does not apply to a loading space located in a Residential Zone.
- d) A loading space is not permitted: i) In any minimum yard; ii) Between the main wall closest to the flankage lot line and the flankage lot line in a flankage yard; and, iii) In any front yard.

The proposed development will provide one (1) loading space for the seniors residence. A review of the functionality and accessibility of the proposed loading spaces was completed to determine that the proposed loading spaces can be accessed and egressed by the appropriate vehicles. Furthermore, a review of the site plan including the fire route, care-a-van activity, parking, as well as a pavement marking and signage plan has been prepared. The functional design review is provided in **Appendix D**.

Please do not hesitate to contact Zara Georgis should you have any additional questions or concerns at ZGeorgis@lea.ca.

Yours truly,

LEA CONSULTING LTD.

Zara Georgis, M. Eng., P. Eng.
Project Manager

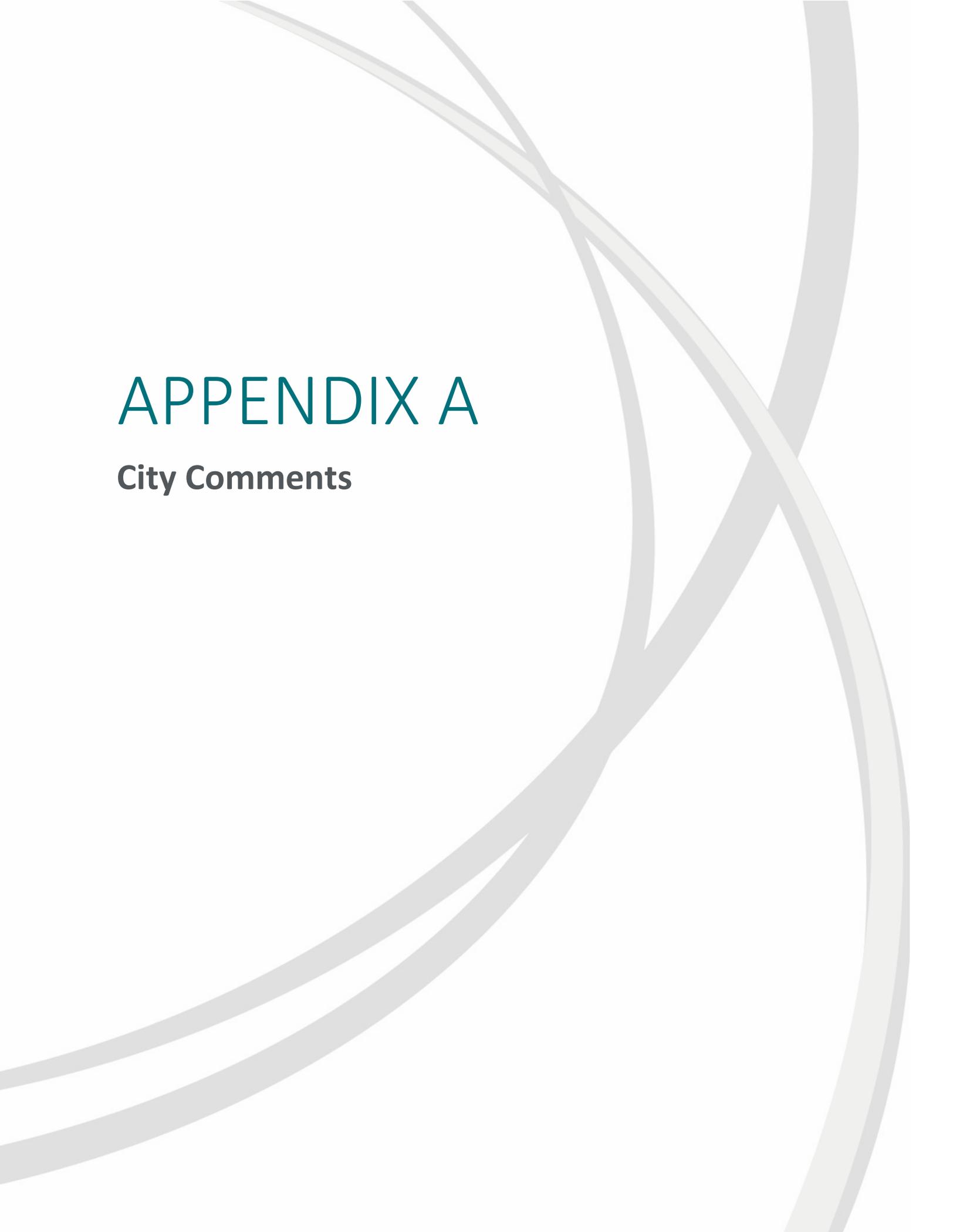
Encl:

Appendix A – City Comments

Appendix B – Future Background Intersection Capacity Analysis

Appendix C – Future Total Intersection Capacity Analysis

Appendix D – Functional Design Review



APPENDIX A

City Comments

Draft Comments Report

Date:	2021-05-13	REV. July 12, 2021
To:	Oz Kemal, MHBC Planning	okemal@mhbcplan.ca
From:	Kate Cockburn, Senior Planner, Planning Services	
Contact Info:	T: 905-845-6601 ext. 3124 F: 905-338-4414 E: kate.cockburn@oakville.ca	
Re:	Development Application Comments (1st submission)	
Application:	Zoning By-law Amendment	
Description:	Seniors Housing – 8 Storey Building with Townhouse units	
Address:	1280 Dundas Street West	
File #:	Z.1423.07	

The above-noted application has been circulated to various municipal departments and external agencies for review. Comments which have been received with respect to the application are included below. Please be aware that comments from some departments and/or agencies may still be pending.

Please contact the staff member responsible for each set of comments, as listed below, in order to resolve any outstanding issues. Kindly request the responsible staff member to send me an email/fax of all correspondence for our records.

Revised and coordinated plans and documents which fully address the attached comments must be submitted according to the process outlined in the [Step by Step Digital Submissions Guide](#) on the Town's website. Digital materials must be named in an organized and descriptive manner according to format outlined in Planning's [Digital Submission Naming Conventions](#) document.

You are also required to submit the following items (forming a complete resubmission package):

- **a cover letter describing how each comment within this report has been addressed.**
- a transmittal provided in .doc (Word) format listing the materials submitted, with their revision number and date and the titles and information presented in the format as provided at the end of this report

Furthermore, all reports, documents and drawings submitted must:

- be presented in metric measure that can be accurately scaled,
- be prepared, stamped and signed by a qualified professional architect (for site plan and architectural drawings), engineer (for site plan and engineering drawings/reports), or landscape architect (for landscape and tree protection drawings/reports)

Circulation Comments:

PLANNING SERVICES

1 Current Planning

Kate Cockburn ext. 3124

2021-05-13 – Circulation 1

The applicant has submitted an application to rezone the north east corner of the subject lands to permit seniors housing. The applicant proposes an eight-storey building with 315 suites together with 27 independent-living townhouse units.

The subject lands are designated Private Open Space and Natural Area, with the area specific to this proposal limited to Private Open Space. There is an exception for the Private Open Space portion, which permits the existing cultural centre and seniors housing among others. The proposed rezoning would be to permit seniors housing consistent with the Official Plan. The application is subject to all applicable policies of the Official Plan, including but not limited to Heritage (Section 5), and Urban Design (Section 6).

The property is regulated by Conservation Halton and is impacted by various natural features which will require additional setbacks and buffering. Further, should the lands be subdivided, the natural areas and hazard lands, including buffers, must be conveyed to the Town.

Staff note that land division by consent may not be appropriate due to the impacts to the natural heritage system and the resulting lots. As such, staff may require a plan of subdivision be submitted for approval to facilitate the development. Staff further acknowledge that the lands behind the cultural centre may be redeveloped in a similar manner in the future, consideration for the extension of Glenayr Gate should be considered through an Area Design Plan, to be undertaken by the Owner or Applicant. Existing servicing constraints will also need to be considered through this exercise. Lastly, the existing trail system may be required to be incorporated into the development and public easements may be required to facilitate these connections. Staff encourage further discussion with the owner of the lands to better understand how the proposed development will impact the future opportunities for the property.

The property is impacted by a radio tower on the north side of Dundas Street West. A peer review was undertaken to evaluate the impacts of the proposal with respect to active radio waves and interference with daily operations of the proposed use. Comments from the peer review were previously provided under separate cover. The applicant shall submit a strategy on how the recommendations of the peer review will be implemented, for further consideration and review.

Some comments remain outstanding, and as such, this report is considered draft. When additional comments are received a revised report will be provide, and comments may be amended to reflect any new comments received. Resubmissions should not be provided until after the Statutory Public Meeting where input from Council and the Public can be considered together with the comments provided below.

File Naming

Future submission materials must be named according to the following format:

- **File Number _ Condensed Name _ Version Number _ Date (with no spaces)**

For example, your set of files should look like the following list:

- 00_CoverLetter_v1_2020-02-28
- 01_Aerial_v1_2020-02-14
- 02_Survey_v1_2020-02-23
- 03_SitePlan_v1_2020-02-23
- 04_SitePlanDetails_v1_2020-02-23
- 05_FloorPlan_v1_2020-02-23
- 06_Landscape_v1_2020-02-18
- 07_LandscapeDetails_v1_2020-02-18
- 08_Servicing_v1_2020-02-15
- 09_Grading_v1_2020-02-15
- 10_SWM_v1_2020-01-30
- 11_TIS_TruckTurning_v1_2020-02-20
- 12_NoiseVibration_v1_2020-02-20
- 13_ESSQ_v1_2020-02-28
- 14_ESS1_v1_2020-02-28

Requirements:

- NO spaces in the file name.
- NO special characters within the file name (i.e. @ # \$ % & * / \ |).
- ONLY Letters, Numbers, Dashes, Underscores and Periods are permitted in the file name.

Final Note:

- All submission of plans and/or studies must be clearly labelled and in a larger font size in the title block as the next submission by number, corresponding to the version number and date in the file name

2 Heritage Planner

Carolyn Van Sligtenhorst ext. 3875

2021-02-01 – Circulation 1

The subject property currently has no heritage status. However, the property was previously listed on the Oakville Heritage Register for the Triller-Howell barn which was formerly located on the site. In 2015, the barn burned down and the property was removed from the Heritage Register.

As requested at the pre-con for this development proposal, we would like to see a Commemoration Strategy submitted with the application. The strategy document needs to propose a method for commemoration of the property's cultural heritage value. This could be done through a plaque and associated landscaping within one of the outdoor amenity spaces or landscaped spaces. The commemorative elements should be easily visible and accessible to passersby.

The property has cultural heritage value for its associations with the Triller and Howell families, pioneers who settled on the land and who built the former barn on the property. It is also associated with the former village of Proudfoot Hollow, or Sixteen Hollow, once located along the river's edge. The property also holds significant heritage value for the Mississaugas of the Credit First Nation because of its proximity to the Sixteen Mile Creek.

Heritage Planning staff can provide written content for the plaque. The applicant will be responsible for any costs associated with the commemoration.

3 Urban Design

Jana Kelemen ext. 3026

2021-02-05 – Circulation 1

The following comments are based on materials circulated January 12, 2021 [Circ 1]

Comments

Development and public realm improvements shall be evaluated in accordance with the urban design direction provided in the Livable by Design Manual, as amended, to ascertain conformity with the urban design policies of Livable Oakville, the Town's official plan. If not done previously, please review online Livable Oakville policies and the related standards contained in Livable by Design Manual (Part A & C).

Please note that the final Urban Design Brief (UDB) will be part of the approved documentation for this application. UDB should be revised to address the following comments:

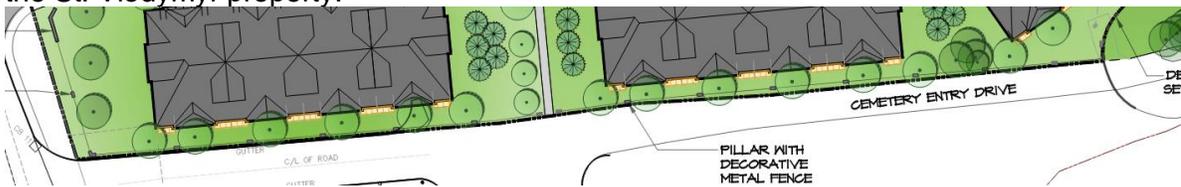
Landscape (comments provided by Philip Wiersma)

1. [Circ 1] Urban Design Brief (UDB) Section 2.0 Existing Conditions and Contextual Analysis, should inventory and analyze the features/elements found on the subject site itself. For example the existing trees, pond, etc. Opportunities and constraints regarding these features/elements should be discussed. Opportunities to restore elements should also be explored.
2. [Circ 1] UDB, Section 3.0 Design Vision, Guiding Principles and Objectives. Fostering a sense of place (Livable Oakville 2.2.2) should be a guiding principle of the design. Given the existing trees and woodland found on the subject site and surrounding the site, as per section 6.10.2 and 10.1.1, one of the objectives of the design should be to preserve and enhance the urban forest. Principles for how the design will achieve this objective, and how success will be measured should be discussed.
3. [Circ 1] UDB, Section 4.0 Development Proposal. As per comment 2, the goal of most site development should be to retain as much existing vegetation as possible. From an urban design perspective, the existing cluster of tableland trees connected to the woodland within the stable top of bank are an important existing element of the site that should be celebrated in the design. The retention and restoration of this wooded area could enhance the sense of place achieved through the design and could enhance/increase the urban forest. As

discussed at the pre-consultation, the concept should be revised to incorporate this existing vegetation.



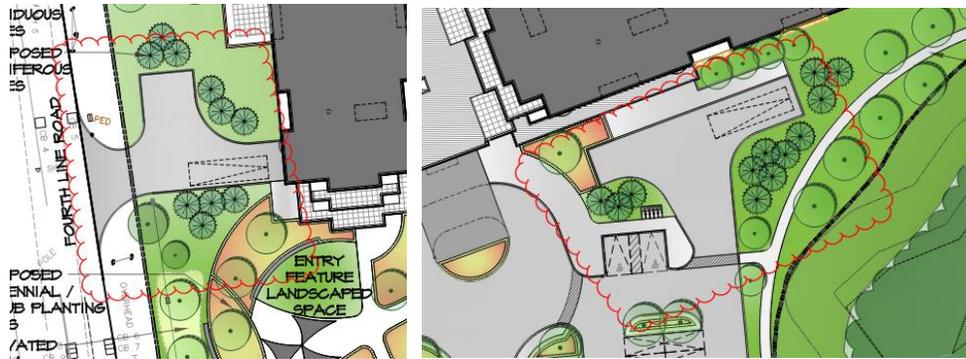
4. [Circ 1] UDB, Section 4.0 Development Proposal. Brief should further discuss how lighting will be mitigated to reduce impact on wildlife. (including but not limited to birds)
5. [Circ 1] UDB, Section 4.0 Development Proposal. As identified in the EIS *'the proposed addition of an 8-story building adjacent to greenways such as the Sixteen Mile Creek valley corridor can present potential for collision and harm of resident and migratory birds.'* Brief should discuss in detail the performance measures and best practices that should be incorporated into the design of the site and buildings to deter negative impacts to birds.
6. [Circ 1] UDB, Section 4.0 Development Proposal. With the removal of the Cattail Mineral Shallow Marsh (the pond) consider the incorporation of low impact development techniques, for the handling of storm water on the site, in amenity and open space areas.
7. [Circ 1] UDB, Section 4.0 Development Proposal. The proposed 4m minimum interior side yard abutting the St. Vlodymyr lands to the west appears inadequate. Though technically an interior side yard, the conceptual building layout creates a rear yard condition along this property boundary. The setback should be increased to at least 6m to accommodate this rear yard condition.
8. [Circ 1] UDB, Section 4.0 Development Proposal. The proposed west property line abutting the St. Vlodymyr property is located very close to their existing driveway. As the existing site will now abut a residential use, a 4.5m wide landscape strip should be provided between the existing driveway and the proposed property line. The transition described in comment 7 and 8 should be consistent with that provided to the existing residential properties to the west of the St. Vlodymyr property.



9. [Circ 1] UDB, Section 4.0 Development Proposal. The brief should discuss the provision of canopy cover. It is my understanding that the site is proposed to keep its open space zone. The minimum canopy cover target for open space is 50%. (Livable by Design Manual (Part C) section 2.1.1). Conceptual canopy cover plan may be helpful to demonstrate. Please note that achieving the minimum canopy cover target is not a rationale for removing the cluster of trees

described in comment 3, which is considered a significant feature of the site.

10. [Circ 1] UDB, Section 4.0 Development Proposal. Signage will not be reviewed in detail through the site plan process. Permits for signage are required to be obtained from Enforcement Services and should comply with Sign By-law 2018-153. Revise 'Signage' section accordingly.
 11. [Circ 1] UDB, Section 5.0 Trail and Pedestrian Connections Plan. The pedestrian circulation plan appears to be missing a convenient connection from the site to the existing trailhead for the pedestrian trail within the Sixteen Mile Creek Valley Lands. Brief should discuss how a convenient and safe connection can be made, updating the trail and pedestrian connection plan as necessary.
 12. [Circ 1] UDB, 7.0 Sustainability. Brief states that multiple pedestrian connection are proposed to the surrounding trail system. From the pedestrian connection plan, only one pedestrian connection to the Fourth Line sidewalk, and one connection to the St. Vlodymyr driveway can be identified. In combination with comment 11, clarify where the multiple connections to the trail system are.
 13. [Circ 1] UDB, 7.0 Sustainability. As mentioned in other comments, the sustainability objectives of maintaining the existing urban forest and increasing the urban forest canopy cover (Livable Oakville 10.1.1) should be reflected in the conceptual design and discussed in the brief.
 14. [Circ 1] UDB, 8.0 Policy Context (Livable Oakville). Landscape section should discuss policies contained in Livable Oakville 6.10.2, 6.10.3, and 6.10.4. Please note that the 4m side yard setback is not adequate to provide privacy plantings along the private driveway access to the abutting cemetery. See comment 7.
 15. [Circ 1] UDB, 8.0 Policy Context (Livable Oakville). Livable Oakville 6.11.4 states that the principal building entrance should be located in close proximity to a transit stop, not the site entrance. Revise Pedestrian Access section accordingly.
 16. [Circ 1] UDB, 8.0 Policy Context (Livable Oakville). Livable Oakville 6.12.2 encourages the consolidation of driveway entrances. The site entrance could be combined with the existing entrance to St Vlodymyr and the cemetery. Discuss consolidation of driveway entrances in the Vehicular Access and Parking section of the brief.
 17. [Circ 1] UDB, 8.0 Policy Context (Livable Oakville). As mentioned in comment 10, the brief should clarify that signage will comply with sign by-law. Revise Lighting, Signage, Service, Loading and Storage Areas section as necessary.
 18. [Circ 1] UDB, 8.0 Policy Context (Livable Oakville). The Lighting, Signage, Service, Loading and Storage Areas section states that the service and loading areas have been located and oriented away from the general circulation of pedestrians and motor vehicles. As shown on the pedestrian circulation plan both loading areas are within clear view of pedestrian circulation routes, and one loading area fronts both Forth Line and Dundas Street West. The loading areas as shown do not comply with Livable Oakville 6.16.1. Screening fences proposed in the front yard is also not acceptable. The loading areas should be relocated, incorporation into the building is recommended.
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19. [Circ 1] UDB, 8.0 Policy Context (Livable by Design Manual) Regarding the summary of how parking guidelines are addressed, the urban design brief should discuss the creation of parking courts, continuous and consolidated landscape areas, and minimum soil volumes for traffic islands as per Livable by Design (Part C) section 2.8.
20. [Circ 1] UDB, 8.0 Policy Context (Livable by Design Manual) Regarding the summary of how landscape guidelines are addressed, the urban design brief should discuss canopy cover, minimum planting standards including soil volume, invasive and native plant species, planting setbacks from buildings and minimum planting widths, preservation of existing vegetation, treatment of required landscape areas, play spaces and amenity areas as per Livable by Design (Part C) sections 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, and 2.7.
21. [Circ 1] UDB, 8.0 Policy Context (Livable by Design Manual) Regarding the summary of how service and loading guidelines are addressed, locating these facilities in areas with low visibility from the public realm is a first priority. Using landscape to screen a poorly located loading area is not acceptable (Livable by Design (Part C) section 4.1). Revise urban design brief and concept accordingly.
22. [Circ 1] UDB, 8.0 Policy Context (Livable by Design Manual) As mentioned before, signage should comply with sign by-law and is not approved through the site plan process. Revise summary of how lighting and signage guidelines are addressed accordingly.
23. [Circ 1] UDB, 8.0 Policy Context (Livable by Design Manual) Regarding the summary of how streetscape guidelines are addressed, the brief should discuss the transition from the built form to the right-of-way or adjacent properties. Subtle transitioning to surrounding areas should be achieved where proposed site grades are higher/lower than existing streetscape grades or property line grades. Refer to Livable by Design Manual (Part C) section 2.4.3 and 2.4.4

Built Form

24. [Circ 1] As mentioned at the Pre-consultation meeting, the site should be re-designed to better align with the Town's urban design policies and standards. As proposed, the development is designed around a large central surface parking lot with majority of units overlooking this parking lot, which is inappropriate. For such extensive development, most of the parking should be located underground.

Surface parking, if used, must be broken into smaller areas (Livable by Design Manual, Section 4.3 Parking; see also comment #19 above). This is a major issue which needs to be resolved prior to the next submission.

25. [Circ 1] As mentioned at the Pre-consultation meeting, the siting of the low-rise units between two major driveways with insufficient separation from the rear driveway is undesirable. The property line should not be aligned with the existing driveway- an appropriate landscape buffer should be provided. Also, the minimum distance for the rear yard should be designed as per Town's Zoning By-laws (see also comments #7 and 8 above).

26. [Circ 1] As mentioned at the Pre-consultation meeting, the loading in close proximity to and visible from public road is unacceptable. All loading must be designed to be within the buildings or internal to the site and screened from public view (Livable by Design Manual, Section 4.6, see also comment #18 above).

27. [Circ 1] The proposed massing appears very extensive and all of the effort should be made to either reduce the overalls massing, or to de-emphasize it. The design of such large slab buildings requires significant breaks and modulation of massing. It is stated in the UDB that the massing will be broken using variety of strategies, such as projections, recesses, step backs, varying rooflines, changes in materials and colours and articulation, and some of the described strategies are illustrated on the preliminary massing model. However, the extent of these techniques does not seem to be satisfactory (from the images provided) and the built form appears very large, especially for an area where no other built form of such large massing and height exists.

The building articulation as described in the UDB does not "promote a more human scale by dividing the building mass into smaller parts".

Also, as per Livable by Design Manual, Section 3.1.16: "Design the building at a maximum length of 55.0m along the façade zone before incorporating a significant break in massing. Incorporate a break with a minimum depth of 6.0m and minimum length of 9.0m to achieve a significant vertical break and setbacks."

Buildings of such visual significance should be designed with a high level of articulation and a varied massing. All of the effort should be made to provide clear design direction and illustrations at this stage.

The applicant should note that Urban Design Requirements might be prepared for this site to be implemented through the SPA. Based on the proposed design at the SPA stage, the Town may require a peer review of the proposal, which will be paid for by the applicant.

28. [Circ 1] UDB states that the building top will be articulated to create a visually attractive skyline profile; however, this has not been yet clearly illustrated.

As mentioned above – if approved, this will be the tallest structures in the neighbourhood. The top portions of these buildings will be very visible. Please follow directions of LbDM, Section 3.1.33 : "Incorporating creative and attractive features in the design of the top floors and roofs of buildings provides the opportunity to create landmarks and an overall distinguished skyline. Also, articulate the upper most floors of the building by varying the massing with stepbacks

and other architectural treatments to create a visually attractive skyline profile. (Section 3.1.30). For rooftop equipment and enclosures taller than 2m in height, setback these elements a minimum of 5.0m from all edges of the roof to reduce their visibility from the public realm (Section 3.1.31).

It is suggested to consider sustainable building features, such as water collection and storage, photovoltaic applications, green roof design, high albedo surfaces and extended eaves for sun shade (Section 3.1.32).

29. [Circ 1] OP Section 6.9.6 states that: “Main principal entrances to buildings should be oriented to the public sidewalk, onstreet parking and transit facilities for direct and convenient access for pedestrians.” (see also comment#15 above)

Further, Livable By Design Manual speaks to enhancing the building façade along the street edge by incorporating creative building elements (Section 3.1.3) and maintaining clear sightlines to ground floor uses and entrances; incorporating architectural treatments, canopies, awnings, accent illumination and landscaping to accentuate principal building entrances (Section 3.1.7) and also designing principal entrance(s) in highly visible locations with direct access from the public realm.

No main entrance is proposed to be visible from or connecting to the public realm. Revise the design to provide accentuated principal entrance(s) from public streets.

Such entrance(s) should also provide connections to the Fourth Line Road from the north side to allow for an easy access for the residents to the existing trail system within the Sixteen Mile Creek Valley.

Conclusion/Conditions

The following should be satisfied prior to final approval:

- That the owner submit and obtains final approval for the Urban Design Brief to the satisfaction of the Planning Services Department.
- Further comments may be provided after review of revised drawings in subsequent submissions.

4 Development Engineering

Brian Gregatti ext. 3343

2021-02-25 – Circulation 1

SECTION 1: TECHNICAL REVIEW

Development Engineering has reviewed the submitted storm water management, grading and servicing materials and provides the following comments:

General:

1. All grading, servicing, storm water management and detail plans will need to be sealed by a Professional Engineer prior to approval for Site Plan Application.
2. Detail drawings have not been provided and should be included with this submission and will be required prior approval for Site Plan Application. Drawings should include (but not limited to) information including material requirements, pavement structure construction, reference to relevant OPS and Oakville Development Standards, testing requirements, restoration details, etc.
3. There is a septic tank lid shown on the survey. Has this tank been decommissioned? It was not identified in the EIS.
4. Setbacks from stable top of slope and physical top of slope should be confirmed with the Conservation Halton and shown on plans to confirm development limits. Additional comments will be provide if layout is to change.
5. Additional comments from Engineering and Construction are anticipated relating to the 4th Line ROW lands.

SWM:

1. While the underground storage may be a viable option, the approximate location of the bedrock and groundwater on site could prevent infiltration. Feasibility of system should be considered as system may be depth limited (should meet requirements of MOE 2003 SWM Design Manual). Furthermore, infiltration rate should be confirmed with the Site Plan Application submission.
2. Approximate runoff volumes and flow rates going to each system should be considered and presented so approximate size of systems can be established. Please provide approximate pre-development and post-development flow rates as well as an approximate 5 year and 100 retention requirement. We understand this is subject to change with site and servicing layouts.
3. Note, discharge points should be shown for roof areas. Are they being directed to the subsurface systems?
4. Please confirm with Conservation Halton if the proposed outlet confirm if proposed outlet is suitable or if additional study is required.
5. A full storm water management report will be required upon Site Plan Application submission.

Grading and Drainage Plan:

1. Understood that the concept Grading Plan is in its early stages. It should be noted that grading should not encroach into regulated area. Furthermore, additional comments on grading should be anticipated upon receipt of detailed design.
2. Please confirm roof water discharge location on plans.
3. 100 year ponding limits should be shown as spill over off site prior to the 100 year event is not permitted. Please confirm. Note, no ponding is permitted in a fire route.
4. If additional structures are required to accommodate grading, please show on plan.

-
5. Existing drainage on southern site should not be impeded and should be considered in drainage design.

Servicing Plan:

1. Further comment will be provided upon receipt of a detailed design.

SECTION 2: CONDITIONS OF APPROVAL

Conditions which must be satisfied prior to Zoning By-Law Amendment approval:

- 1) That the owner submits the following information, to the satisfaction of the Development Engineering Department. :
 1. Stormwater Management Report (*See comments*)
 2. Grading and Servicing Plans (*See comments*)
 3. Tree Inventory and Protection Plan (*See comments by Urban Forester*)
 4. Arborists Report (*See comments by Urban Forester*)
 5. General Comments and Site Layout information.
- 2) That the owner submits the following information, to the satisfaction of the Engineering & Construction Department:

Note: The applicant is to consult with the Engineering & Construction Department regarding the need and or requirements any further permits and reports.

 - a) Reference Plan: That the owner is required to provide the appropriate reference plan / survey information as part of any dedication.

5 Development Engineering, Forestry

Tony Molnar ext. 3869

2021-07-09 – Circulation 1

Pending

Project: Delmanor West Oak Inc.

Materials reviewed:

- 1) Tree Inventory & Preservation & Shade Impact Analysis Report dated August 24, 2020

Urban Forestry has reviewed the above circulation material and has provided the following comments and/or conditions:

The sustainability of a vibrant urban forest and the target canopy cover of 40% are both part of Oakville's vision. The preservation of the existing tree vegetation and the development of an increased forest canopy cover are both important components in ensuring a continued growth of Oakville's urban forest.

The Official Plan speaks to both the preservation of existing tree vegetation and tree canopy enhancement and referenced in the General Policies, Urban Design and Sustainability sections:

- Healthy trees are encouraged to be preserved and integrated into new *development*. Priority shall be given to the use of a mix of indigenous plant species and trees having historic or cultural significance (Sect.6.9.3).
- To maintain the existing urban forest; (Sect. 10.1.1) and,
- To progressively increase the urban forest to achieve a canopy cover of 40% Town-wide beyond the life of this Plan (Sect.10.1.1).

1. A Tree Inventory & Preservation & Shade Impact Analysis Report was submitted as part of the Zoning Bylaw application. The report includes trees located on the subject site, the road allowance, and along the wooded area to the south. A total of 191 individual trees and 14 tree groupings/polygons have been inventoried and assessed in the report with the majority of trees located in the development site. Tree species include black locust, white mulberry, Norway maple, crabapple, Colorado spruce, ash, black walnut, and a magnolia.

In regards to the proposed development 137 trees and nine tree groupings/polygons are proposed for removal, the majority being on the site itself, as well as 7 Halton Region's trees along Fourth Line. The expansive proposed development with the building footprints, parking spaces, common out door amenity areas, and grading will not allow for the retention of the existing trees.

1 Development Engineering Urban Forestry staff does not support the Zoning By-law Amendment with the need to remove 100% of the trees. While most developments will conflict with trees located within the core of the site and therefore require their removal, trees located along the peripheral edge of the development possess a high degree of preservation if an appropriate site design particularly with respect to the building locations, servicing, entrance driveway location, and grading elements were implemented.

With respect to the subject site Development Services Urban Forestry staff does not support the removal of trees in three areas. The first area, here considered as Area A, includes trees 368 through 394 a total of 27 trees comprised of healthy white pine, sugar maple, and Austrian pines. This tree grouping is a well-defined and contained tree assemblage located along the west edge of the property and contributes well to the tree canopy of the site. These trees are healthy and well established and are worthy of preservation. To preserve this tree grouping to the maximum extent possible it is recommended that a protection setback of crown dripline plus 5 metres be applied. Within this protection setback limit there shall be no engineering structures, grade alternations, or hard surfaces that may impact the integrity of the trees.

The second area, here considered as Area B encompasses the trees identified as 137 through to 153 and the tree polygon P13 comprising 26 trees in total and consisting of silver maple and white cedar trees. This tree grouping is a well-defined and generally continuous tree row located along the west edge of the property across from the St. Volodymyr Cultural Centre. This tree row would offer a valuable screening buffer between the development property and the cultural centre site. Consideration for

the preservation of this tree row is strongly recommended as a means of providing a natural buffer between the two properties.

The third area of trees that warrants preservation are the trees along Fourth Line and are comprised of trees 25 through 31. These seven trees are healthy, growing well, and located on property owned by the Region of Halton. Urban Forestry recommends the entrance driveways and other conflicts be relocated to preserve these seven trees.

2. As part of the Site Plan process Urban Forestry will provide detailed comments and conditions for the removal of the permitted trees. Comments will include, among other items, 1) the timing and condition of the removal of the trees, 2) conditions regarding the submission by the applicant for the total monetary value of all town-owned trees, and the condition by which the “co-owned/boundary trees” may be removed with consent from the abutting neighbouring property owner.

3. With respect to the submission of Arborist Reports and related reports all such documents are to be compiled by a Town of Oakville Licensed Certified Arborist. As such the applicant is to provide documentation that indicates the Arborist who completed the tree inventory and Arborist Report possesses a current Town of Oakville Arborist license.

4. Regarding the landscaping works and the streetscape frontage, the tree planting and the construction design will be guided in general by the *North Oakville Urban Forest Strategic Management Plan* document which was approved by the town in 2012. Since that date a few of the tree planting design details have been revised. As part of the Site Plan process Urban Forestry will provide detailed comments and conditions on the streetscape tree planting design and requirements. At the appropriate time and prior to the first Site Plan submission it is recommended that the project Landscape Architect contact the Urban Forester for the updated details regarding the street tree planting portion of the project.

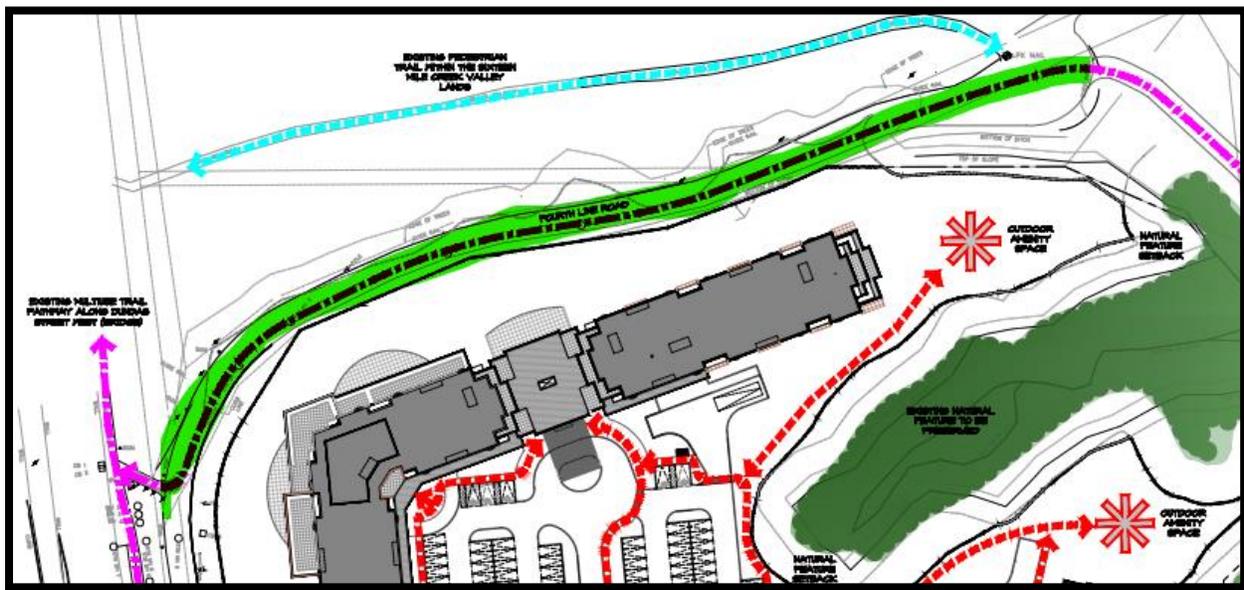
6 Engineering and Construction, Transportation

Syed Rizvi ext. 3981

2021-02-02 – Circulation 1

Sustainable Transportation

1. [Circ. 1] The pedestrian circulation plan should be updated to reflect that there is no MUT where highlighted in green below, this is an active road and no current pedestrian facilities exist.



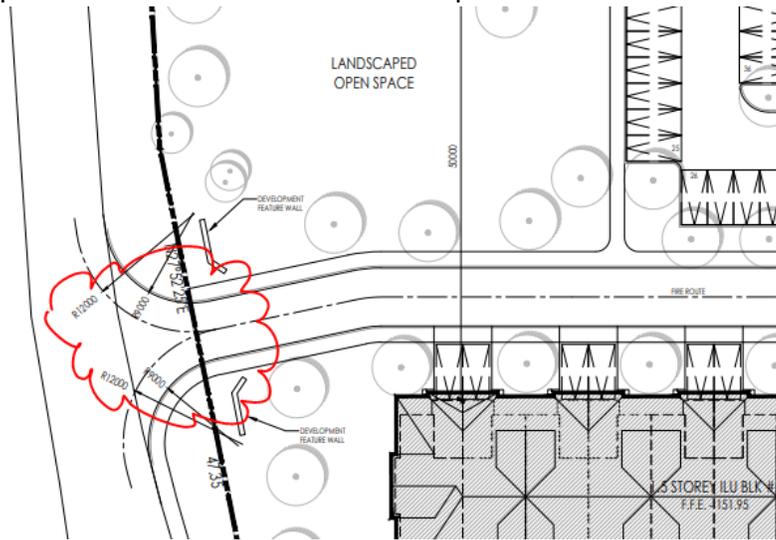
2. [Circ. 1] Staff is requesting the following two bullets (Urban Design Brief, Section 7.0 – Sustainability, page 15) be shown in detail on the updated pedestrian circulation plan, which should include the surrounding trail system as much as possible.

- Multiple pedestrian connections are proposed to the surrounding trail system providing opportunities for active transportation including cycling and walking. The proposed development is located along Dundas Street West, an identified transit route with a multi-use trail.
- To further support active transportation, bicycle parking is proposed.

Oakville Transit

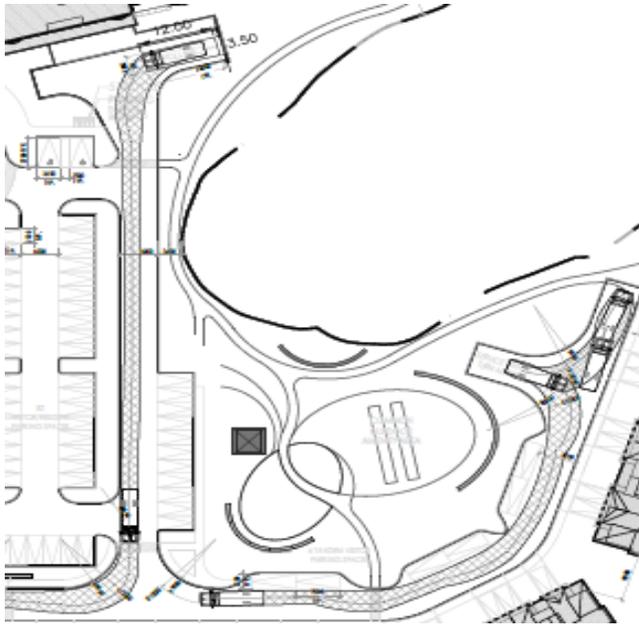
1. [Circ. 1] Oakville Transit provides door-to-door specialized transit service called care-A-van for persons with disabilities. Service is provided by low-floor, fully accessible 26ft buses supplemented in partnership with local taxi providers. Drivers will leave the vehicle and escort the customer to the first accessible public entrance. The vehicle will occupy part of the drive aisle for the duration of loading, unloading and securing mobility devices onboard.
 - a. Please provide autoturn analysis for the 26ft specialized transit vehicle on site at the circular driveway at the front door. The specifications for the bus (Arboc Specialty Vehicles, Spirit of Freedom model) are:
 - i. Length: 8.2m over bumpers
 - ii. Width: 3m including mirrors, 2.4m excluding mirrors
 - iii. Outside body turning radius: 10.5m including bumper
 - iv. Height: 3.05m
 - b. Please confirm the height clearance of the canopy over the circular driveway at the front entrance.
2. [Circ. 1] Please provide details of the curb types around the circular driveway in the site plan. care-A-van would prefer both barrier curb and flush curb. The care-A-van buses can deploy a ramp onto a barrier curb to minimize the slope. Rides provided by contracted taxi would need to use a flush curb.

3. [Circ. 1] Please ensure a sidewalk connection across the main driveway to Fourth Line for people who need to access the bus stops on Dundas Street.



Transportation Impact Assessment (TIA) Comments

1. [Circ. 1] Staff appreciates assessment of the two options for the proposed extension of Glenayr Gate, note that the final recommended option is subject to review and approval by the Transportation services through site plan process.
2. [Circ. 1] Justification noted for the higher delay (sec) of the WBL movement of the study intersection is 120 sec cycle length at the signalized study intersection. The traffic consultant should recommend the appropriate cycle length based on the simulation assessment for implementation at the study intersection for future conditions.
3. [Circ. 1] Pavement marking and signage plan for the internal vehicle circulation of the study area including restricted movements for the driveway isles dedicated for service vehicles only should be submitted for review and comments by the Transportation Services.



4. [Circ. 1] The applicant should confirm with the Halton Region's Waste Management Group that the radii shown on the plan are sufficient to meet waste management criteria and the waste management strategy for the development site.

These represent Transportation Services comments based upon the information provided to date.

INTERNAL DEPARTMENTS

7 Building Services, Fire Prevention

Jonathan O'Neil ext. 3183

2021-02-04 – Circulation 1

No concerns with zoning proposal. Design reviews to be completed at Site Plan and Building Permit reviews.

8 Building Services, Zoning

Matt Rubic ext. 3361

2021-01-20 – Circulation 1

We have reviewed the above noted development application circulation and have the following comments:

Zoning By-law Amendment

1. When the applicant's draft by-law has been vetted by you, please prepare your draft by-law and circulate the draft for review. Further comments will be provided when the draft by-law is circulated.
2. Recommend a base zone which is better suited for the proposed use.
3. A section needs to be added for permitted uses. i.e. Retirement Home, Townhouse Dwelling.
4. Definitions have been proposed for uses already defined in the zoning by-law, please avoid the creation of new definitions where possible.
5. Many of the proposed regulations (k through q) are already regulated in the general provisions under part 4 and parking and loading regulations under part 5 and therefore are not required to be included under a special provision.
6. A provision to permit balconies in the side yard is recommended where the general provision under table 4.3 only permits balconies to be located in the front and rear yard.

9 Legal, Realty Services

Jim Knighton ext. 3022

Date – Circulation 1

Pending

10 Parks and Open Space

Janis Olbina ext. 3148

2021-01-22 – Circulation 1

Pending

The Parks and Open Space Department has reviewed the circulation materials included with this zoning application and offer the following comments.

1. We have no objection to the proposed zoning amendment, or proposed land use. However, in reviewing the property mapping, we do have a question about land ownership and potential land dedications tied into this proposal. In our review of Town survey records, the subject lands are owned by St. Volodymyr Cathedral of Toronto. This same landowner appears to own two additional parcels of land 'north' of Fourth Line right-of-way. These are shown in image below and referenced as PIN's 249240430 and 249240419.
-



2. The applicant should be aware that these natural lands (west bank of 16 Mile Creek) have effectively been maintained by the Town of Oakville for many years. Furthermore, a public trail runs down through these lands, starting at Fourth Line, and traversing the steep slope toward Dundas Street. Over the years, we have experienced multiple erosion issues and have had to perform emergency repairs from time to time. As this current time, the trail along this area is closed for public use because of these unstable slope/erosion issues.
3. We don't believe that there have been any previous discussions with St. Volodymyr regarding this land ownership and trail use, and believe that now is an appropriate time to potentially negotiate a formal land transfer/dedication.
4. In a similar vein, the applicant's proposal includes reference additional 'natural lands to be preserved.' We are not certain if these lands are subject to 'normal' land dedications, but would suggest that these types of natural features (presumed tributary to 16 Mile Creek) would normally be dedicated to the Town as a development requirement.

EXTERNAL AGENCIES

11 Canada Post

Anna Burdz, anna.burdz@canadapost.ca

2021-01-14 – Circulation 1

Canada Post Corporation appreciates the opportunity to comment on the above noted application and it is requested that the developer be notified of the following:

In order to provide mail service to this building(s) for this development, Canada Post requests that the owner/developer comply with the following conditions:

- ⇒ The owner/developer will provide each building with its own centralized mail receiving facility. This lock-box assembly must be provided and maintained by the Owner/Developer in order for Canada Post to provide mail service to the residents of this project. **For any building where there are more than 100 units, a secure, rear-fed mailroom must be provided.**
- ⇒ The owner/developer agrees to provide Canada Post with access to any locked doors between the street and the lock-boxes via the Canada Post Crown lock and key system. This encompasses, if applicable, the installation of a Canada Post lock in the building’s lobby intercom and the purchase of a deadbolt for the mailroom door that is a model which can be retro-fitted with a Canada Post deadbolt cylinder.

As per our revised National Delivery Policy, **street level residences and businesses will also receive mail delivery at centralized locations, not directly to their door.** For example:

- extra mail compartments can be provided to accommodate these units in the main mailbox panel
- if these units are not part of the condo then a separate centralized mail receiving facility/box can be set up by the developer at an alternative location.

As the project nears completion, it is requested that the Developer contact me directly for a Postal Code as existing postal coding will not apply and new postal codes will be issued for this development.

The Developer’s agent should contact a Delivery Supervisor – **Oakville Post Office** at 905-338-1199 X 2004 for mailroom/lock box inspection and mail delivery startup.

The complete guide to Canada Post’s Delivery Standards can be found at:

https://www.canadapost.ca/cpo/mc/assets/pdf/business/standardsmanual_en.pdf

12 Conservation Halton

Colleen Bain tel. 905-336-1158 ext. 2257

2021-06-15 – Circulation 1

Conservation Halton (CH) staff has reviewed the above-noted application as per our responsibilities under Ontario Regulation 162/06; the Provincial Policy Statement (PPS) (delegated responsibility for comments relating to provincial interests under Sections 3.1.1-3.1.7 inclusive); the Memorandum of Understanding (MOU, 1999) with Halton Region; and as a public body under the *Planning Act*. These responsibilities are not mutually exclusive. Comments that pertain to items contained in the MOU may also apply to areas regulated under Ontario Regulation 162/06.

The following comments relate to the items marked as “applicable” for this specific application. Comments under Ontario Regulation 162/06 are clearly identified and are requirements. Other comments are advisory.

Ontario Regulation 162/06

- Lake Ontario/Burlington Bay/Hamilton Harbour Shoreline Hazards &/or allowances
- River and Stream Valley Hazards (flooding/erosion) &/or allowances
- Wetlands &/or Other Areas*

Applicable

-
-
-

Hazardous Lands (Unstable Soil/Unstable Bedrock)	<input type="checkbox"/>
CH Permit Requirements	<input checked="" type="checkbox"/>

One Window Delegated Authority under PPS

Natural Hazards (Sections 3.1.1-3.1.7 inclusive)	<input checked="" type="checkbox"/>
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CA/MOU

Impacts on Lakes and Rivers	<input type="checkbox"/>
Wildlife Habitat	<input checked="" type="checkbox"/>
Endangered & Threatened Species	<input type="checkbox"/>
Fish Habitat	<input type="checkbox"/>
Stormwater Management (as per Schedule I)	<input checked="" type="checkbox"/>
Sub-watershed Planning/Master Drainage Planning	<input type="checkbox"/>

Other Comments (as a Public Body)

Niagara Escarpment Plan	<input type="checkbox"/>
Watershed Plan	<input type="checkbox"/>
Greenbelt Plan	<input type="checkbox"/>
Source Protection Plan	<input type="checkbox"/>
Hamilton Harbour Remedial Action Plan	<input type="checkbox"/>

Proposal

The purpose of this application is to obtain the necessary land use approvals to allow for the construction of an 8-storey seniors residence with 315 suites, and 27 independent living units in 4 blocks.

The subject lands are currently zoned as Private Open Space, Special Provision 122 (O2 sp:122), Natural Area (N) and Cemetery (CEM) in the Town of Oakville Zoning By-law 2014-014. The O2-122 zoning, where the development is proposed does not permit seniors housing. This ZBA application proposes to bring this zoning into conformity with the Livable Oakville Official Plan permissions for senior citizens' housing, by implementing a site-specific by-law that allows for the proposed 8-storey seniors building and that provides site-specific permissions in accordance with the proposed development. In addition, the ZBA includes refining the current limits of the "Natural Area" zone that adjoin the O2 sp:122 zone to reflect the full extent of the natural hazards and natural heritage features with associated allowances and buffers.

CH staff has reviewed the documents provided by MHBC Planning received on January 12, 2021 (listed in **Appendix B**). At this time, the application is considered incomplete by CH staff as payment has not been provided by the applicant. Payment is required prior to or as part of the resubmission of this application. **Key Comments** are listed below, and **Detailed Comments** are included in **Appendix A**.

Key Comments

1. The *Slope Stability Analysis* is missing key components required for the establishment and determination of the Long-Term Stable Top of Slope (LTSTS). Required components are included in **Appendix A**.
2. Once the LTSTS is adequately delineated, the 15 metre CH Regulatory Allowance needs to be plotted from the LTSTS on all drawings and report figures. All proposed development on-site must be outside this area.
3. The FSR includes the concept for stormwater management including water quality, quantity, and erosion control. The concept for SWM is acceptable, however staff cannot accept the proposal to discharge stormwater to the west valley system at this time. Staff have concerns that adding flows

to this system will lead to excessive erosion within the creek and valley. A geomorphic analysis has not been submitted to support this proposal and is required.

4. The EIS should be revised to demonstrate consistency with the Region of Halton's Environmental Impact Assessment (EIA) Guidelines. As such, CH staff defers detailed review of the EIS, which includes comments associated with the identification and assessment of natural features, until the EIS has been revised appropriately.

Ontario Regulation 162/06

CH regulates all watercourses, valleylands, wetlands, Lake Ontario and Hamilton Harbour shoreline and hazardous lands, as well as lands adjacent to these features. The subject property is traversed by tributaries of Sixteen Mile Creek (referred to in this letter as the "west valley") and is adjacent to the Sixteen Mile Creek Main Branch, and contains their associated flooding and erosion hazards. CH regulates a distance of 15 m from the greater limit of the erosion or flooding hazards associated with Sixteen Mile Creek and its tributaries for this particular site. Permission is required from CH prior to undertaking any development within CH's regulated area and must meet CH's *Policies and Guidelines for the Administration of Ontario Regulation 162/06* (<https://conservationhalton.ca/policies-and-guidelines>).

As per CH policy, no new development is permitted on the subject property within 15 m of the flooding and erosion hazards associated with Sixteen Mile Creek and its tributaries. Permit requirements will be provided through CH's review of subsequent submissions.

One Window Delegated Authority under PPS

CH reviews applications based on its delegated responsibility to represent the Province on the natural hazard policies of the PPS (3.1.1-3.1.7). Policy 3.1.1. of the PPS states that "development shall generally be directed...to areas outside of: b) hazardous lands adjacent to river, stream and small inland lake systems which are impacted by flooding hazards and/or erosion hazards". Further, Policy 3.1.5 states that "development shall not be permitted to locate in hazardous lands...where the use is: a) an institutional use including...retirement homes".

Specific comments pertaining to Natural Hazards are provided under the heading **Ontario Regulation 162/06**. As mentioned in the **Key Comments** above, and **Detailed Comments** within **Appendix A**, additional information is required to confirm the extent of the erosion hazard on site.

CA/MOU

CH staff has reviewed the *Environmental Impact Study* as per the MOU with the Region of Halton. CH provides the comments within **Appendix A** that will need to be addressed in a revised submission.

Recommendation

CH requires additional information to determine the limits of the natural hazards and natural heritage feature on-site. Also, staff cannot accept the proposal to discharge stormwater to the minor valley system at this time, and a geomorphic analysis is required. Once the limits of the natural hazards and natural heritage features are determined to the satisfaction of CH and the other review agencies, staff recommend that these lands with associated regulatory allowances and buffers be appropriately zoned and conveyed to/retained in Town ownership for their long-term protection. CH staff can provide further comments on the application upon resubmission.

Staff note that the CH review fee was not received with this application. The "Zoning By-Law Amendments – Large (> 2ha) fee of \$18,622 as per the 2020 Plan Review fee schedule is required for staff to continue the review of this application.

To facilitate CH's review, the applicant is asked to include the following in the next submission:

- Consolidated response table (word/excel format preferred) addressing CH's numbered **Key and Detailed Comments**;
- A digital copy of all submission materials (digital download preferred); and
- The outstanding fee payment of \$18,622 (please contact the undersigned).

No resubmission fee will be required for the second submission; however, staff note that a resubmission fee will apply on third and subsequent submissions.

Please note that CH has not circulated these comments to the applicant, and we trust that you will provide them as part of your report.

We trust the above is of assistance. If you have any questions, please contact the undersigned.

Sincerely,

Colleen Bain (MES, Planning)
Planning & Regulations Analyst
905.336.1158 ext. 2257
cbain@hrca.on.ca

Encl. **Appendix A: Detailed Comments to be Addressed**
Appendix B: Materials/Technical Reports Reviewed

C.C. Brian Gregatti, Transportation and Engineering, Town of Oakville
Heather Ireland, Planning Services, Region of Halton

Appendix A – Detailed Comments to be Addressed

CH staff may provide further comments on the matters below in response to future submissions.

Ontario Regulation 162/06

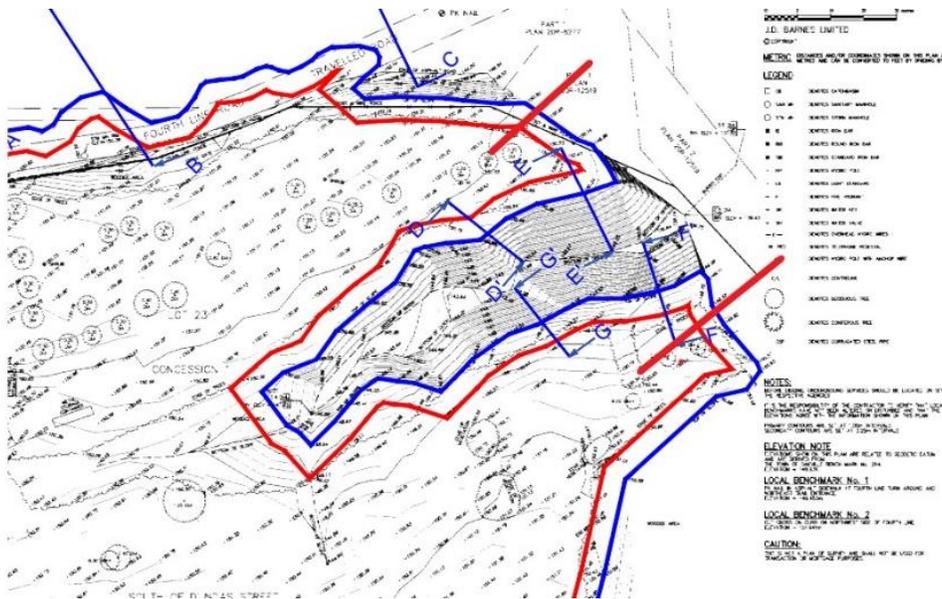
General Comments

1. The 15 metre CH Regulatory Allowance from the Long-Term Stable Top of Slope is required to be shown on all drawings. All proposed works on site must also be outside this area.
2. A geomorphic analysis is requested for the west valley system. The analysis will provide supporting documentation for the slope stability analysis and the Functional Servicing Report.

Updated Slope Stability Assessment

3. A revised slope stability analysis is requested. The analysis must include and/or consider the following components:

a. A stable slope analysis is required for the valley sections as shown on the markup below in red.



b. The stable slope analysis must include the MNRF Table 8.1 – Slope Stability Rating Chart for each valley section (i.e. Sixteen Mile Creek valley, and west valley system).

c. The submitted analysis includes a slip failure analysis for the over burden only. Sixteen Mile Creek is a highly active eroding system with slope failures from the toe to the crest. The analysis must consider the 100 year stable slope line based on the accepted angle of repose for each subsurface soil type. It is noted that CH accepts a minimum stable slope inclination for shale bedrock of 1.4H: 1V.

d. Drawings showing the existing slope profile and the long-term stable slope based on the accepted angle of repose must be included.

e. The west valley stable slope analysis must include a toe erosion setback. Further setbacks may be required based on a geomorphic analysis.

f. A 15 m setback is required from the Long-Term Stable Top of Slope for Sixteen Mile Creek and its tributaries.

Functional Servicing Study

4. Staff cannot accept the proposal to discharge stormwater to the west valley system at this time. The addition of flows may increase erosion within the valley. Prior to accepting the proposed discharge point, a geomorphic analysis is required. The analysis will establish the erosion potential for the creek including meander width and provide guidance to the potential to discharge stormwater into this system.

Environmental Impact Study

5. Further to a prior CH Site Visit and correspondence provided via e-mail, please ensure the next submission includes the following information and that the report is revised accordingly:
 - a. CH staff staked the physical top of slope on March 28, 2019. A visual assessment of the watercourse, pond and hydrologic feature were also completed while on-site. No other features were staked by CH staff during the site visit (**Section 2.0 Agency Consultation, page 3**; and **3.2.2 Feature Staking, page 6**). This should be referenced in the report and the staked top of slope should be shown on all report figures.
 - b. CH recommended a scoped Environmental Impact Assessment (EIA) be completed to support this application in consultation with CH, the Town and Region (Bain, December 10, 2019).
 - c. CH advised the applicant that the pond is not a regulated wetland as per CH's policies (Bain, January 8, 2020). However, the wetland may be protected under other applicable municipal policies that will need to be reflected within the report.
 - d. A pre-consultation meeting with Town of Oakville, Region of Halton, and CH staff on April 29, 2020.
 - e. All tributaries of Sixteen Mile Creek receive a 15 m allowance from the LTSTS (Bain, July 8, 2020).

Planning Justification Report

6. The *Planning Justification Report* does not include references to CH Policies as per CH's *Policies and Guidelines for the administration of Ontario Regulation 162/06 and Land Use Planning Policy Document* (revised 2020). The submission also does not explain how the proposal is consistent with and conforms with these policies. The report needs to be updated to include these policies and a discussion.

CAMOU**Environmental Impact Study**

1. **Section 3.2.8 Species of Conservation Concern, page 9:** Provide all correspondence with the MECP as it pertains to management approaches for species protected under the Endangered Species Act, 2007.
2. The following information is missing or incomplete as it pertains to the characterization of the Natural Heritage System for the site. This information is needed to determine the developable area. As part of the resubmission the following revisions are recommended:
 - a. Revise the *Environmental Impact Study* to conform with the Region of Halton's Environmental Impact Assessment Guidelines. Staff recommend submitting a terms of reference to the review agencies to establish clear expectations for the EIS.
 - b. Ensure the findings of the biophysical assessment inform the environmental constraints discussion and that the natural features are shown on a figure.

-
- c. Include the ecological land classification (ELC) vegetation communities for the subject area and adjacent lands up to 120m from the proposed development on a figure. ELC for adjacent lands can be done to the community series level where access is not available.
 - d. Provide the methodologies and field sheets for all biophysical assessments. It is appropriate to rule out categories from the SWH Criteria Schedules for Ecoregion 7E based on site characteristics and incomplete studies if the rationale is included in the report. However, there will likely be categories that cannot be ruled out without completing the protocols as outlined in the SWH Criteria Schedule. The following options are available to assess SWH for those categories:
 - i. Conduct field investigations as per the protocols.
 - ii. Assume that these categories are present.
 - e. Use natural heritage policy implementation tools to support the biophysical assessment such as, but not limited to, the *Natural Heritage Reference Manual* (MNR, 2010), the *Significant Wildlife Habitat Ecoregion Criteria Schedule for Ecoregion 7E* (MNR, 2015) and the *Significant Wildlife Mitigation Support Tool* (MNR, 2014).
3. Revise the report to ensure Section 7 Impact Assessment and Mitigation reflects the findings in prior sections for example:
- a. The pond is confirmed significant wildlife habitat (Section 4.4 Significant Wildlife Habitat, page 23) and although it does not meet the criteria to be considered a CH regulated wetland, it may meet the definition of a wetland under the Regional Official Plan. Please update the report to reflect the significance and confirm the status of the feature.
 - b. The subject area contains other confirmed and candidate significant wildlife habitat for multiple categories. Discussion on appropriate mitigation measures is needed.
 - c. The hydrologic drainage feature should be protected as per the findings of the hydrologic drainage feature evaluation (Section 4.2.6.1 HDF Evaluation, page 19).
 - d. The allowances and setbacks from the significant valley do not conform with CH and natural heritage policy.
 - e. The significant woodland feature requires evaluation and delineation by the Region of Halton. Recommend further correspondence with the Region to determine next steps.
 - f. Provide additional discussion on the enhancements, linkages, and buffers.
 - g. Stormwater management, including snow storage, must be supported by policy and the findings of the EIS.

Appendix B - Materials/Technical Reports Reviewed

The following documents provided by MHBC Planning were reviewed with this submission, received by CH on January 12, 2021 (at this time, the application is considered incomplete by CH staff as payment has not been provided by the applicant).

- *Survey*, prepared by J. D. Barnes, dated August 28, 2019;
- *Drawing No. A101, Site Plan & Statistics*, prepared by Icke Brochu Architects Inc., dated August 5, 2020;
- *Landscape Concept Plan*, prepared by Cosburn Nauboris Landscape Architects Ltd., dated September 17, 2020;
- *Drawing No. PCP1, Trail & Pedestrian Circulation Plan*, prepared by Cosburn Nauboris Landscape Architects Ltd., dated November 30, 2020;
- *Figure 1, Existing Conditions, Proposed Site Plan, Tree Inventory & Preservation Plan*, prepared by Kuntz Forestry Consulting Inc., dated August 24, 2020;
- *Drawing No. PP1-PP2, Site Servicing Plan*, prepared by R.V. Anderson Associates, dated August 14, 2020;
- *Drawing No. C-1, Conceptual Site Servicing Figure*, prepared by R.V. Anderson Associates, dated July, 2020;
- *Drawing No. C-2, Conceptual Site Grading Figure*, prepared by R.V. Anderson Associates, dated July, 2020;
- *Planning Justification Report*, prepared by MHBC, dated December 2020;
- *Environmental Impact Study*, prepared by SLR Consulting, dated September 18, 2020;
- *Functional Servicing Study*, prepared by R.V. Anderson Associates, dated September 2020; and
- *Updated Slope Stability Assessment*, prepared by B.I.G. Consulting Inc., dated December 5, 2019.

13 Oakville Hydro, Engineering Dept

Dan Steele tel. 905-825-9400

Date – *Circulation 1*

Pending

14 Region of Halton, Planning & Public Works Dept

Quadri Adebayo tel. 905-825-6000 ext. 3105

2021-04-27 – Circulation 1

Regional Planning staff has completed the review of the above noted Rezoning application received January 12, 2021. The application proposes an eight (8) storey seniors residence building containing 315 suites, and 27 independent living units within four (4) standalone buildings. The development is

proposed to operate with units available under rental tenureship, and will comprise of memory care suites, assisted living suites and independent living suites.

It is understood that a future severance is contemplated to separate the subject lands, which is currently part of the adjacent lands (i.e. the St. Volodymyr Cultural Centre to the west, and the cemetery lands to the south respectively). It is also understood that the Zoning By-law Amendment seeks to facilitate the proposed development by rezoning the subject lands from Private Open Space with Special Provision 122 (O2 sp. 122) to a site-specific zoning that will permit seniors housing and implement buffer features for the protection of the adjacent Natural Area Zone. The site-specific zone permissions are also described in the Draft Zoning By-law provided in this submission to be applicable to any future severance.

Regional Staff has considered the proposed application within the context of Provincial planning policies and from the Regional Official Plan perspective, and the Region is currently not in a position to provide a favourable recommendation and/or conditions of zoning approval at this time, as there are outstanding fundamental environmental issues which need to be addressed. These issues are related to the Regional Natural Heritage System (RNHS) that traverses the subject lands and the potential impact(s) on the ecological functioning of the RNHS if the subject lands are to be developed to the extent proposed.

It is paramount that any environmental issues are addressed upfront in order to adequately establish the principle of development for the subject lands. Please note that other technical matters related to municipal servicing, potential contamination, archaeological resources, noise impacts and waste collection do not preclude Regional environmental concerns, as the extent/intensity of development that will be allowed through a revised Environmental Impact Assessment will have a bearing on these technical requirements.

PLANNING ANALYSIS

Regional Official Plan

The subject lands are designated as 'Urban Area' and 'Regional Natural Heritage System (RNHS)' within the 2009 Regional Official Plan (ROP). Dundas Street is a Higher Order Transit Corridor where intensification is contemplated in the ROP. Therefore, the Urban Area and Intensification Area policies of the ROP apply to the subject lands. The policies of the ROP provide that the range of permitted uses (higher densities and mixed uses) and the creation of new lots within the Urban Area will be in accordance with Local Official Plans and Zoning By-laws. It is understood that the lands are designated to permit a seniors residential development.

The RNHS limits traverses the subject lands across the southerly and easterly boundaries up to the centre of the subject lands, and follow the Ministry of Natural Resources Woodland Area mapping overlay feature. As well, the RNHS limits are within the regulated area of 'Conservation Halton'. There are Regional concerns with the intensity of the proposed development in relation to the protection of the ecological functionality of the RNHS. These concerns need to be addressed upfront in order understand the extent of built form that can be permitted on the subject lands, and to avoid any negative environmental impacts.

See Appendix A for detailed Regional environmental comments. The EIA as submitted is not satisfactory and we are not in a position to advise that ROP policies related to the RNHS have been addressed.

Land Use Compatibility

Section 143(10) of the ROP and implementing Guidelines require that likely issues that could emanate from sources of possible emissions be addressed through the review of a development proposal. Six (6) AM radio transmission towers (supporting two radio stations) exist to the north, on the lands across Dundas Street West from the subject lands.

To this end, the Region has reviewed the 'Radio Frequency Impact Study (for construction near an AM transmission site)' prepared by YRH, December 2020. The recommendations and mitigation measures proffered in the study, where applicable, should be incorporated into the Draft Zoning By-law standards, and implemented at site plan and construction stages respectively.

Potential Contamination

Section 147(17) of the ROP and implementing Guidelines require that the Region and Local Municipalities, when considering any development proposal, to undertake appropriate assessment of the lands and undertake the steps necessary to bring the lands into a condition suitable for the intended use. To this end, the Region acknowledges the Phase 1 Environmental Site Assessment (ESA) by B.I.G. Consulting - June 2018, and the Phase 2 ESA (B.I.G. Consulting - December 2019) completed for the subject lands. The ESAs provided were done to the CSA standard and are not acceptable. Therefore, an Ontario Regulation (O.Reg. 154/03) compliant ESA Phase 2 report is required in order to properly assess for potential contamination of concerns.

Please note that the O.Reg. Compliant ESA submission must be current within 18-months from the date it is received by the Region.

Archaeological Resources:

In accordance with Section 167(6) of the ROP, the subject lands are within an area of potential archaeological resources. Staff acknowledged the Stage 1 Archaeological Assessment (ASI – August 2020). The assessment determined that majority if the subject lands exhibit the potential of encountering archaeological resources, and a Stage 2 Archaeological Assessment was recommended as a result.

Regional Staff recommend that a Stage 2 Archaeological Assessment be completed by the Owner respecting the recommendations provided in the Stage 1 Assessment report and in accordance with the requirements of the Ministry of Heritage, Sport, Tourism, and Culture Industries.

Municipal Servicing Infrastructure

Section 89(3) of the ROP, requires that all new development within the Urban Areas be on the basis of connection to Halton's municipal water and wastewater service.

Regional staff has reviewed the Functional Service Report (FSR) prepared by R. V. Anderson Associates Limited (September 2020) an offer the following comments.

Existing Services

A 1200mm diameter water main and two 750mm diameter sanitary sewer force mains are located on Dundas Street West adjacent to the subject property.

1. Wastewater Servicing:

The above mentioned sanitary sewer force mains are not available to support the proposed development. The three wastewater servicing options proffered in the FSR for the subject lands are not supported by the Region. It is the Region's preference that the site be serviced by extending a local gravity sewer along the north side of Dundas Street West instead. This sewer would connect to the existing 450mm diameter sewer stub that is located west of the site on the north side of Dundas Street. This alternative would require a sewer crossing of Dundas Street and it is suggested that this crossing occur at Fourth Line near the subject property. The sanitary sewer extension works would be required to be constructed through a Regional servicing agreement.

2. Water Servicing:

The Region does not allow service connections to the existing trunk water-main located on Dundas Street West. The three water servicing options proffered in the FSR for the subject lands are not supported by the Region. It is the Region's preference that the site be serviced by extending a local water main from the existing dead-end 150mm diameter water main located on Fourth Line south of the subject property. This alternative will require the water-main to be extended northward through the NHS lands, and then westward through the road allowances for Fourth Line and Dundas Street where it will connect to the existing water-main on Wooden Hill Circle. The water-main extension works would be required to be constructed through a Regional servicing agreement.

3. Storm Water Drainage:

The FSR notes that due to the topography of the site the majority of the site currently drains to the south. The FSR notes that the post development drainage from the site will be controlled by underground storage devices and eventually will outlet on the south limit of the property. The FSR notes that no storm drainage will be directed to the existing storm sewer system on Dundas Street West. There are no Regional concerns regarding these FSR recommendations at this time subject to the outcome of a revised FSR.

Summary

Considering the above, the FSR should be revised to reflect the Region's preferred method of servicing as noted and the analysis updated to confirm that the proposed servicing could accommodate the proposed development.

The servicing issues noted are of significant concern to the Region. Due to this, it is strongly recommended that this development application should not proceed until the proposed sanitary sewer extension and water-main extension required to service this development are addressed to the satisfaction of the Region.

A holding provision could be considered on the zoning application in order to accommodate the Region's servicing concerns. Prior to this, we also request receipt of a satisfactory FSR prior to the Town presenting a recommendation report to Council, as this may inform the wording of any potential Holding provision.

Regional Transportation

Regional staff offer the following comments:

Transportation Impact Study (TIS):

The TIS completed by LEA Consulting (August 2020) is considered acceptable. The study satisfactorily discussed in detail the calculation and distribution of site-generated single-occupant vehicle (SOV) trips. It identified that the proposed development is expected to generate an additional 54 new trips in the AM peak hours (35 inbound, 19 outbound) and 85 new trips in the PM peak hours (34 inbound, 51 outbound). In addition, that, under future total conditions, Fourth Line and Dundas Street West is expected to continue operating well with an overall level of service (LOS) of 'C' or better during both peak hours - All individual movements are operating with short delays and residual capacity.

Noise Study:

The Noise Assessment Study completed by HGC Engineering (August 2020) is also considered acceptable. The Dundas Street future traffic assumptions and truck percentages used in the study are acceptable.

Physical noise mitigation will not be required. The outdoor rooftop terraces proposed on the 2nd and 3rd floors of the Senior's building, will have a standard 1.07-metre solid parapet wall for noise mitigation. In addition, the proposed common roof terrace on the 4th floor of the senior's building and in the common outdoor amenity areas in the interior of the development, will both be less than 55 dBA.

The small patios proposed for the independent living units are less than 4 metres in depth. These areas due to their size are not considered outdoor living areas, and a noise assessment is not required. The residents also have access to three nearby common outdoor amenity areas.

Although no noise barriers are warranted for noise mitigation, the following proposed warning clauses appear acceptable. The warning clauses must be reviewed and approved by the Town of Oakville. Also, Warning Clause A quoted below must be deleted as the development lands do not directly front onto Dundas Street or the Regional active transportation network thus:

Type A: Purchasers shall be advised that ground floor units with balconies with direct unobstructed access to the Regional road system and/or the Active Transportation Network will not be eligible the retrofit provisions of the Region's Noise Attenuation technical Policy in the future.

Type B: Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the noise criteria of the Municipality and the Ministry of the Environment, Conservation and Parks.

Type C: This dwelling unit has been fitted with a forced air heating system and the ducting etc., was sized to accommodate central air conditioning. Installation of central air conditioning will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality's and the Ministry of the Environment, Conservation and Parks' noise criteria. (Note: The location and installation of the outdoor air conditioning device should be done so as to minimize the noise impacts and comply with criteria of MECP publication NPC-300.)

Type D: Purchasers are advised of the proximity of surrounding commercial/institutional facilities, the sound from which may at times be audible.

Summary

Considering the above, additional requirements related noise clauses may be provided at site plan stage when further details about the proposed development become available.

Waste Management

The proposed development is subject to Regional collection for the residential portion of the site, for garbage, recycling and organic waste service.

Regional waste could possibly service the subject lands for residential waste collection on the condition that the proposed development adheres to the Regional design guidelines and requirements in order to receive regional waste collection services. These matters will be addressed in further detail at the site plan stage.

If the Owner would require more frequent collection for the site than the Region is able to accommodate, a private collection may be suitable. Should the Owner opt for private collection, then the Region will require a detailed letter from the Owner showing what areas within the development will be assigned to get private collection services.

Finance

1. The Owner will be required to pay all applicable Regional Development Charges (DCs) in accordance with the Region of Halton Development Charges By-law(s), as amended. If a subdivision (or other form of development) agreement is required, a portion of the Regional DCs for residential units may be payable upon execution of the agreement or in accordance with the terms and conditions set out in the agreement.
2. In addition, commencing January 1, 2017 every owner of land located in Halton Region intended for residential development will be subject to the Front-ending Recovery Payment. Residential developments on lands located in Halton Region that prior to January 1, 2017 are part of a Regional allocation program, or have an executed Regional/Local Subdivision or consent agreement, or have an executed site plan agreement with the Local Municipality, or received a notice in writing from the Local Municipality that all requirements under the Planning Act have been met, or obtained a building permit are not subject to the Front-ending Recovery Payment.

The above note is for information purpose only. All residential development applicants and every owner of land located in Halton Region assume all of the responsibilities and risks related to the use of the information provided herein.

To obtain the most current information, which is subject to change, please visit our website at <https://www.halton.ca/The-Region/Finance-and-Transparency/Financing-Growth/Development-Charges-Front-ending-Recovery-Payment>

CONCLUSION

In conclusion, Regional Planning staff is unable to recommend support of this application at this time. We require that the following be addressed, prior to the Town presenting a recommendation report to Council:

- i. A satisfactory Environmental Impact Assessment (EIA) shall be completed to the satisfaction of Halton Region, or a sufficient state of resolution has been determined by the Region and Conservation Halton (CH) that further EIA requirements could be addressed through the placement of a Holding symbol on the subject lands. The Owner is strongly encouraged to actively engage with the Region's Environmental group and CH as soon as possible on this matter. (Please note that the final EIA recommendation may require a revision to the original proposal, and in turn require revisions to the completed studies to reflect any changes). Further, the proposed zoning by-law standards would need to reflect the recommendations of the EIA, and place any lands identified for protection in an appropriate zoning category. Finally, the gratuitous dedication of any lands identified as being part of the RNHS to a public body, to ensure their long-term protection, will be required. The timing of such dedication in relation to the need for any mitigation/enhancement works also need to be established.
- ii. That a satisfactory FSR be submitted to the Region.
- iii. That the EIA and FSR address any environmental impacts related to the proposed water servicing option that requires crossing of the RNHS, to the satisfaction of the Region.
- iv. Provided items 'i'-'iii' above has been satisfactorily addressed, and the proposed development revised in accordance with the EIA recommendations, the Region may be amenable to the placement of a Holding symbol on the subject lands for other technical matters related to municipal servicing (water/wastewater servicing), potential contamination, and archaeological resources to be addressed as a condition of removal of the Holding provision.

Should you have any questions or concerns about the above comments, please contact me at (905) 825-6000 ext. 3105 or Quadri.Adebayo@halton.ca. **Please send a copy of the Town's decision on this application.**

Schedule 'A' – ENVIRONMENTAL REVIEW MEMORANDUM

Legislative & Planning Services Department

INTER-OFFICE MEMORANDUM

Planning Services

ENVIRONMENTAL REVIEW MEMORANDUM

From: Heather Ireland, Environmental Planner

Date: March 2, 2021

Re.: **Environmental Review - Submission 1
Zoning By-law Amendment (Z.1423.07)**

1280 Dundas Street West/2338 Fourth Line, Town of Oakville

Environmental Planning staff has reviewed the above-noted application and we can provide the following comments for your consideration.

The application is proposing to permit an 8-storey seniors residence with 315 suites and 27 independent living units are also proposed in 4 separate blocks. The zoning by-law amendment proposes to rezone the subject lands from Private Open Space - O2 Special Provision 122 to Private Open Space O2 with a special provision related to this development.

The subject lands are located within and/or are adjacent to the Regional Natural Heritage System (RNHS) as identified on Map 1 of the Halton Region's Official Plan (ROP). Additionally, the subject lands contain and/or are adjacent to the following key features and system components as shown on Map 1G of ROP:

- Candidate significant woodlands;
- Potential wetlands;
- Potential habitat of endangered or threatened species;
- Potential significant wildlife habitat;
- Potential fish habitat;
- Potential significant valley lands;
- Slope hazard, watercourse and floodplain regulated by Conservation Halton (CH); and
- Areas identified as Urban River Valley in the Greenbelt Plan (2017).

Based on the RNHS mapping, the proposed development would trigger the Region's Environmental Impact Assessment (EIA) requirements in accordance with Section 118(3.1) c) of the ROP.

MATERIAL(S) REVIEWED:

- Environmental Impact Study in Support of a Zoning By-law Amendment prepared by SLR global environmental solutions (dated September 2020);
- Functional Servicing Report prepared by RVA (dated September 2020);
- Landscape Concept Plan prepared by cosburn auboris LTD (dated September 17, 2020);
- Trail and Pedestrian Circulation Plan prepared by cosburn auboris LTD (dated November 30, 2020);
- Conceptual Site Grading Figure C-2 prepared by RVA (dated July 2020); and
- Site Plan & Statistics prepared by Icke/Brochu Architects Inc. (dated August 5, 2020).

DISCUSSION/ANALYSIS:

1. A Terms of Reference (ToR) was not submitted by the proponent for review and approval from all involved agencies in accordance with Halton Region's EIA Guideline (2020). The ToR provides an agreed to approach on the context and scope of work for the EIA that would be required in order to support the proposed project in accordance with Provincial, Regional, Local and Conservation Authority's plans and policies. Given that the scope of work was not determine and agree to prior to the submission of the EIA and based on the Regional Planning staff's review of the *Environmental Impact Study in Support of a Zoning By-law Amendment prepared by SLR global environmental solutions (dated September 2020)*, an appropriate level of study was not completed to support the development proposal and the EIA has not demonstrated that that ROP Section 118(3.1) c) has been met.

The following comments provide an overview of the deficiencies that Regional Planning staff have identified in the EIA. The EIA should be revised to meet the EIA submission requirements in accordance with the Region's EIA Guideline (2020). <https://www.halton.ca/The-Region/Regional-Planning/Regional-Plans,-Strategies-and-Studies/Environmental-Impact-Assessment-Guide-Update>

2. Please provide a description of the proposed development and/or site alteration and define and provide rationale for the study area.
3. A policy assessment must be completed for all applicable legislations, plans and policies. The EIA should include the Halton Region's Official Plan (office consolidation June 19, 2018) as part of the planning context. A final assessment should also be completed to determine if the proposed development concept will result in no negative impacts to the portion of the NHS adjacent to the development as required in Section 118 (2) and (3) of the ROP.
4. The limits of the candidate significant woodlands as shown on *Figure 2 - Natural Features and Constraints and Development Limit Line* needs to be determined by the woodlands and significant woodlands assessments in accordance with Sections 277 and 295 of the ROP. As part of the woodlands assessment, representative density plots of the trees in the potential woodland to assess if it meets woodland tree density criteria from Section 295 of the ROP. The dripline of the significant woodlands should be staked by the environmental consultant and confirmed by the Regional Forester.

Please note that these comments do not supersede the proponent from satisfying any planning requirements or by-laws for the removal of trees from the Town of Oakville that would be applicable to the subject lands or a planning application.

5. The wetland (MAS2-1) will need to be assessed against Sections 276.5 and 268 of the Regional Official Plan (ROP) to determine the significance of the wetland. If the

assessment concludes that the wetland is considered significant under the ROP, the impact analysis and mitigation strategies will need to be updated and subsequent concept plans will need to be revised as ROP policies do not support the removal of significant wetlands nor the compensation of significant wetlands through the creation of a more biodiverse habitat either on the subject lands or offsite.

6. The valleylands will need to be assessed against Section 276.4 of the ROP to determine its significance. The ROP does not provide a definition for valleylands as the Region defers to the definition in the Provincial Policy Statement (PPS).
7. The EIA has identified confirmed significant wildlife habitat in the pond labeled as MAS2-1 and that there is a connection between this feature and the incised draw feature (HDF) through the centre of the site to the watercourse. The removal of the pond will be required in order to facilitate the development proposal. Significant wildlife habitat is identified as a key feature of the RNHS and the EIA has not demonstrated that removal of the key feature will result in no negative impacts to the overall RNHS and its ecological functions in accordance with s.118 b) of the ROP.
8. Please provide any correspondence from the Ministry of Environment, Conservation and Parks (MECP) as it relates Species at Risk (SARS) habitat and if additional review or permitting is required.
9. Typically, in infill situations like this, Regional Planning staff would request that all development and site alterations are located 10m from the dripline of the significant woodland. The EIA does not provide sufficient justification on the adequacy of the buffer width and/or whether the encroachment into the buffer for storm water management (SWM) infrastructure and site grading will result in no negative impacts to the RNHS. Please refer to Comment 12 for additional comments on SWM.
10. *Figure 2 - Natural Features and Constraints and Development Limit Line* should be revised to illustrate any proposed refinements to the RNHS based on ROP policies, confirmed boundaries of key features and components by Regional and Conservation Authority staff and associated buffers.
11. The *Figure 1 – Site Condition Location and Existing Conditions* illustrates proposed lot lines for the subject lands. Regional staff have not received a severance application for the proposed lot configuration, however, the EIA does not address the land severance. An EIA or addendum to this EIA would need to be submitted in support of the proposed severance to demonstrate that the severance meets Section in Section 118 (3) of the ROP and the systems approach outlined Section 118(2). Furthermore, Section 118(20) prohibits the creation of new lots for residential purposes in the RNHS.
12. The *Functional Servicing Report prepared by RVA (dated September 2020)* discusses the potential for installing a storm sewer outlet within the RNHS. Any SWM

components such as ancillary pipes, outlets, headwalls, LIDS, and other associated infrastructure required to convey flow from lands outside of the RNHS to receiving features may be supported in the RNHS where deemed ‘essential’ (as defined in Section 233 of the ROP) after all alternatives are explored and that the proposal conforms to Sections 118 (2) and (3) of the ROP. The EIA must include an impact assessment and policy conformity analysis on the proposed storm sewer outlet.

13. Mitigation measures are intended to maintain the health, features and function of the RNHS components and contribute to reducing or eliminating potential short or long-term impacts from development or site alteration on the NHS. The EIA should include as part of the mitigation strategy, the identification of mitigation measures that effectively address anticipated impacts resulting from the proposed development or site alteration. Mitigation should include recommendations for enhancement or restoration and a planting list with tree/sub species that will thrive in partial to full sun conditions. Appendix E-5 of the Region’s EIA Guideline (2020) provides a list of potential mitigation measures for consideration. Please note that compensation or offsetting should not be included as part of this strategy as Halton Region does not accept compensation or offsetting as an appropriate mitigation measure to demonstrate no negative impacts to the features and functions of the RNHS.
14. The report should include an assessment of potential long-term impacts to the RNHS and recommendations for post construction mitigation opportunities (i.e. lighting, restriction for resident and pet access to the natural heritage features and the vegetated buffer area (i.e. fencing and outdoor amenity area for the independent living units), etc.).
15. If a future trail will be constructed within the RNHS, the EIA must assess the proposed location of the trail in accordance with the natural heritage policies of the ROP. While pedestrian trails would be permitted on publicly owned lands, a formal paved structure/path/sidewalk would not be permitted and are subject to the tests outlined in Sections 118 (2) and (3).
16. The subject lands that are within the refined RNHS should be designated and rezoned to a more restrictive designation/zone to ensure the key features and associated buffers as outlined in the EIA are protected in accordance with ROP policies.
17. Conservation Halton (CH) staff provides environmental advisory services to the Region and Town in relation to the protection of certain natural heritage features and areas including significant wildlife habitat and natural hazard management. Environmental Planning Staff has reviewed the proposal in consultation with CH. CH staff comments relating to the protection of natural heritage features and areas and natural hazard management should be addressed to their satisfaction.

CONCLUSION:

Based on the above, Environmental Planning staff recommends that the Region and CH's comments are addressed in a revised submission. Environmental Planning staff may have additional comments once we receive the information requested above.

Please note that staff requested that a cover letter be submitted in support of any revised submission to identify how each of our previous comments were addressed. We request that all future submissions be accompanied by such a letter to help expedite our review.

We trust that these comments are sufficient and request that you please keep them on file for the Region's records.

Should you have any questions or concerns, please do not hesitate to contact either Leilani Lee-Yates or myself. **END OF COMMENTS**

15 Halton District School Board

Lauren Choi tel. 905-335-3665 ext. 2201

2021-02-05 – Circulation 1

Comments provided on the following page:



February 5, 2021

Robert Thun
Planning Services Department
Town of Oakville
1225 Trafalgar Road
Oakville ON L6H 0H3

Dear Rob:

Subject: **Delmanor West Oak Inc.**
Zoning By-law Amendment Application
HDSB File No.: Z.1423.07/2021/O
Oakville's File No.: Z.1423.07

Thank you for the opportunity to review the proposed development application. It is understood that the application is a proposal for an eight (8) storey seniors' residence with 315 units plus 27 independent living units.

The Halton District School Board notes that there may be some students generated from these residential units which may require school accommodation and meet bussing requirements from Halton Student Transportation Services. Any students generated from this development application are currently within the **West Oak PS, Forest Trail PS, Garth Webb SS and T.A. Blakelock HS** catchment areas.

According to the Board's projections many of the existing schools in the vicinity are projected to be at or over building capacity. As a result, students generate from this development are expected to be accommodated in the respective schools with minimum impact to existing facilities. Long range projections for schools can be viewed in our [Long Term Accommodation Plan \(LTAP\)](#) which can be found on the Board's website.

Please be advised that the Halton District School Board has no objection to the proposed application as submitted. Please notify us of the adoption of the proposed amendment and include us in the circulation of any future applications, **including site plans**, related to this development. The Halton District School Board will provide comments and conditions on each proposed development application received.

For your convenience, below are our standard conditions of development that may be applied to the development proposal:

1. The owner agrees to place the following notification in all offers of purchase and sale for all lots/units and in the Town's subdivision agreement, to be registered on title:

Street Address: J.W. Singleton Education Centre • 2050 Guelph Line, Burlington, Ontario L7P 5A8

Mailing Address: J.W. Singleton Education Centre • P.O. Box 5005, Stn. LCD 1, Burlington, Ontario L7R 3Z2

Phone: 905-335-3663 | 1-877-618-3456 Fax: 905-335-9802

www.hdsb.ca

- a. Prospective purchasers are advised that schools on sites designated for the Halton District School Board in the community are not guaranteed. Attendance at schools in the area yet to be constructed is also not guaranteed. Prospective purchasers are advised that pupils may be accommodated in temporary facilities and/or be directed to schools outside of the area.
 - b. Prospective purchasers are advised that school busses will not enter cul- de- sacs and pick up points will be generally located on through streets convenient to the Halton Student Transportation Services. Additional pick up points will not be located within the subdivision until major construction activity has been completed.
2. That in cases where offers of purchase and sale have already been executed, the owner sends a letter to all purchasers which include the above statement.
 3. That the developer agrees that, should the development be phased, a copy of the phasing plan must be submitted prior to final approval to the Halton District School Board. The phasing plan will indicate the sequence of development, the land area, the number of lots and blocks and units for each phase.
 4. That the Owner shall supply, erect and maintain signs at all major entrances into the new development advising prospective purchasers that pupils may be directed to schools outside of the area. The Owner will make these signs to the specifications of the Halton District School Board and erect them prior to the issuance of building permits.
 5. That a copy of the approved sidewalk plan, prepared to the satisfaction of the Town of Oakville be submitted to the Halton District School Board.

In addition, the following note should be included in the conditions:

Educational Development Charges are payable in accordance with the applicable Education Development Charge By-law and are required at the issuance of a building permit. Any building permits which are additional to the maximum unit yield which is specified by the Subdivision Agreement are subject to Education Development Charges prior to the issuance of a building permit, at the rate in effect at the date of issuance.

Should you have any questions regarding our comments, please contact the undersigned.

Sincerely,



Laureen Choi
Senior Analyst – Planning
905-335-3665 ext. 2201
choil@hdsb.ca

www.hdsb.ca

16 Halton Catholic District School Board

Dhilan Gunasekara

2021-02-02 – Circulation 1

Comments provided on the following page.



802 Drury Lane
Burlington, ON L7R 2Y2
905-632-6300

February 2, 2021

Robert Thun
Senior Planner
Town of Oakville
1225 Trafalgar Road
Oakville, ON L6H 0H3

Dear Robert:

**RE: Application for Zoning By-law Amendment
Delmanor West Oak Inc. (St. Volodymyr Lands)
1280 Dundas Street West
Your File No.: Z.1423.07**

In response to the above noted application to permit the development of an 8-storey seniors residence containing 315 suites and 27 independent living units, the Halton Catholic District School Board ("HCDSB") has no objection.

In terms of school accommodation, if the development was to proceed today, elementary students generated from this proposal would be accommodated at St. Teresa of Calcutta Catholic Elementary School located at 1190 Westview Terrace. Secondary school students would be directed to St. Ignatius of Loyola Catholic Secondary School located at 1550 Nottinghill Gate.

Should you proceed with the approval of the Zoning By-law amendments, we require that the following conditions be placed in any subsequent agreements (e.g. Subdivision, Condominium and/or Site Plan). The conditions are to be fulfilled prior to final approval:

1. The owner agrees to place the following notification in all offers of purchase and sale for all lots/units and in the Town's subsequent agreements, to be registered on title:
 - a. Prospective purchasers are advised Catholic school accommodation may not be available for students residing in this area, and that you are notified that students may be accommodated in temporary facilities and/or bused to existing facilities outside the area.
 - b. Prospective purchasers are advised that the HCDSB will designate pick up points for the children to meet the bus on roads presently in existence or other pick up areas convenient to the Board, and that you are notified that school busses will not enter cul-de-sacs or private roads.
2. In cases where offers of purchase and sale have already been executed, the owner is to send a letter to all purchasers which include the above statements.
3. That the owner agrees in subsequent agreements (e.g. Subdivision, Condominium and/or Site Plan) to the satisfaction of the HCDSB, to erect and maintain signs at all major entrances into the new development advising prospective purchasers that if a permanent school is not available alternative accommodation and/or busing will be provided. The owner will make these signs to the specifications of the HCDSB and erect them prior to final approval.

www.hcdsb.org

Achieving Believing Belonging



802 Drury Lane
Burlington, ON L7R 2Y2
905-632-6300

It should be noted that Education Development Charges are payable in accordance with the applicable Education Development Charge By-law and are required at the issuance of a building permit. Any building permits that are additional to the maximum unit yield that is specified by the Subdivision Agreement are subject to Education Development Charges prior to the issuance of a building permit, at the rate in effect at the date of issuance.

If you have any questions regarding the aforementioned, please contact the undersigned.

Yours truly,

A handwritten signature in black ink, appearing to read "Dhilan", is written over a horizontal line.

Dhilan Gunasekara
Planning Officer

cc: A. Lofts, Superintendent of Business Services and Treasurer of the Board
B. Vidovic, Senior Manager of Planning Services, Planning Services
C. Palucci, Planning Clerk, Planning Services

17 Rogers Communication

Roya Nejadtaghi

2021-02-02 – Circulation 1

Comments provided on the following page.



Rogers Communications
 Outside Plant Engineering
 3573 Wolfedale Road
 Mississauga, ON L5C 3T6

Markup Response Form

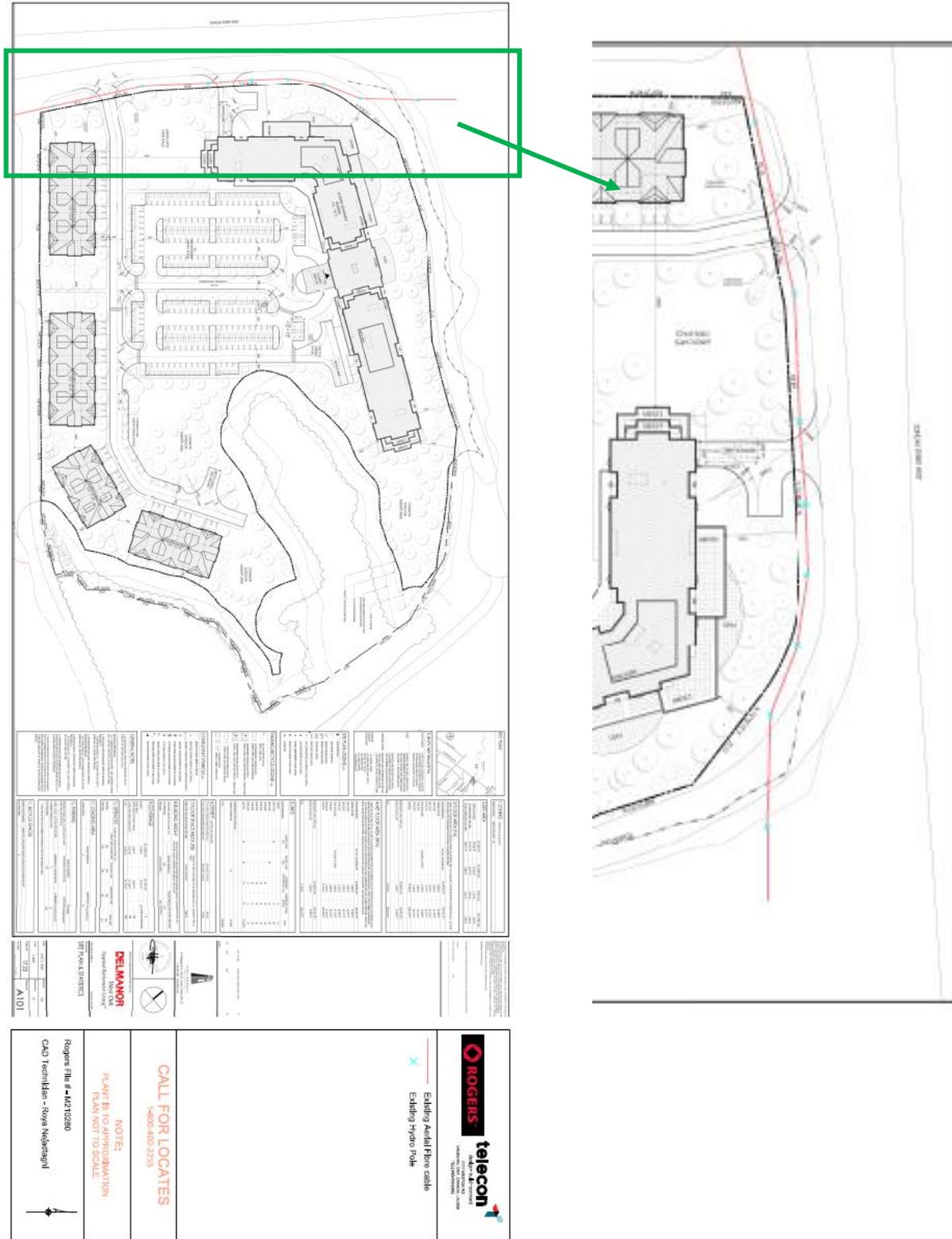
Application Date	January 12, 2021	Applicant:	Town of Oakville
Date Returned:	February 2, 2021		
Rogers Ref. No.:	M210280	Applicant Job No.:	Z.1423.07
Location:	1280 Dundas St W		

Rogers Communications has reviewed your drawing(s) as requested and returns one marked-up copy. Our comments follow below with an "X" indicating Rogers' stance on your proposed plan.

- Comments:**
- No Conflict** Rogers Communications currently does not possess existing plant in the area indicated on your attached plans.
 - No Conflict** Rogers Communications currently has existing plant as marked on the attached drawing. Our standard depth in this municipality is: 1m.
For your Reference Please ensure you maintain clearances of 0.3m vertically and 0.6m horizontally.
 - EXTREME CAUTION** Use vactruck and expose ducts, maintain minimum of 0.6m clearance.
 - CONFLICT** Your proposed construction appears to encroach within existing Rogers Communications plant. Please relocate your proposed construction to allow adequate clearance of 0.3 m vertically and 1 m horizontally.
 - CAUTION** Rogers Communications has aerial plant in this area, as it is indicated on the attached plans.
 - CAUTION** Fiber Optic Cable is present in the area of your proposed construction.
 - Note** Proposed Fiber Optic Cable in a joint use duct structure .
 - Note** Plant currently under construction.
 - Note** Please inform Rogers Communications well in advance of the proposed construction schedule in order to coordinate our plant relocation.
 - Note** Locates are still required. Call for locates at 1-800-400-2255
 - Note** Hand dig when crossing, or within 1.0m of existing Rogers plant.
 - Note** Plant is to Approximation.

Roya Nejadtaghi
 CAD Technician
 289-657-8020

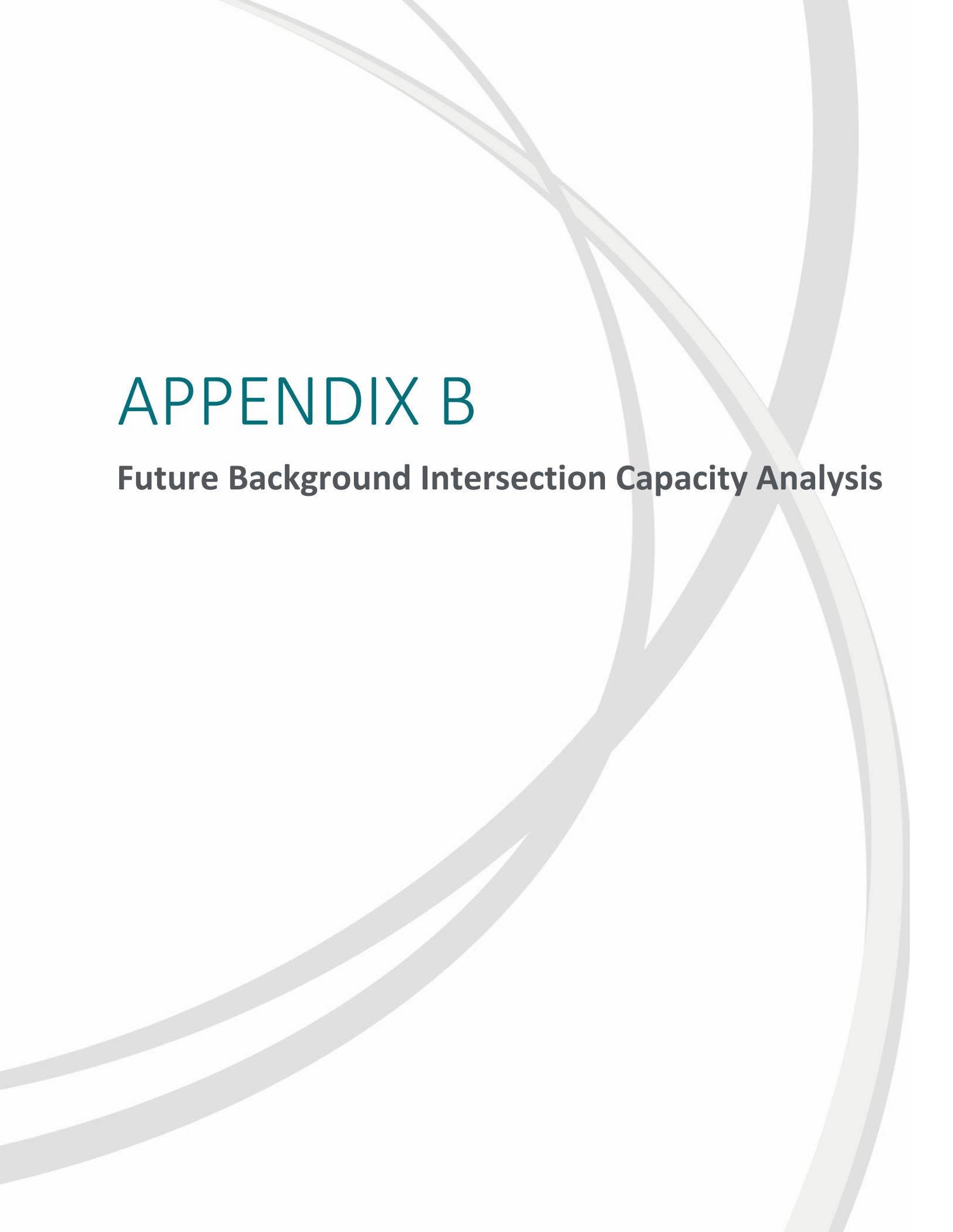
February 2, 2021
 DATE



Resubmission Chart:

Please fill out this chart when preparing a resubmission and submit in WORD format.

Drawings:	Drawing # /Doc #:	Rev. # & Date:		Consultant:
Reports and Studies:				
Documents:				



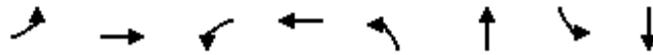
APPENDIX B

Future Background Intersection Capacity Analysis

Queues

1: Fourth Line & Dundas Street West

11-05-2021

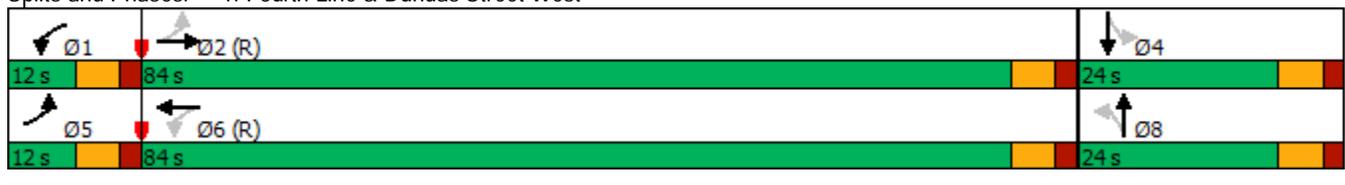


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↗	↖	↗
Traffic Volume (vph)	13	2627	9	1546	12	0	85	0
Future Volume (vph)	13	2627	9	1546	12	0	85	0
Lane Group Flow (vph)	14	3002	10	1694	13	9	91	39
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	70.0	5.0	70.0	4.0	4.0	5.0	5.0
Minimum Split (s)	12.0	80.0	12.0	80.0	24.0	24.0	24.0	24.0
Total Split (s)	12.0	84.0	12.0	84.0	24.0	24.0	24.0	24.0
Total Split (%)	10.0%	70.0%	10.0%	70.0%	20.0%	20.0%	20.0%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
v/c Ratio	0.07	0.90	0.07	0.52	0.13	0.04	0.60	0.14
Control Delay	4.2	16.3	4.6	8.0	49.2	0.2	66.4	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	16.3	4.6	8.0	49.2	0.2	66.4	1.1
Queue Length 50th (m)	0.6	170.5	0.4	48.7	3.0	0.0	21.8	0.0
Queue Length 95th (m)	2.4	#373.4	1.9	108.8	9.2	0.0	38.2	0.0
Internal Link Dist (m)		245.1		308.6		24.6		206.3
Turn Bay Length (m)	87.0		150.0					
Base Capacity (vph)	192	3354	143	3235	139	308	214	335
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.90	0.07	0.52	0.09	0.03	0.43	0.12

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Fourth Line & Dundas Street West



HCM Signalized Intersection Capacity Analysis

1: Fourth Line & Dundas Street West

11-05-2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑		↖	↑↑↑		↖	↑		↖	↑	
Traffic Volume (vph)	13	2627	165	9	1546	30	12	0	8	85	0	36
Future Volume (vph)	13	2627	165	9	1546	30	12	0	8	85	0	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.6	3.6	3.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.80		1.00	*0.80		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1685	4336		1685	4294		1203	1589		1805	1615	
Flt Permitted	0.08	1.00		0.05	1.00		0.73	1.00		0.75	1.00	
Satd. Flow (perm)	148	4336		82	4294		927	1589		1428	1615	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	14	2825	177	10	1662	32	13	0	9	91	0	39
RTOR Reduction (vph)	0	4	0	0	1	0	0	8	0	0	35	0
Lane Group Flow (vph)	14	2998	0	10	1693	0	13	1	0	91	4	0
Confl. Peds. (#/hr)									2			
Heavy Vehicles (%)	0%	4%	8%	0%	6%	0%	50%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	90.4	88.0		88.0	86.8		12.8	12.8		12.8	12.8	
Effective Green, g (s)	90.4	88.0		88.0	86.8		12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.75	0.73		0.73	0.72		0.11	0.11		0.11	0.11	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	142	3179		76	3105		98	169		152	172	
v/s Ratio Prot	c0.00	c0.69		0.00	0.39			0.00			0.00	
v/s Ratio Perm	0.07			0.10			0.01			c0.06		
v/c Ratio	0.10	0.94		0.13	0.55		0.13	0.01		0.60	0.02	
Uniform Delay, d1	4.9	13.8		22.8	7.6		48.6	47.9		51.1	48.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	7.3		0.8	0.7		0.6	0.0		6.2	0.1	
Delay (s)	5.2	21.1		23.6	8.3		49.2	47.9		57.4	48.1	
Level of Service	A	C		C	A		D	D		E	D	
Approach Delay (s)		21.1			8.4			48.7			54.6	
Approach LOS		C			A			D			D	

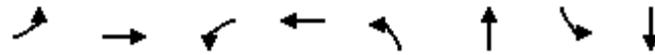
Intersection Summary

HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues

1: Fourth Line & Dundas Street West

11-05-2021



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	14	3002	10	1694	13	9	91	39
v/c Ratio	0.16	0.90	0.12	0.53	0.13	0.04	0.60	0.14
Control Delay	58.7	16.3	57.6	8.2	49.2	0.2	66.4	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	16.3	57.6	8.2	49.2	0.2	66.4	1.1
Queue Length 50th (m)	3.4	170.5	2.4	48.7	3.0	0.0	21.8	0.0
Queue Length 95th (m)	10.6	#373.4	8.3	108.8	9.2	0.0	38.2	0.0
Internal Link Dist (m)		245.1		308.6		24.6		206.3
Turn Bay Length (m)	87.0		150.0					
Base Capacity (vph)	88	3354	86	3226	139	308	214	335
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.90	0.12	0.53	0.09	0.03	0.43	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: Fourth Line & Dundas Street West

11-05-2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗		↖	↗		↖	↗	
Traffic Volume (vph)	13	2627	165	9	1546	30	12	0	8	85	0	36
Future Volume (vph)	13	2627	165	9	1546	30	12	0	8	85	0	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.6	3.6	3.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.80		1.00	*0.80		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1685	4336		1685	4294		1203	1589		1805	1615	
Flt Permitted	0.95	1.00		0.95	1.00		0.73	1.00		0.75	1.00	
Satd. Flow (perm)	1685	4336		1685	4294		927	1589		1428	1615	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	14	2825	177	10	1662	32	13	0	9	91	0	39
RTOR Reduction (vph)	0	4	0	0	1	0	0	8	0	0	35	0
Lane Group Flow (vph)	14	2998	0	10	1693	0	13	1	0	91	4	0
Confl. Peds. (#/hr)									2			
Heavy Vehicles (%)	0%	4%	8%	0%	6%	0%	50%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	2.6	88.0		1.2	86.6		12.8	12.8		12.8	12.8	
Effective Green, g (s)	2.6	88.0		1.2	86.6		12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.02	0.73		0.01	0.72		0.11	0.11		0.11	0.11	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	36	3179		16	3098		98	169		152	172	
v/s Ratio Prot	c0.01	c0.69		0.01	0.39			0.00			0.00	
v/s Ratio Perm							0.01			c0.06		
v/c Ratio	0.39	0.94		0.62	0.55		0.13	0.01		0.60	0.02	
Uniform Delay, d1	57.9	13.8		59.2	7.7		48.6	47.9		51.1	48.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.8	7.3		57.6	0.7		0.6	0.0		6.2	0.1	
Delay (s)	64.7	21.1		116.8	8.4		49.2	47.9		57.4	48.1	
Level of Service	E	C		F	A		D	D		E	D	
Approach Delay (s)		21.3			9.0			48.7			54.6	
Approach LOS		C			A			D			D	

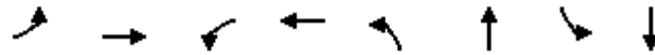
Intersection Summary

HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues

1: Fourth Line & Dundas Street West

11-05-2021

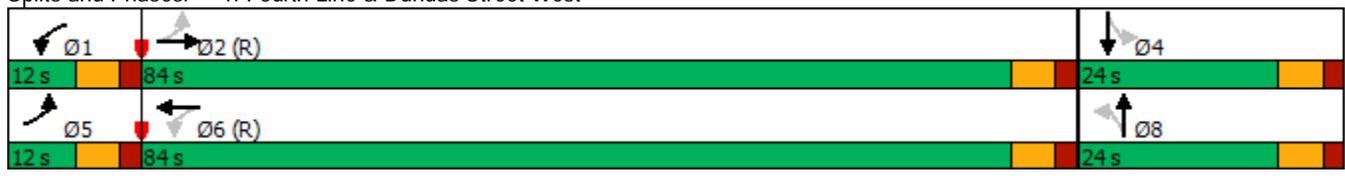


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↑↑↑	↖	↑↑↑	↖	↑	↖	↑
Traffic Volume (vph)	40	1274	6	2680	16	0	53	0
Future Volume (vph)	40	1274	6	2680	16	0	53	0
Lane Group Flow (vph)	42	1358	6	2919	17	16	56	24
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	70.0	5.0	70.0	4.0	4.0	5.0	5.0
Minimum Split (s)	12.0	80.0	12.0	80.0	24.0	24.0	24.0	24.0
Total Split (s)	12.0	84.0	12.0	84.0	24.0	24.0	24.0	24.0
Total Split (%)	10.0%	70.0%	10.0%	70.0%	20.0%	20.0%	20.0%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
v/c Ratio	0.29	0.37	0.02	0.86	0.14	0.06	0.47	0.11
Control Delay	11.4	4.3	3.0	17.0	51.8	0.5	64.2	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.4	4.3	3.0	17.0	51.8	0.5	64.2	1.1
Queue Length 50th (m)	1.6	29.0	0.3	220.1	4.0	0.0	13.5	0.0
Queue Length 95th (m)	7.6	68.8	1.2	#338.3	11.2	0.0	26.6	0.0
Internal Link Dist (m)		245.1		308.6		24.6		206.3
Turn Bay Length (m)	87.0		150.0					
Base Capacity (vph)	148	3683	280	3399	211	362	212	311
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.37	0.02	0.86	0.08	0.04	0.26	0.08

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Fourth Line & Dundas Street West



HCM Signalized Intersection Capacity Analysis

1: Fourth Line & Dundas Street West

11-05-2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗		↖	↗		↖	↗	
Traffic Volume (vph)	40	1274	16	6	2680	93	16	0	15	53	0	23
Future Volume (vph)	40	1274	16	6	2680	93	16	0	15	53	0	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.6	3.6	3.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.80		1.00	*0.80		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1685	4461		1684	4451		1802	1615		1805	1615	
Flt Permitted	0.04	1.00		0.15	1.00		0.74	1.00		0.75	1.00	
Satd. Flow (perm)	77	4461		264	4451		1406	1615		1419	1615	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	1341	17	6	2821	98	17	0	16	56	0	24
RTOR Reduction (vph)	0	1	0	0	2	0	0	15	0	0	22	0
Lane Group Flow (vph)	42	1357	0	6	2917	0	17	1	0	56	2	0
Confl. Peds. (#/hr)			5	5			1					
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6		8				4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	96.8	91.8		89.2	88.0		9.0	9.0		9.0	9.0	
Effective Green, g (s)	96.8	91.8		89.2	88.0		9.0	9.0		9.0	9.0	
Actuated g/C Ratio	0.81	0.76		0.74	0.73		0.08	0.08		0.08	0.08	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	129	3412		210	3264		105	121		106	121	
v/s Ratio Prot	c0.01	c0.30		0.00	c0.66			0.00			0.00	
v/s Ratio Perm	0.25			0.02			0.01			c0.04		
v/c Ratio	0.33	0.40		0.03	0.89		0.16	0.01		0.53	0.01	
Uniform Delay, d1	23.0	4.8		4.0	12.4		52.0	51.4		53.5	51.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.5	0.3		0.1	4.3		0.7	0.0		4.7	0.0	
Delay (s)	24.4	5.1		4.1	16.6		52.7	51.4		58.1	51.4	
Level of Service	C	A		A	B		D	D		E	D	
Approach Delay (s)		5.7			16.6			52.1			56.1	
Approach LOS		A			B			D			E	

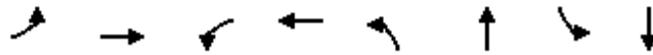
Intersection Summary

HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues

1: Fourth Line & Dundas Street West

11-05-2021



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↑↑↑	↖	↑↑↑	↖	↑	↖	↑
Traffic Volume (vph)	40	1274	6	2680	16	0	53	0
Future Volume (vph)	40	1274	6	2680	16	0	53	0
Lane Group Flow (vph)	42	1358	6	2919	17	16	56	24
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	70.0	5.0	70.0	4.0	4.0	5.0	5.0
Minimum Split (s)	12.0	80.0	12.0	80.0	24.0	24.0	24.0	24.0
Total Split (s)	12.0	84.0	12.0	84.0	24.0	24.0	24.0	24.0
Total Split (%)	10.0%	70.0%	10.0%	70.0%	20.0%	20.0%	20.0%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
v/c Ratio	0.37	0.37	0.07	0.88	0.14	0.06	0.47	0.11
Control Delay	62.5	4.5	55.7	19.4	51.8	0.5	64.2	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.5	4.5	55.7	19.4	51.8	0.5	64.2	1.1
Queue Length 50th (m)	10.1	29.0	1.5	239.0	4.0	0.0	13.5	0.0
Queue Length 95th (m)	22.1	71.3	6.0	#347.8	11.2	0.0	26.6	0.0
Internal Link Dist (m)		245.1		308.6		24.6		206.3
Turn Bay Length (m)	87.0		150.0					
Base Capacity (vph)	114	3674	88	3328	211	362	212	311
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.37	0.07	0.88	0.08	0.04	0.26	0.08

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Fourth Line & Dundas Street West



HCM Signalized Intersection Capacity Analysis

1: Fourth Line & Dundas Street West

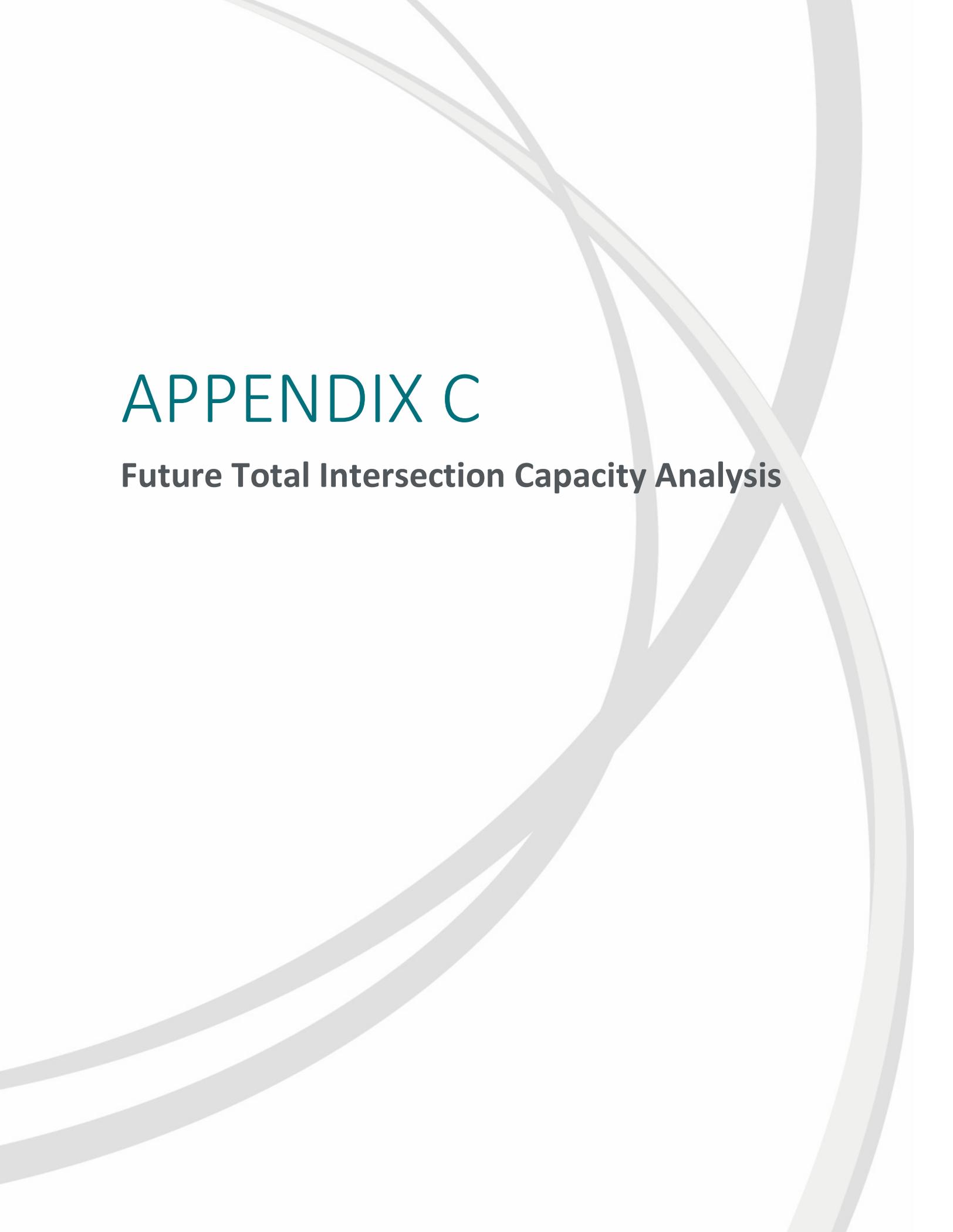
11-05-2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗		↖	↗		↖	↗	
Traffic Volume (vph)	40	1274	16	6	2680	93	16	0	15	53	0	23
Future Volume (vph)	40	1274	16	6	2680	93	16	0	15	53	0	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.6	3.6	3.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.80		1.00	*0.80		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1685	4461		1685	4451		1802	1615		1805	1615	
Flt Permitted	0.95	1.00		0.95	1.00		0.74	1.00		0.75	1.00	
Satd. Flow (perm)	1685	4461		1685	4451		1406	1615		1419	1615	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	1341	17	6	2821	98	17	0	16	56	0	24
RTOR Reduction (vph)	0	1	0	0	2	0	0	15	0	0	22	0
Lane Group Flow (vph)	42	1357	0	6	2917	0	17	1	0	56	2	0
Confl. Peds. (#/hr)			5	5			1					
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6		8			4		4
Permitted Phases							8			4		
Actuated Green, G (s)	7.0	91.6		1.4	86.0		9.0	9.0		9.0	9.0	
Effective Green, g (s)	7.0	91.6		1.4	86.0		9.0	9.0		9.0	9.0	
Actuated g/C Ratio	0.06	0.76		0.01	0.72		0.08	0.08		0.08	0.08	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	98	3405		19	3189		105	121		106	121	
v/s Ratio Prot	c0.02	c0.30		0.00	c0.66			0.00			0.00	
v/s Ratio Perm							0.01			c0.04		
v/c Ratio	0.43	0.40		0.32	0.91		0.16	0.01		0.53	0.01	
Uniform Delay, d1	54.6	4.8		58.8	14.0		52.0	51.4		53.5	51.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.0	0.3		9.3	5.3		0.7	0.0		4.7	0.0	
Delay (s)	57.6	5.2		68.2	19.3		52.7	51.4		58.1	51.4	
Level of Service	E	A		E	B		D	D		E	D	
Approach Delay (s)		6.8			19.4			52.1			56.1	
Approach LOS		A			B			D			E	

Intersection Summary

HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



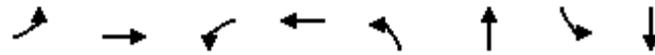
APPENDIX C

Future Total Intersection Capacity Analysis

Queues

1: Fourth Line & Dundas Street West

11-05-2021

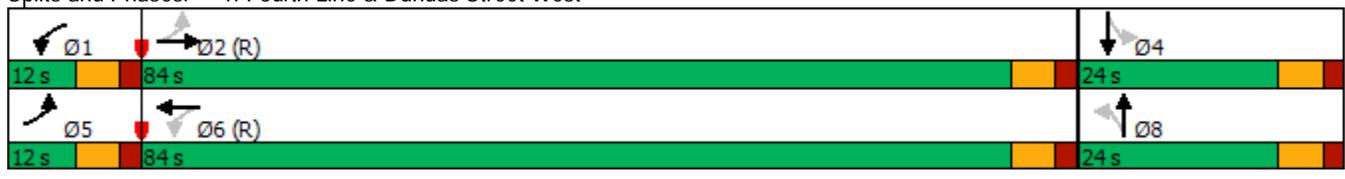


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↑↑↑	↖	↑↑↑	↖	↑	↖	↑
Traffic Volume (vph)	13	2627	12	1546	24	0	85	0
Future Volume (vph)	13	2627	12	1546	24	0	85	0
Lane Group Flow (vph)	14	3037	13	1694	26	16	91	39
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	70.0	5.0	70.0	4.0	4.0	5.0	5.0
Minimum Split (s)	12.0	80.0	12.0	80.0	24.0	24.0	24.0	24.0
Total Split (s)	12.0	84.0	12.0	84.0	24.0	24.0	24.0	24.0
Total Split (%)	10.0%	70.0%	10.0%	70.0%	20.0%	20.0%	20.0%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
v/c Ratio	0.07	0.93	0.09	0.52	0.26	0.07	0.60	0.14
Control Delay	4.3	20.8	4.9	8.0	54.0	0.5	66.6	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.3	20.8	4.9	8.0	54.0	0.5	66.6	1.1
Queue Length 50th (m)	0.6	178.3	0.6	49.0	6.0	0.0	21.8	0.0
Queue Length 95th (m)	2.4	#381.2	2.3	108.8	14.9	0.0	38.2	0.0
Internal Link Dist (m)		245.1		308.6		24.6		206.3
Turn Bay Length (m)	87.0		150.0					
Base Capacity (vph)	191	3264	143	3234	139	308	212	335
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.93	0.09	0.52	0.19	0.05	0.43	0.12

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Fourth Line & Dundas Street West



HCM Signalized Intersection Capacity Analysis

1: Fourth Line & Dundas Street West

11-05-2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑		↖	↑↑↑		↖	↑		↖	↑	
Traffic Volume (vph)	13	2627	197	12	1546	30	24	0	15	85	0	36
Future Volume (vph)	13	2627	197	12	1546	30	24	0	15	85	0	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.6	3.6	3.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.80		1.00	*0.80		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1685	4327		1685	4294		1203	1589		1805	1615	
Flt Permitted	0.08	1.00		0.05	1.00		0.73	1.00		0.75	1.00	
Satd. Flow (perm)	149	4327		82	4294		927	1589		1419	1615	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	14	2825	212	13	1662	32	26	0	16	91	0	39
RTOR Reduction (vph)	0	5	0	0	1	0	0	14	0	0	35	0
Lane Group Flow (vph)	14	3032	0	13	1693	0	26	2	0	91	4	0
Confl. Peds. (#/hr)									2			
Heavy Vehicles (%)	0%	4%	8%	0%	6%	0%	50%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	89.1	86.7		89.1	86.7		12.9	12.9		12.9	12.9	
Effective Green, g (s)	89.1	86.7		89.1	86.7		12.9	12.9		12.9	12.9	
Actuated g/C Ratio	0.74	0.72		0.74	0.72		0.11	0.11		0.11	0.11	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	141	3126		92	3102		99	170		152	173	
v/s Ratio Prot	0.00	c0.70		c0.00	0.39			0.00			0.00	
v/s Ratio Perm	0.07			0.10			0.03			c0.06		
v/c Ratio	0.10	0.97		0.14	0.55		0.26	0.01		0.60	0.02	
Uniform Delay, d1	5.1	15.4		26.7	7.6		49.2	47.8		51.1	47.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	10.5		0.7	0.7		1.4	0.0		6.2	0.1	
Delay (s)	5.4	25.9		27.4	8.3		50.6	47.9		57.3	48.0	
Level of Service	A	C		C	A		D	D		E	D	
Approach Delay (s)		25.8			8.5			49.6			54.5	
Approach LOS		C			A			D			D	

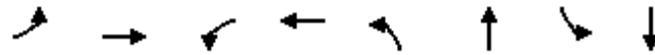
Intersection Summary

HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues

1: Fourth Line & Dundas Street West

11-05-2021

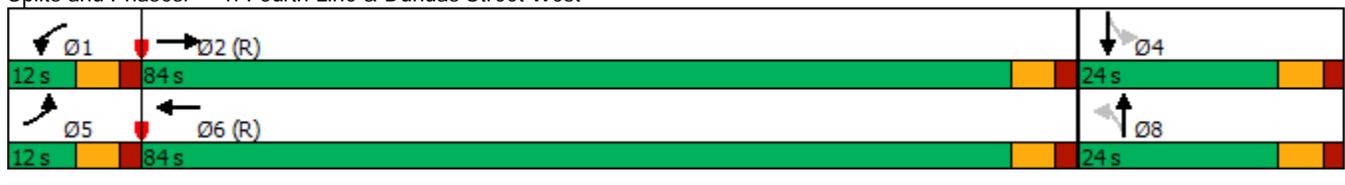


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↑↑↑	↖	↑↑↑	↖	↑	↖	↑
Traffic Volume (vph)	13	2627	12	1546	24	0	85	0
Future Volume (vph)	13	2627	12	1546	24	0	85	0
Lane Group Flow (vph)	14	3037	13	1694	26	16	91	39
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	70.0	5.0	70.0	4.0	4.0	5.0	5.0
Minimum Split (s)	12.0	80.0	12.0	80.0	24.0	24.0	24.0	24.0
Total Split (s)	12.0	84.0	12.0	84.0	24.0	24.0	24.0	24.0
Total Split (%)	10.0%	70.0%	10.0%	70.0%	20.0%	20.0%	20.0%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
v/c Ratio	0.16	0.93	0.15	0.53	0.26	0.07	0.60	0.14
Control Delay	58.7	21.3	58.4	8.2	54.0	0.5	66.6	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	21.3	58.4	8.2	54.0	0.5	66.6	1.1
Queue Length 50th (m)	3.4	178.3	3.1	49.0	6.0	0.0	21.8	0.0
Queue Length 95th (m)	10.6	#381.2	10.1	108.8	14.9	0.0	38.2	0.0
Internal Link Dist (m)		245.1		308.6		24.6		206.3
Turn Bay Length (m)	87.0		150.0					
Base Capacity (vph)	88	3255	88	3225	139	308	212	335
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.93	0.15	0.53	0.19	0.05	0.43	0.12

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Fourth Line & Dundas Street West



HCM Signalized Intersection Capacity Analysis

1: Fourth Line & Dundas Street West

11-05-2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑		↖	↑↑↑		↖	↑		↖	↑	
Traffic Volume (vph)	13	2627	197	12	1546	30	24	0	15	85	0	36
Future Volume (vph)	13	2627	197	12	1546	30	24	0	15	85	0	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.6	3.6	3.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.80		1.00	*0.80		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frft	1.00	0.99		1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1685	4327		1685	4294		1203	1589		1805	1615	
Flt Permitted	0.95	1.00		0.95	1.00		0.73	1.00		0.75	1.00	
Satd. Flow (perm)	1685	4327		1685	4294		927	1589		1419	1615	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	14	2825	212	13	1662	32	26	0	16	91	0	39
RTOR Reduction (vph)	0	5	0	0	1	0	0	14	0	0	35	0
Lane Group Flow (vph)	14	3032	0	13	1693	0	26	2	0	91	4	0
Confl. Peds. (#/hr)									2			
Heavy Vehicles (%)	0%	4%	8%	0%	6%	0%	50%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases							8			4		
Actuated Green, G (s)	2.6	86.5		2.6	86.5		12.9	12.9		12.9	12.9	
Effective Green, g (s)	2.6	86.5		2.6	86.5		12.9	12.9		12.9	12.9	
Actuated g/C Ratio	0.02	0.72		0.02	0.72		0.11	0.11		0.11	0.11	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	36	3119		36	3095		99	170		152	173	
v/s Ratio Prot	c0.01	c0.70		0.01	0.39			0.00			0.00	
v/s Ratio Perm							0.03			c0.06		
v/c Ratio	0.39	0.97		0.36	0.55		0.26	0.01		0.60	0.02	
Uniform Delay, d1	57.9	15.6		57.9	7.7		49.2	47.8		51.1	47.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.8	10.8		6.1	0.7		1.4	0.0		6.2	0.1	
Delay (s)	64.7	26.4		64.0	8.4		50.6	47.9		57.3	48.0	
Level of Service	E	C		E	A		D	D		E	D	
Approach Delay (s)		26.6			8.8			49.6			54.5	
Approach LOS		C			A			D			D	

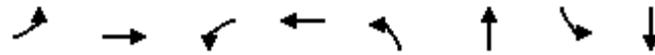
Intersection Summary

HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues

1: Fourth Line & Dundas Street West

11-05-2021

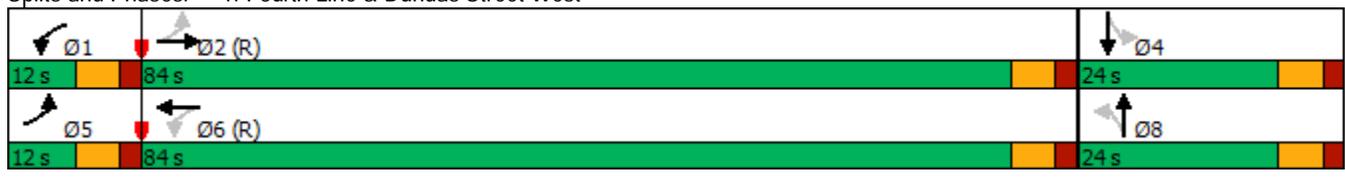


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↶	↑↑↑	↶	↑↑↑	↶	↑	↶	↑
Traffic Volume (vph)	40	1274	18	2680	62	0	53	0
Future Volume (vph)	40	1274	18	2680	62	0	53	0
Lane Group Flow (vph)	42	1381	19	2919	65	21	56	24
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	70.0	5.0	70.0	4.0	4.0	5.0	5.0
Minimum Split (s)	12.0	80.0	12.0	80.0	24.0	24.0	24.0	24.0
Total Split (s)	12.0	84.0	12.0	84.0	24.0	24.0	24.0	24.0
Total Split (%)	10.0%	70.0%	10.0%	70.0%	20.0%	20.0%	20.0%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
v/c Ratio	0.29	0.39	0.07	0.87	0.51	0.08	0.44	0.11
Control Delay	11.9	5.7	3.6	17.9	65.0	0.6	61.3	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	5.7	3.6	17.9	65.0	0.6	61.3	1.0
Queue Length 50th (m)	1.6	31.1	0.7	226.6	15.6	0.0	13.4	0.0
Queue Length 95th (m)	7.9	74.0	2.6	#343.2	29.7	0.0	26.3	0.0
Internal Link Dist (m)		245.1		308.6		24.6		206.3
Turn Bay Length (m)	87.0		150.0					
Base Capacity (vph)	148	3558	269	3372	211	362	212	311
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.39	0.07	0.87	0.31	0.06	0.26	0.08

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Fourth Line & Dundas Street West



HCM Signalized Intersection Capacity Analysis

1: Fourth Line & Dundas Street West

11-05-2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑		↖	↑↑↑		↖	↑		↖	↑	
Traffic Volume (vph)	40	1274	38	18	2680	93	62	0	20	53	0	23
Future Volume (vph)	40	1274	38	18	2680	93	62	0	20	53	0	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.6	3.6	3.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.80		1.00	*0.80		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1685	4449		1684	4451		1802	1615		1805	1615	
Flt Permitted	0.04	1.00		0.14	1.00		0.74	1.00		0.74	1.00	
Satd. Flow (perm)	79	4449		250	4451		1406	1615		1413	1615	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	1341	40	19	2821	98	65	0	21	56	0	24
RTOR Reduction (vph)	0	2	0	0	2	0	0	19	0	0	22	0
Lane Group Flow (vph)	42	1379	0	19	2917	0	65	2	0	56	2	0
Confl. Peds. (#/hr)			5	5			1					
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	95.0	89.9		89.6	87.2		9.7	9.7		9.7	9.7	
Effective Green, g (s)	95.0	89.9		89.6	87.2		9.7	9.7		9.7	9.7	
Actuated g/C Ratio	0.79	0.75		0.75	0.73		0.08	0.08		0.08	0.08	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	130	3333		215	3234		113	130		114	130	
v/s Ratio Prot	c0.01	c0.31		0.00	c0.66			0.00			0.00	
v/s Ratio Perm	0.24			0.06			c0.05			0.04		
v/c Ratio	0.32	0.41		0.09	0.90		0.58	0.01		0.49	0.01	
Uniform Delay, d1	23.3	5.5		4.0	13.0		53.2	50.7		52.8	50.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.4		0.2	4.6		6.9	0.0		3.3	0.0	
Delay (s)	24.8	5.9		4.2	17.6		60.1	50.8		56.1	50.8	
Level of Service	C	A		A	B		E	D		E	D	
Approach Delay (s)		6.4			17.6			57.8			54.5	
Approach LOS		A			B			E			D	

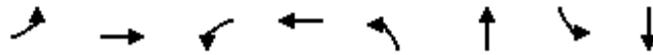
Intersection Summary

HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues

1: Fourth Line & Dundas Street West

11-05-2021



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↑↑↑	↖	↑↑↑	↖	↑	↖	↑
Traffic Volume (vph)	40	1274	18	2680	62	0	53	0
Future Volume (vph)	40	1274	18	2680	62	0	53	0
Lane Group Flow (vph)	42	1381	19	2919	65	21	56	24
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	70.0	5.0	70.0	4.0	4.0	5.0	5.0
Minimum Split (s)	12.0	80.0	12.0	80.0	24.0	24.0	24.0	24.0
Total Split (s)	12.0	84.0	12.0	84.0	24.0	24.0	24.0	24.0
Total Split (%)	10.0%	70.0%	10.0%	70.0%	20.0%	20.0%	20.0%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
v/c Ratio	0.39	0.39	0.20	0.88	0.51	0.08	0.44	0.11
Control Delay	63.6	6.2	58.2	20.0	65.0	0.6	61.3	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.6	6.2	58.2	20.0	65.0	0.6	61.3	1.0
Queue Length 50th (m)	10.1	31.1	4.6	245.2	15.6	0.0	13.4	0.0
Queue Length 95th (m)	22.3	78.6	12.6	#347.8	29.7	0.0	26.3	0.0
Internal Link Dist (m)		245.1		308.6		24.6		206.3
Turn Bay Length (m)	87.0		150.0					
Base Capacity (vph)	111	3529	98	3310	211	362	212	311
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.39	0.19	0.88	0.31	0.06	0.26	0.08

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Fourth Line & Dundas Street West



HCM Signalized Intersection Capacity Analysis

1: Fourth Line & Dundas Street West

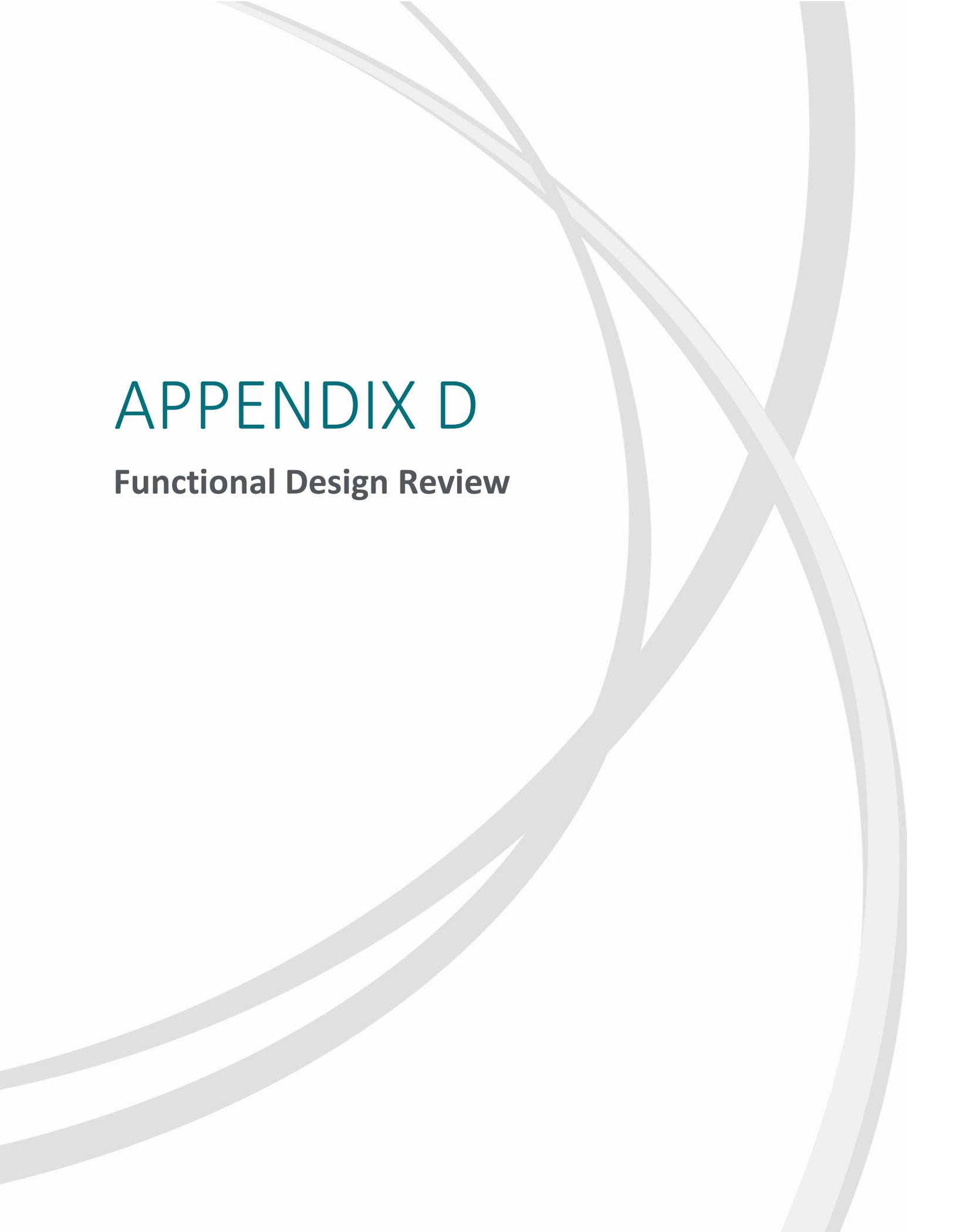
11-05-2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑		↖	↑↑↑		↖	↑		↖	↑	
Traffic Volume (vph)	40	1274	38	18	2680	93	62	0	20	53	0	23
Future Volume (vph)	40	1274	38	18	2680	93	62	0	20	53	0	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.6	3.6	3.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.80		1.00	*0.80		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1685	4449		1685	4451		1802	1615		1805	1615	
Flt Permitted	0.95	1.00		0.95	1.00		0.74	1.00		0.74	1.00	
Satd. Flow (perm)	1685	4449		1685	4451		1406	1615		1413	1615	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	1341	40	19	2821	98	65	0	21	56	0	24
RTOR Reduction (vph)	0	2	0	0	2	0	0	19	0	0	22	0
Lane Group Flow (vph)	42	1379	0	19	2917	0	65	2	0	56	2	0
Confl. Peds. (#/hr)			5	5			1					
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases							8			4		
Actuated Green, G (s)	6.7	89.1		3.2	85.6		9.7	9.7		9.7	9.7	
Effective Green, g (s)	6.7	89.1		3.2	85.6		9.7	9.7		9.7	9.7	
Actuated g/C Ratio	0.06	0.74		0.03	0.71		0.08	0.08		0.08	0.08	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	94	3303		44	3175		113	130		114	130	
v/s Ratio Prot	c0.02	c0.31		0.01	c0.66			0.00			0.00	
v/s Ratio Perm							c0.05			0.04		
v/c Ratio	0.45	0.42		0.43	0.92		0.58	0.01		0.49	0.01	
Uniform Delay, d1	54.9	5.8		57.5	14.3		53.2	50.7		52.8	50.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.4	0.4		6.7	5.6		6.9	0.0		3.3	0.0	
Delay (s)	58.2	6.2		64.2	19.9		60.1	50.8		56.1	50.8	
Level of Service	E	A		E	B		E	D		E	D	
Approach Delay (s)		7.7			20.1			57.8			54.5	
Approach LOS		A			C			E			D	

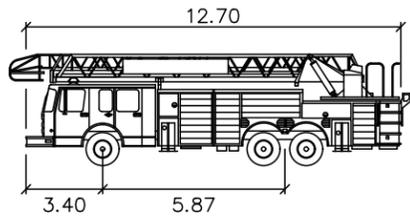
Intersection Summary

HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



APPENDIX D

Functional Design Review

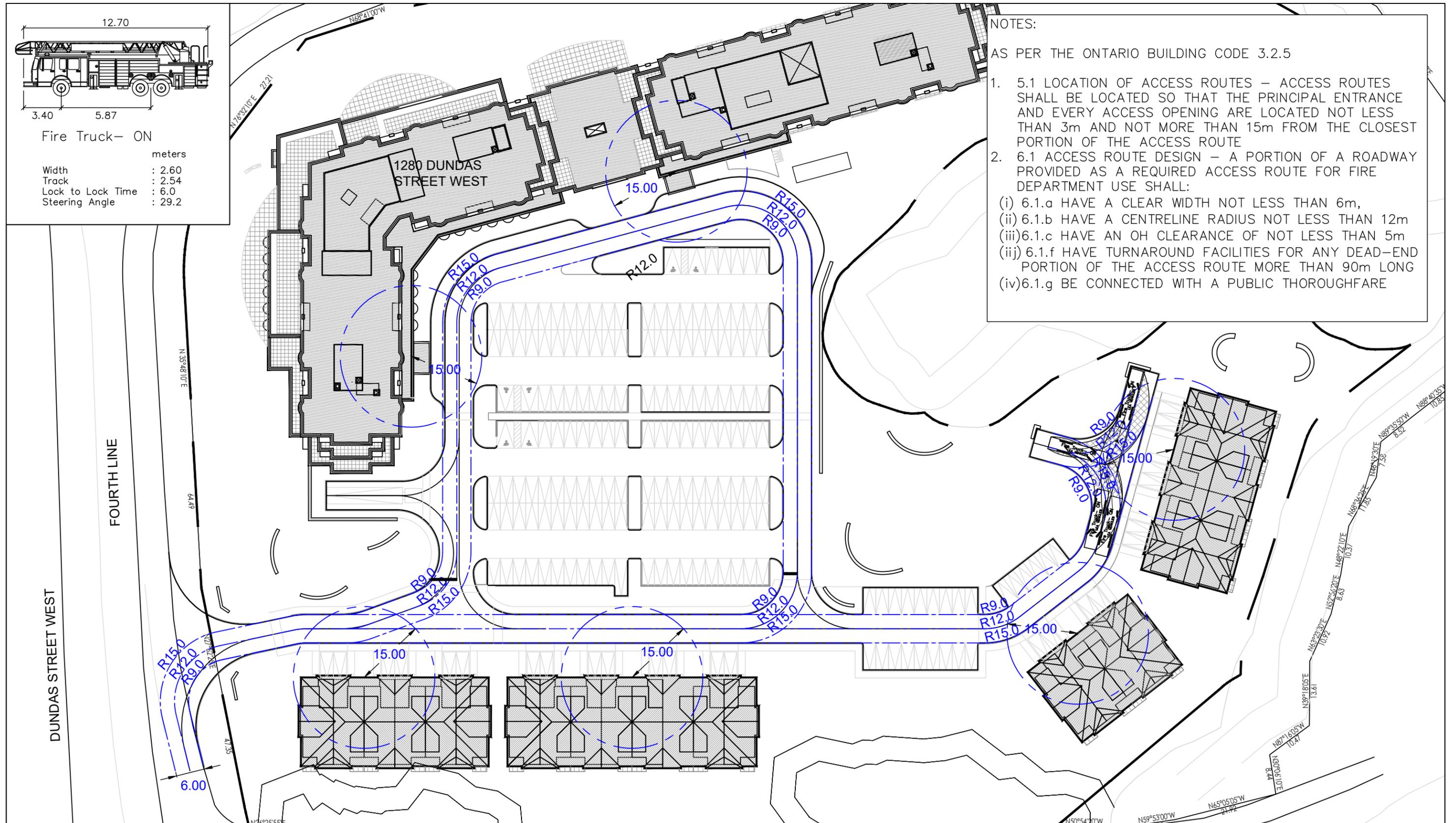


Fire Truck— ON
 meters
 Width : 2.60
 Track : 2.54
 Lock to Lock Time : 6.0
 Steering Angle : 29.2

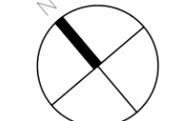
NOTES:

AS PER THE ONTARIO BUILDING CODE 3.2.5

1. 5.1 LOCATION OF ACCESS ROUTES — ACCESS ROUTES SHALL BE LOCATED SO THAT THE PRINCIPAL ENTRANCE AND EVERY ACCESS OPENING ARE LOCATED NOT LESS THAN 3m AND NOT MORE THAN 15m FROM THE CLOSEST PORTION OF THE ACCESS ROUTE
2. 6.1 ACCESS ROUTE DESIGN — A PORTION OF A ROADWAY PROVIDED AS A REQUIRED ACCESS ROUTE FOR FIRE DEPARTMENT USE SHALL:
 - (i) 6.1.a HAVE A CLEAR WIDTH NOT LESS THAN 6m,
 - (ii) 6.1.b HAVE A CENTRELINE RADIUS NOT LESS THAN 12m
 - (iii) 6.1.c HAVE AN OH CLEARANCE OF NOT LESS THAN 5m
 - (iv) 6.1.f HAVE TURNAROUND FACILITIES FOR ANY DEAD-END PORTION OF THE ACCESS ROUTE MORE THAN 90m LONG
 - (v) 6.1.g BE CONNECTED WITH A PUBLIC THOROUGHFARE



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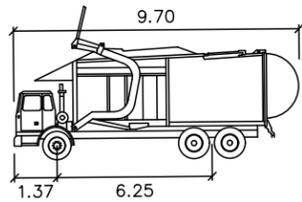
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 Date
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1:750

SITE PLAN
 FIRE ROUTE

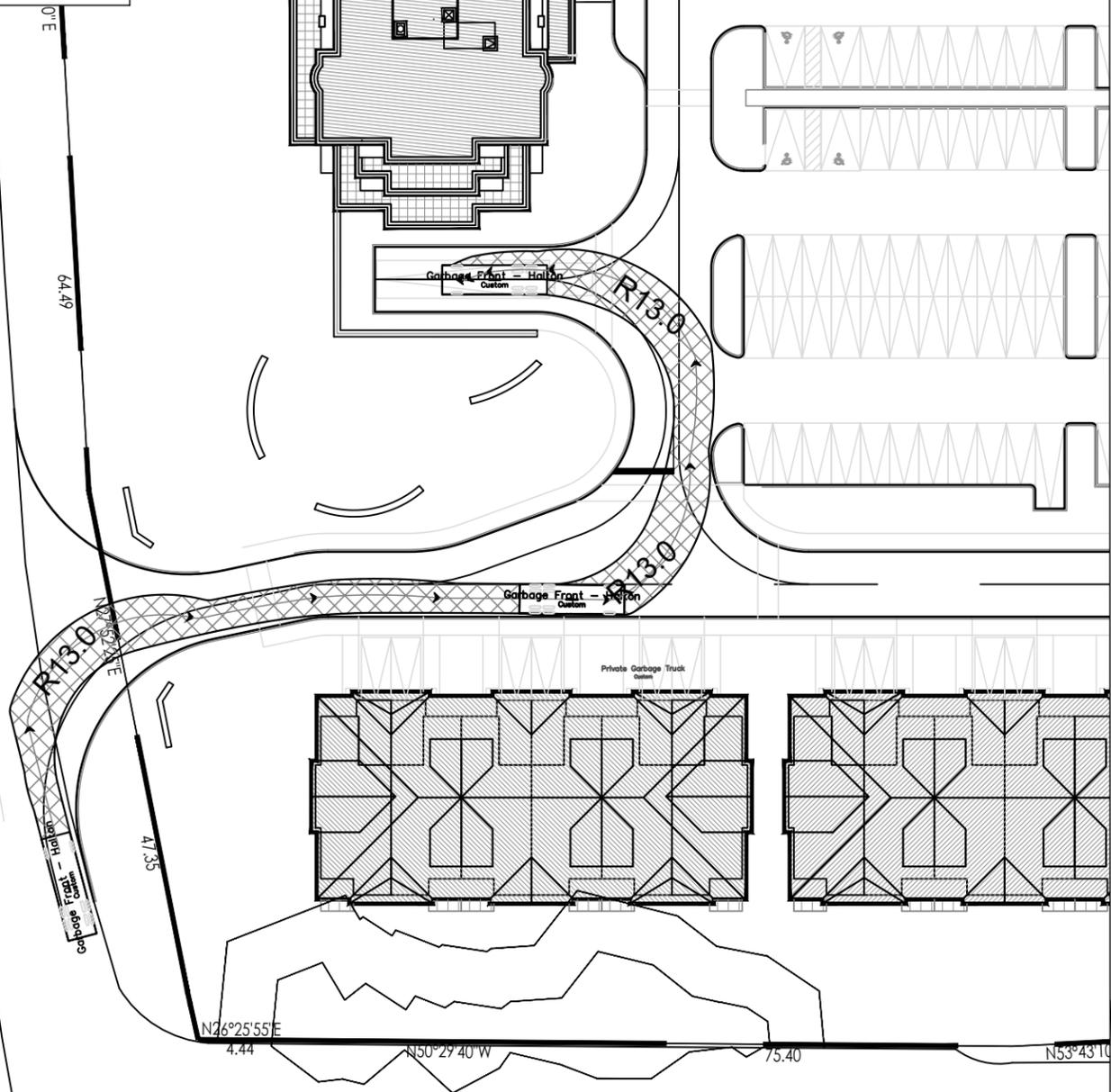
Drawing No.
 001



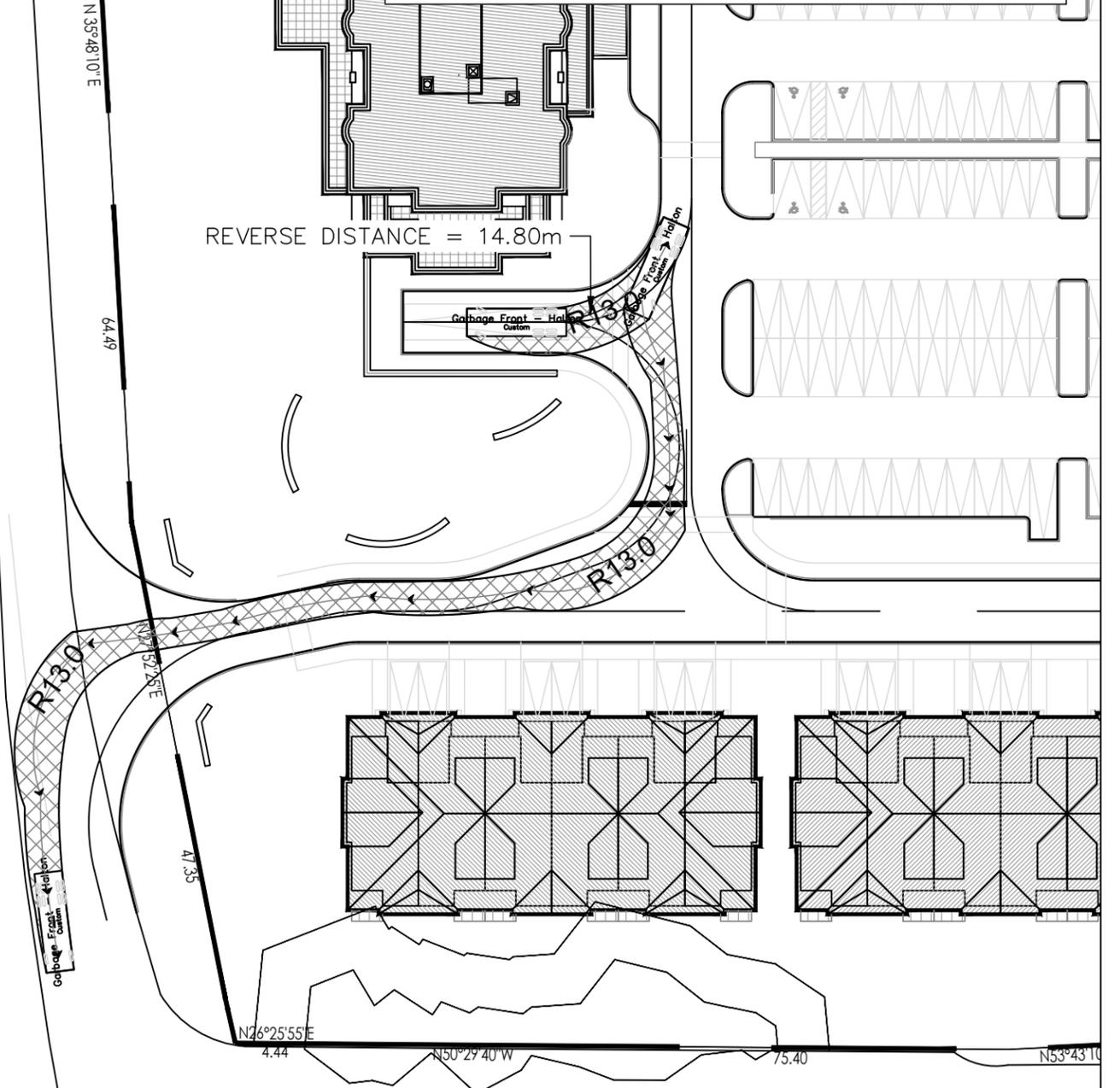
Garbage Front meters
 Width : 2.70
 Track : 2.70
 Lock to Lock Time : 6.0
 Steering Angle : 28.5

FORWARD IN
 REVERSE OUT

FOURTH LINE



FOURTH LINE

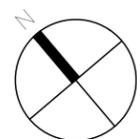


NOTES:

AS PER HALTON REGION DEVELOPMENT GUIDELINES FOR SOURCE SEPARATION OF SOLID WASTE:
 1. 1.10.2: T-TURNAROUND MAY BE PERMITTED IN ACCORDANCE WITH SPECIFICATIONS OUTLINED IN APPENDIX 3. WASTE COLLECTION VEHICLES ARE NOT EXPECTED TO BACK UP MORE THAN 18m (FROM FRONT WHEEL TO FRONT WHEEL)

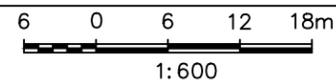
REVERSE DISTANCE = 14.80m

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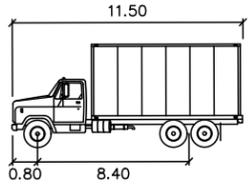
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SITE PLAN
 SERVICE LANE REVIEW
 CITY GARBAGE TRUCK
 ENTRY AND EXIT PATH

Drawing No.

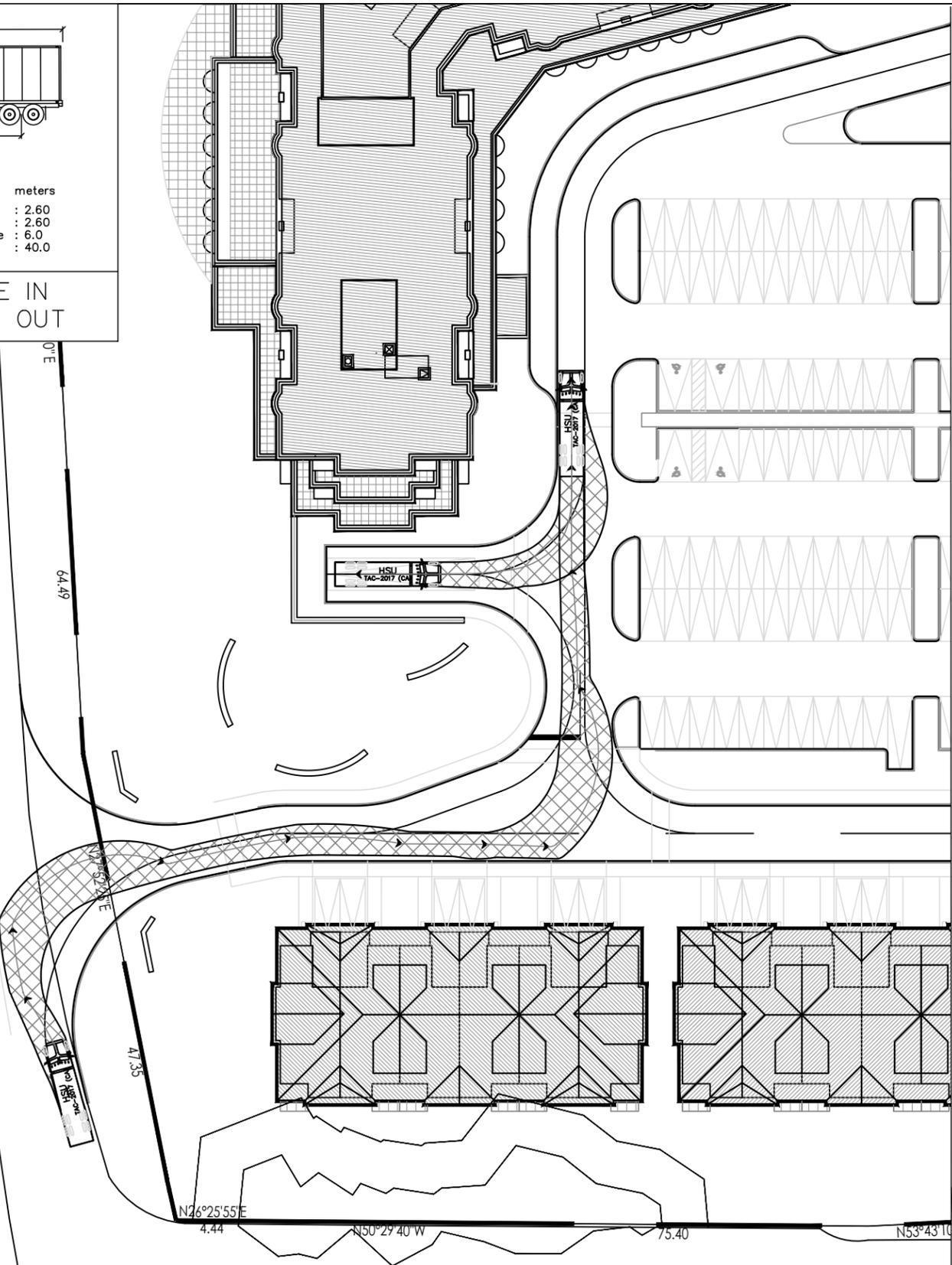
002



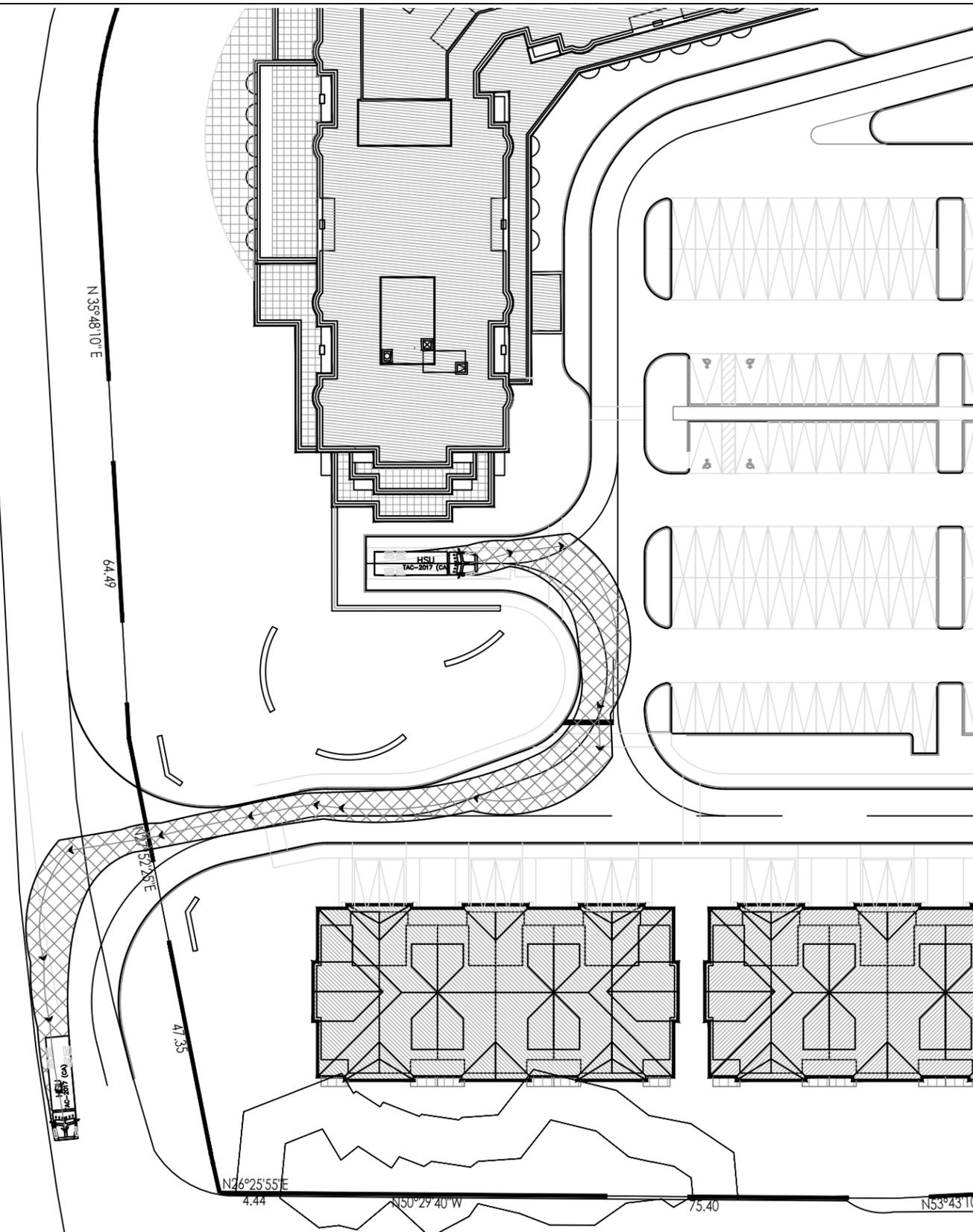
HSU
 meters
 Width : 2.60
 Track : 2.60
 Lock to Lock Time : 6.0
 Steering Angle : 40.0

REVERSE IN
 FORWARD OUT

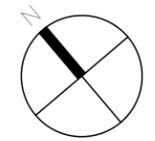
FOURTH LINE



FOURTH LINE

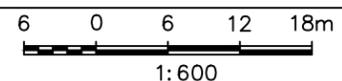


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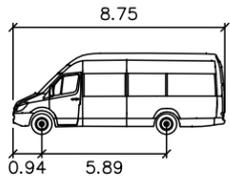


SITE PLAN
 SERVICE LANE REVIEW
 DELIVERY TRUCK – HSU
 ENTRY AND EXIT PATH

Drawing No.
 003

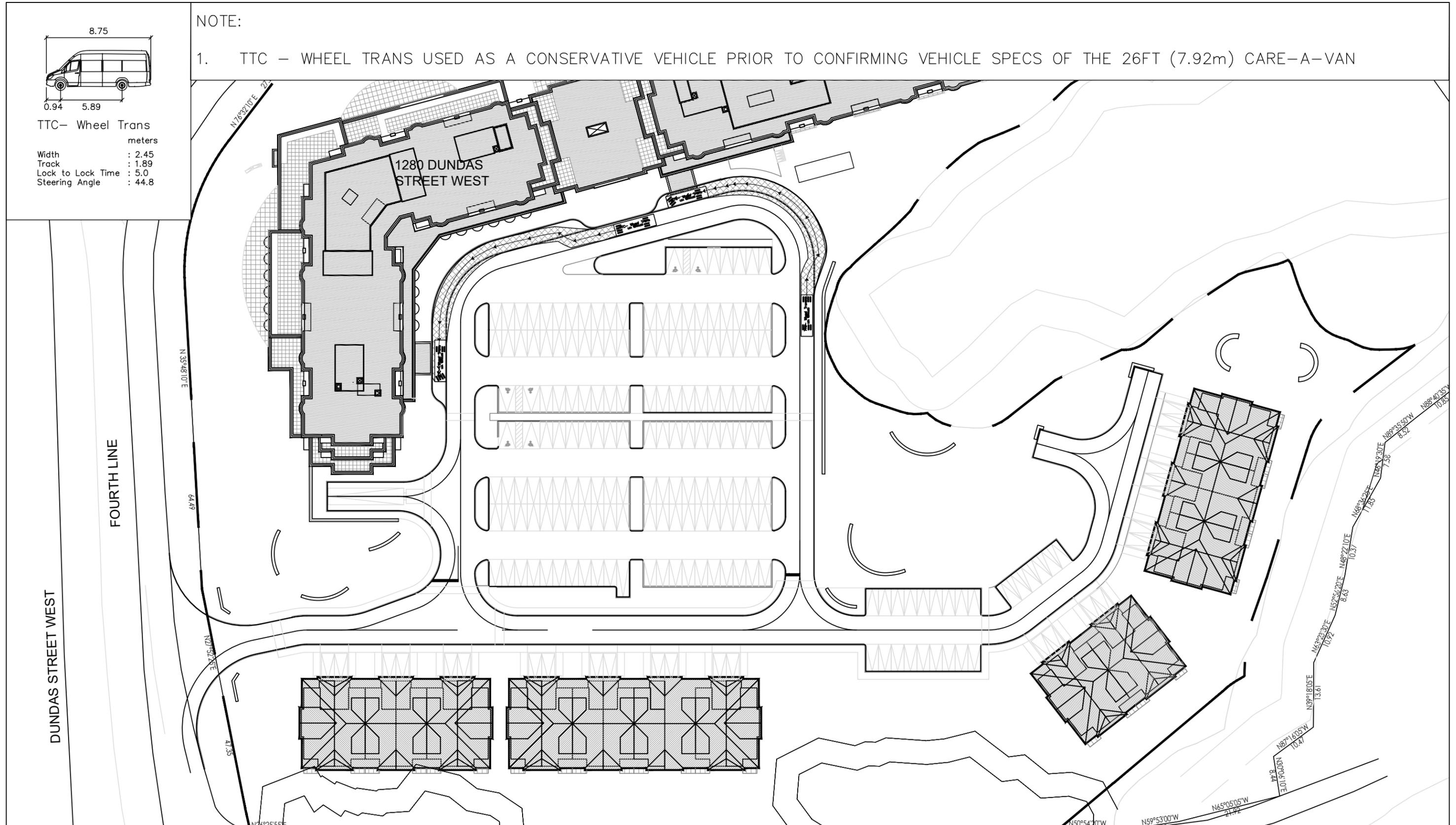
NOTE:

- 1. TTC – WHEEL TRANS USED AS A CONSERVATIVE VEHICLE PRIOR TO CONFIRMING VEHICLE SPECS OF THE 26FT (7.92m) CARE-A-VAN

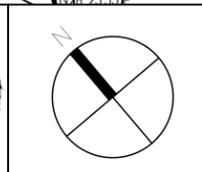


TTC- Wheel Trans

	meters
Width	: 2.45
Track	: 1.89
Lock to Lock Time	: 5.0
Steering Angle	: 44.8



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SITE PLAN
 CIRCULAR LAY-BY REVIEW
 SPECIALIZED TRANSIT PUDO
 CARE-A-VAN

Drawing No.
004

PAVEMENT MARKINGS

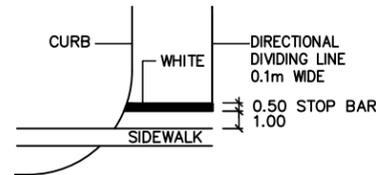
A- LANE LINES

- ① 10cm SOLID WHITE LINE
- ② 50cm SOLID WHITE LINE
- ③ WHITE HATCHING AS SHOWN
- ④ 10cm SOLID YELLOW LINE
- ⑤ 50cm SOLID YELLOW LINE

B- HANDICAPPED PARKING PAVEMENT GRAPHICS, AS PER TOWN OF OAKVILLE DESIGN STANDARDS AND AODA



C- STOP BAR



LEGEND:

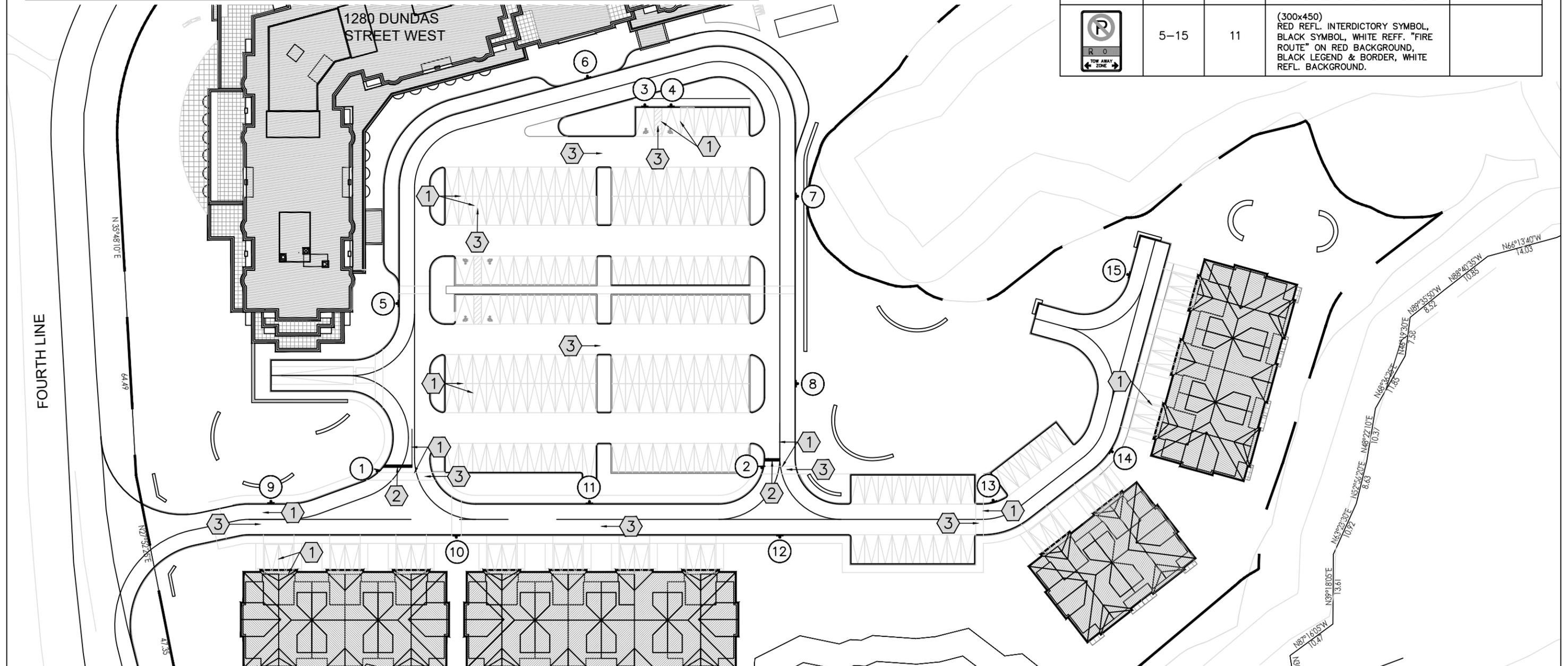
- ⬆ POST-MOUNTED SIGN
- ⊗ SIGN LOCATION

NOTES:

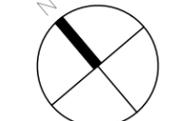
- ALL SIGNS ARE STEEL POST-MOUNTED, UNLESS OTHERWISE INDICATED.
- - ALL SIGNS ARE PER "ONTARIO TRAFFIC MANUAL", LATEST EDITION.

TRAFFIC SIGNS

SIGN	LOCATION	NEW QUANTITY REQUIRED	COLOURS	REMARKS
	1-2	2	Ra-1 (600x600) WHITE REFL. LEGEND & BORDER, RED REFL. BACKGROUND.	
	3-4	2	Rb-93 (300x600) RED REFL. INTERDICTIONARY BLUE REFL. SYMBOL OF ACCESS & SYMBOL BORDER, BLACK SYMBOL, LEGEND & BORDER, WHITE REFL. BACKGROUND.	
	5-15	11	(300x450) RED REFL. INTERDICTIONARY SYMBOL, BLACK SYMBOL, WHITE REFL. "FIRE ROUTE" ON RED BACKGROUND, BLACK LEGEND & BORDER, WHITE REFL. BACKGROUND.	



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SITE PLAN
 PAVEMENT MARKINGS
 AND SIGNAGE PLAN

Drawing No.
006