# WEST HANTS REGIONAL MUNICIPALITY REPORT

| Information ☐ | Recommendation X | Decision Request ☐ | Councillor Activity ☐ |
|---|---|---|---|

**To:** Mayor Zebian and Members of West Hants Regional Municipality Council

**Submitted by:** _____
Alex Dunphy, Planner

**Date:** February 27, 2024

**Subject:** Development Agreement: PIDs 45053030, 45343878, 45343894, and 45234382, Payzant Drive; File # 23-04A

## LEGISLATIVE AUTHORITY

Municipal Government Act Section 230

## RECOMMENDATION

Should Council wish to proceed to Public Hearing, the following motions would be in order:

…that Council gives First Reading and will hold a Public Hearing to consider entering into a development agreement to allow up to 280 units within grouped multi-unit apartment buildings and 18 townhouse units on PIDs 45053030, 45343878, 45343894, and 45234382 Payzant Drive in Windsor which is substantively the same as the draft set out in Attachment B of the report File #23-04 to the Planning and Heritage Advisory Committee dated February 8, 2024.

…that Council requires that the development agreement with Abraham Zebian on behalf of 3324482 NOVA SCOTIA LIMITED for PIDs 45053030, 45343878, 45343894, and 45234382 on Payzant Drive in Windsor be signed within 120 days from the date of final approval by Council or the date that any appeals have been disposed of; otherwise this approval will be void and obligations arising hereunder shall be at an end.

## BACKGROUND

| Property X | Public | Environment ☐ | Social ☐ | Economic ☐ | Councillor Activity ☐ |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| | Opinion ☐ | | | | |

An application was received from Noel Taiani of Parsons Green Developments on behalf of the property owner 3324482 NOVA SCOTIA LIMITED on March 15, 2023. The application was to allow a proposed development including a total of 280 apartment units, across 4 multiple-unit apartment buildings and 18 townhouse units grouped on the subject lots by development agreement. Abraham Zebian is the President of 3324482 NOVA SCOTIA LIMITED.

**DISCUSSION**

A Public Information Meeting was held on May 11, 2023.

On February 8, 2024, staff presented a recommendation report to the Planning and Heritage Advisory Committee (PAC/HAC) (Appendix A). The Committee discussed reduced yard requirements, proposed driveway access, the timeline for the road extension completion, the existing watercourse, and the Traffic Impact Study (TIS). Staff have included that TIS as Appendix B in this report. The Traffic Authority indicated that there were no concerns regarding the contents of the TIS.

During the February 8 meeting, PAC/HAC recommended in favour of the application.

**NEXT STEPS**

The process for this application is as follows:

**Process**

Public Information Meeting – May 11, 2023

▼

Staff Review

▼

PAC/HAC receives staff report and PIM Notes
PAC/HAC Review and Recommendation – February 8, 2024

▼

**Council First Reading – February 27, 2024**

▼

Public Hearing & Second Reading – March 26, 2024*

▼

Notice of Approval in Local Paper

▼

14-Day Appeal Period

**FINANCIAL IMPLICATIONS**

A road extension of Payzant Drive would be required in order to service this proposed development. The developer will be required to construct the extension of Payzant Drive and all associated infrastructure to the extent of the frontage of the subject lots. Separately, during the June 27, 2023 Council meeting, Council directed staff to begin the process of designing the Payzant Drive to King Street connection. Any connection outside of what would be constructed by the developer to provide frontage and access to this development would be a cost to the Municipality.

**ALTERNATIVES**

In response to this application, Council may decide to:

- hold First Reading and authorize a Public Hearing to approve the development agreement as drafted or as specifically revised by direction of Council; or
- provide alternative direction such as requesting further information on a specific topic.

**APPENDICIES**

| | |
|---|---|
| Appendix A | 2024-02-08 Staff Report - Development Agreement: PIDs 45053030, 45343878, 45343894, and 45234382, Payzant Drive; File # 23-04 |
| Appendix B | 2023-07-26 Traffic Impact Study – Payzant Drive Development |

**CHIEF ADMINISTRATIVE OFFICER REVIEW**

CAO comments to follow.

Report Prepared by: _____

Alex Dunphy, Planner

Report Approved by: _____

Sara Poirier, Director of Planning and Development

**Appendix A –**
**2024-02-08 Staff Report - Development Agreement: PIDs 45053030, 45343878, 45343894, and 45234382, Payzant Drive; File # 23-04**

# WEST HANTS REGIONAL MUNICIPALITY REPORT

| Information ☐ | Recommendation X | Decision Request ☐ | Councillor Activity ☐ |
|---|---|---|---|

**To:** Members of Planning and Heritage Advisory Committee (PAC/HAC)

**Submitted by:** _____
Alex Dunphy, Planner

**Date:** February 8, 2024

**Subject:** Development Agreement: PIDs 45053030, 45343878, 45343894, and 45234382, Payzant Drive; File # 23-04

## LEGISLATIVE AUTHORITY

Municipal Government Act Section 230

## RECOMMENDATION

To allow the requested development, staff recommends that the PAC/HAC forward a positive recommendation by passing the following motion:

…that PAC/HAC recommends that Council give First Reading and hold a Public Hearing to consider entering into a development agreement to allow up to 280 units within grouped multi-unit apartment buildings and 18 townhouse units on PIDs 45053030, 45343878, 45343894, and 45234382 Payzant Drive in Windsor which is substantively the same as the draft set out in Attachment B of the report File #23-04 to the Planning and Heritage Advisory Committee dated February 8, 2024.

…that PAC/HAC recommends that Council require that the development agreement with Abraham Zebian on behalf of 3324482 NOVA SCOTIA LIMITED for PIDs 45053030, 45343878, 45343894, and 45234382 on Payzant Drive in Windsor be signed within 120 days from the date of final approval by Council or the date that any appeals have been disposed of; otherwise this approval will be void and obligations arising hereunder shall be at an end.

## BACKGROUND

| | | | | | |
|---|---|---|---|---|---|
| Property X | Public Opinion ☐ | Environment ☐ | Social ☐ | Economic ☐ | Councillor Activity ☐ |

An application was received from Noel Taiani of Parsons Green Developments on behalf of the property owner 3324482 NOVA SCOTIA LIMITED on March 15, 2023. The application was to allow a proposed development including a total of 280 apartment units, across 4 multiple-unit apartment buildings and 18 townhouse units grouped on the subject lots by development agreement. Abraham Zebian is the President of 3324482 NOVA SCOTIA LIMITED.

**DISCUSSION**

The subject lots are designated Residential on the Generalized Future Land Use Map (GFLUM) of the Windsor Municipal Planning Strategy (WMPS) (Figure 1). The subject lots are zoned Single Unit Residential (R-1) on Schedule A of the Windsor Land Use By-law (WLUB) (Figure 2).

***Surrounding Context***

Properties surrounding the subject lots are primarily designated Residential and Community Use. The properties designated Residential range in zoning from Single Unit Residential (R-1) to High Density Residential (R-4) and Agriculture (AG). Properties designated Community Use are zoned either Institutional (I) or Open Space (OS). The Avon View High School is located east of the subject lots. The Windsor Baptist Church and two-unit residential dwellings are located north of the subject lots. King Street is located south and west of the subject lots.

***Payzant Drive Extension***

Staff have been in discussions with the Public Works Engineering Division regarding the required road extension to Payzant Drive in order to service this proposed development. The developer will be required to construct the extension of Payzant Drive to the extent of the frontage of the subject lots. This process has overlapped with the consideration for a connection from Payzant Drive to King Street to provide improved access to the uses currently on Payzant Drive. Work has begun on the design of the connection to King Street and may require a small portion of the land on which the proposed development is sited. This portion of land has been captured in the draft development agreement through a road reserve, which if deemed unnecessary for the connection to King Street, will allow the developer to develop on the road reserve as normal.

***Municipal Planning Strategy Document Review***

Policy 5.4.6 is one of the two enabling policies to be considered for this application. This policy provides Council with the ability to consider new multiple-unit grouped dwellings by development agreement in the Residential designation. The full list of criteria is included with this report in Attachment A. In summary, the proposal meets the criteria since:

- the proposed development is generally consistent with the High Density Residential (R-4) zone standards;

- the future Municipal road, constructed at the cost of the developer, will provide adequate access to the proposed development;
- adequate on-site parking, amenity space, and buffering will be required for the proposal as per the draft development agreement; and
- the Development Officer and the Municipal Traffic Authority have no concerns which have not been addressed in this report.

Policy 5.5.1 is the second enabling policy to be considered for this application. This policy provides Council with the ability to consider permitting dwellings in excess of three storeys by development agreement, in any residential zone. The full list of criteria is included with this report in Attachment A. In summary, the proposal meets the criteria since:

- the draft development agreement requires side yards to be at least one-half the height of the buildings above 3 storeys;
- the draft development agreement restricts the apartment buildings to 5 storeys in height and in no instance are they to exceed 80 ft (24.38 m) in height; and
- the proposal building is compatible with the surrounding area in terms of design, height and scale.

Policy 16.3.1 establishes the general criteria that all development agreements must meet. The full list of criteria is included with this report in Attachment A. In summary, the proposal meets the criteria as:

- the proposal is not considered premature or inappropriate for the area;
- the costs relating directly to the development will not impact the Municipality.; and
- the Fire Chief, Development Officer, Manager of Building and Fire Inspection Services, Public Works Engineering Division, and Municipal Traffic Authority have no concerns which have not been addressed in this report.

**MUNICIPAL CLIMATE CHANGE ACTION PLAN**

The Municipal Climate Change Action Plan (MCCAP) for Windsor (2014) highlights two simulated flooding scenarios. The first scenario is based on a storm surge that occurred in 1997, which shows the expected damage is to occur along the coastline. The second scenario shows the simulated flooding extent for probable maximum flood due to climate change. Under this scenario most of the community of Windsor will experience extensive flooding, including the western subject lots.

In accordance with the Municipal Services Specifications Manual, the Public Works Engineering Division will require the developer to provide a stormwater management plan showing that the pre- and post-development flows are neutral or better than before the development. Property owners are responsible for ensuring that their lot is suitable for the proposed uses.

**NEXT STEPS**

As noted above, the draft development agreement has been considered within the context of both the specific and general policies of the WMPS, and is consistent with the intent,

objectives, policies and criteria of the WMPS. As a result, it is reasonable to consider permitting a multiple-unit residential development, consisting of 280 apartment units and 18 townhouse units on PIDs 45053030, 45343878, 45343894, and 45234382 in Windsor by development agreement.

**Process**

Public Information Meeting – May 11, 2023

▼

Staff Review

▼

**PAC/HAC receives staff report and PIM Notes**
**PAC/HAC Review and Recommendation – February 8, 2024**

▼

Council First Reading – February 27, 2024*

▼

Public Hearing & Second Reading – March 26, 2024*

▼

Notice of Approval in Local Paper

▼

14-Day Appeal Period

## FINANCIAL IMPLICATIONS

A road extension of Payzant Drive would be required in order to service this proposed development. The developer will be required to construct the extension of Payzant Drive and all associated infrastructure to the extent of the frontage of the subject lots. Separately, during the June 27, 2023 Council meeting, Council directed staff to begin the process of designing the Payzant Drive to King Street Connection. Any connection outside of what would be constructed by the developer to provide frontage and access to this development would be a cost to the Municipality.

## ALTERNATIVES

The Planning and Heritage Advisory Committee (PAC/HAC) may:

- hold First Reading and authorize a Public Hearing to approve the development agreement as drafted or as specifically revised by direction of PAC/HAC; or
- provide alternative direction such as requesting further information on a specific topic.

## ATTACHMENTS

Figure 1 Windsor GFLUM Extract

| | |
|---|---|
| Figure 2 | Windsor Zoning Map Extract |
| Attachment A | Policy Summary for Development Agreement |
| Attachment B | Draft Development Agreement |
| Attachment C | Public Information Meeting Notes |

Report Prepared by: _____

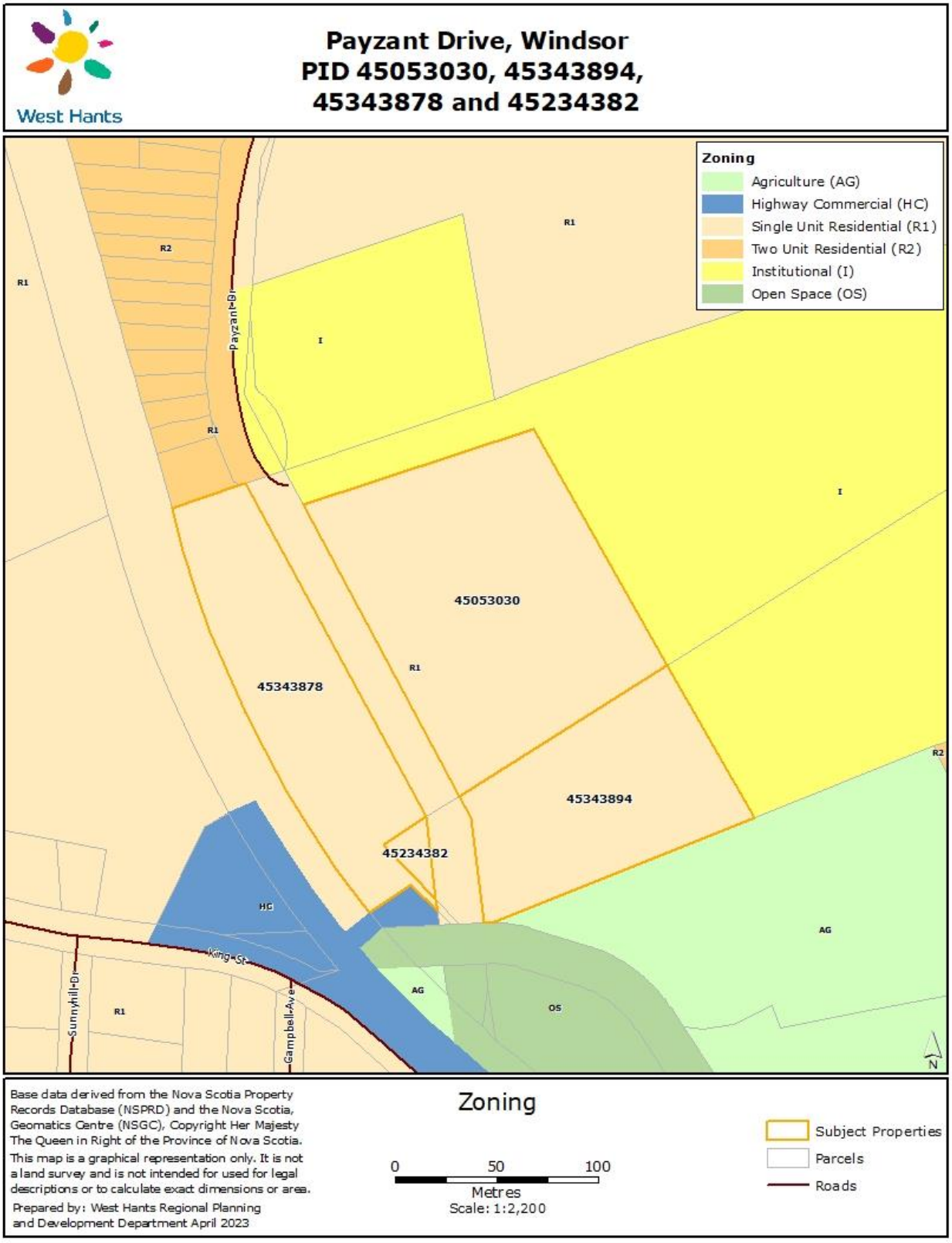
Alex Dunphy, Planner

Report Approved by: _____

Sara Poirier, Director of Planning and Development

**Figure 1 – Windsor GFLUM Extract**

**Figure 2 – Windsor Zoning Map Extract**



**Attachment A – Policy Summary for Development Agreement**

| | |
|---|---|
| ***Policy 5.4.6***<br>*It shall be the policy of Council to consider entering into a development agreement to allow, in the Residential designation, new multiple unit residential development consisting of three or more units, grouped dwellings, boarding houses and residential care facilities, as well as the conversion of existing buildings to three or more units, subject to the following:* | |
| *(a) the proposed use meets one of the following:* | |
| *(i) in the case of a new building or the conversion of an existing non-residential building, that the development is generally consistent with the High Density Residential (R-4) zone standards; or* | The development will be generally consistent with the High Density Residential (R-4) zone standards. The front and rear yard setbacks, as well as the minimum lot size have been reduced to allow the proposed density requested. The Development Officer commented that the reduced lot requirements were deemed acceptable. |
| *(ii) in the case of a conversion of an existing residential building, that any addition or enlargement to the building meets the setback requirements of the zone in which it is located, or that any undersized setbacks are not further reduced by the addition or enlargement;* | Not applicable as the proposal is for a new construction. |
| *(b) the height, bulk, lot coverage and appearance of any building is compatible with adjacent land uses;* | The individual apartment buildings within the proposal are of a similar size or smaller in scale than another multi-unit residential development that have been previously approved by Council on Payzant Drive. In addition, nearby larger buildings include the Avon View High School and the Hants Community Hospital. The height, bulk, lot coverage, and appearance of the buildings within the development are considered to be compatible with the land uses in the area. |
| *(c) the development is considered compatible with the residential character of the area with* | A Traffic Impact Study was provided for the proposed development and the study indicated that no improvements |

| | |
|---|---|
| *respect to traffic generation and population density;* | to accommodate traffic generated by the proposed development were recommended. The Municipal Traffic Authority commented that they have no concerns regarding traffic generation or density for the proposed development as the proposed extension to Payzant Drive will be required to be built to the standard of the Municipal Services Specifications Manual. |
| *(d) consideration is given to the provision of fences and/or landscaping as part of the residential development to minimize effects on adjacent land uses;* | The draft development agreement outlines the buffering and landscaping requirements for all parking areas of the development. |
| *(e) adequate on-site parking is provided and parking areas are well designed;* | The proposal provides more parking spaces than what is required based on the draft development agreement. The Development Officer commented that they have no concerns regarding the parking proposed to be provided. |
| *(f) there is adequate on-site recreational open space suitable in extent and design to the nature of the development; for conversion of existing buildings, nearby public parks may be deemed sufficient;* | The draft development agreement requires that amenity space is provided in accordance with Section 10.5 of the WLUB. |
| *(g) the development abuts an arterial or collector street as shown on the Transportation Map (Map 2), if the development consists of 12 or more units;* | As stated in Policy 5.4.6 (c), the proposed extension to Payzant Drive will be required to be built to the standard of the Municipal Services Specifications Manual. That road extension will provide direct access to the proposed development. |
| *(h) the architectural design of the development is reasonably consistent with the provisions of the Architectural Design Manual if the proposed development is located in an Architectural Control District;* | Not applicable as the subject lots are not within an Architectural Control District. |

| | |
|---|---|
| *(i) in the case of the conversion of an existing structure, renovations can be made to ensure the safety of residents in case of fire;* | Not applicable as the proposal is for a new build, not the conversion of an existing building. |
| *(j) any other matter which may be addressed in a development agreement; and* | All relevant matters have been addressed in this report. |
| *(k) the provisions of Policy 16.3.1 of the Municipal Planning Strategy.* | See below. |
| ***Policy 5.5.1***<br>*In any residential zone, Council may consider permitting dwellings in excess of three storeys by development agreement, subject to the following conditions:* | |
| *(a) the side yards are at least one-half the height of the building;* | The draft development agreement requires that the side yards for the proposed apartment buildings to be at least one-half the height of the building. |
| *(b) the building will in no instance exceed 80 ft (24.38 m) in height;* | The draft development agreement limits the proposal to 5 stories in height. The maximum building height will not exceed 80 ft. |
| *(c) the building design, height and scale is compatible with the surrounding area;* | As stated in Policy 5.4.6 (b), larger multi-unit residential development was approved by Council on Payzant Drive and Community Way. As well as other nearby larger uses including the Avon View High School and the Hants Community Hospital.<br>The Development Officer commented that the height, design, and scale of the buildings within the development are considered to be compatible with the surrounding area. |
| *(d) any other matter which may be addressed in a development agreement; and* | All relevant matters have been addressed in this report. |
| *(e) the provisions of Policy 16.3.1 of the Municipal Planning Strategy.* | See below. |

| | |
|---|---|
| ***Policy 5.4.5*** | See Policy 5.4.6 (f). |

| | |
|---|---|
| *It shall be the policy of Council to require adequate recreational space for multiple unit residential development.* | |

| | |
|---|---|
| ***Policy 16.3.1***<br>*In considering development agreements and amendments to the Town of Windsor Land Use By-law, in addition to the criteria set out in various policies of this Strategy, Council shall consider:* | |
| *(a) whether the proposal is considered premature or inappropriate in terms of:* | |
| *(i) the adequacy of sewer and water services;* | The Public Works Engineering Division commented that the current water and sewer services are adequate for the proposal, however if all potential projects in Windsor were to be constructed all at once, the current infrastructure installed and in service today would be close to an 'uncomfortable state'. In a meeting with the Public Works Engineering Division, staff confirmed that provided the Municipal infrastructure upgrades outlined in the 5-year capital plans stay on track, there should be no water or sewer capacity issues for Windsor. |
| *(ii) the adequacy of school facilities;* | The Regional Executive Director for the Annapolis Valley Regional Centre for Education has stated that their facilities will accommodate any new development. |
| *(iii) the adequacy of fire protection;* | The Manager of Building and Fire Inspection Services commented that they had no issues, but the apartment buildings would need to have sprinkler systems installed and that comments from the Fire Chief would be required to confirm that they are equipped to handle a 5-storey building.<br>The Public Works Engineering Division confirmed that a fire flow test would be |

| | |
|---|---|
| | required to be conducted. This would likely have to occur after the developer has replaced the water main servicing the development.<br>The local Fire Chief has commented that the proposal has 360 access to the apartment buildings and that beyond the normal mountable curbs and overhead obstruction prevention which are included in the draft development agreement, there were no further concerns regarding firefighting capacity. |
| *(iv) the adequacy of road networks adjacent to, or leading to the development; and* | A Traffic Impact Study was requested for the proposed development. The Traffic Impact Study indicated that no improvements to accommodate traffic generated by the proposed development were recommended.<br>In a meeting with the Traffic Authority and the applicant, it was determined that a road reserve was required in order for the Municipality to connect the Payzant Drive road extension to King Street. The Traffic Authority commented that they had no further concerns regarding the road networks adjacent or leading to the development. |
| *(v) the financial capacity of the Town to absorb any costs relating to the development.* | A road extension of Payzant Drive would be required in order to service this proposed development. The developer will be required to construct the extension of Payzant Drive and all associated infrastructure to the extent of the frontage of the subject lots. Any connection outside of what would be constructed by the developer to provide frontage and access to this development would be a cost to the Municipality. The costs relating directly |

| | |
|---|---|
| | to the development will not impact the Municipality. |
| *(b) the suitability with any aspect relative to the movement of auto, rail and pedestrian traffic* | The Traffic Authority commented that they had no concerns regarding movement suitability for the proposed development.<br>Sidewalks are required on the future Municipal road which will service the proposed development and will connect to the existing sidewalk on Payzant Drive. Pedestrian walkways are required to all building entrances in the draft development agreement.<br>There is no active rail line in the vicinity. |
| *(c) the adequacy of the dimensions and shape of the lot for the intended use* | The Development Officer commented that the subject lots are suitable in terms of dimension and shape for this proposal. |
| *(d) the pattern of development which the proposal might create;* | The proposal is within the Residential designation, one which Council intends for the ability to consider multi-unit residential developments.<br>The Development Officer commented that they had no concerns regarding the pattern of development. |
| *(e) the suitability of the area in terms of steepness of grade, soil and geological conditions, location of water courses, marshes or bogs and susceptibility of flooding;* | The subject lots are relatively flat and cleared. The subject lots have not been identified to be within either the Dykelands or Environmental Constraints overlays on the Zoning Map for the Windsor Land Use By-law. A small watercourse has been identified on the western portion of the subject lots. The usual watercourse setback for any development will be required. |
| *(f) whether the proposal meets the requirements of the appropriate provincial or federal agencies as well as whether it conforms to all* | All Municipal, Provincial, and Federal regulations will have to be met. |

| | |
|---|---|
| *other relevant municipal by-laws and regulations; and* | |
| *(g) any other matter required by relevant policies of this Strategy.* | All relevant matters have been addressed in this report. |

**Attachment B – Draft Development Agreement**


**DEVELOPMENT AGREEMENT**

**THIS AGREEMENT** made this day of , 2023.

**BETWEEN:**

**WEST HANTS REGIONAL MUNICIPALITY**, a body corporate pursuant to the *Municipal Government Act*, having its chief place of business at 76 Morison Drive, Wentworth Creek, in the County of Hants, Province of Nova Scotia,

(Hereinafter referred to as the "Municipality")

OF THE FIRST PART

- and -

**3324482 NOVA SCOTIA LIMITED** a body corporate, with a head office at 31 Cochrane Lane, Sweets Corner, in the County of Hants, Province of Nova Scotia,

(Hereinafter referred to as the "Owner")

OF THE SECOND PART

**WHEREAS** the Owner is the registered Owner of the parcels of land located on Payzant Drive (PIDs 45053030, 45343894, 45343878, and 45234382), hereinafter referred to as the "Properties", which lands are more particularly described in Schedule A attached hereto; and

**WHEREAS** PIDs 45053030, 45343894, 45343878, and 45234382 are designated Residential on the Generalized Future Land Use Map of the Municipal Planning Strategy and zoned Single Unit Residential (R-1) on the Zoning Map of the Land Use By-law; and

**WHEREAS** the Owner has requested that the Municipality enter into a development agreement to permit up to 280 apartment units and up to 18 townhouse units grouped on the Properties (the "Development"); and

**WHEREAS** Policy 5.4.6 of the Municipal Planning Strategy and Section 6.1 (b) of the Land Use By-law enable Council to consider entering into a development agreement to allow new multiple unit residential developments consisting of three or more units in a Residential designation, and Policy 5.5.1 of the Municipal Planning Strategy and Section 6.1 (c) of the Land Use By-law enable Council to consider entering into a development agreement to allow new dwellings in excess of three stories in a residential zone; and

**WHEREAS** the Council of the Municipality, at a meeting held on Month Day, 2024, approved this request and adopted this Agreement by policy, subject to the execution of this development agreement by the parties hereto;

**NOW THEREFORE THIS AGREEMENT WITNESSETH** that in consideration of the mutual covenants and agreements herein contained, the parties agree as follows:

**PART 1 AGREEMENT CONTEXT**

**1.1 Definitions**

In this Agreement, all words or phrases used shall carry their customary meaning unless otherwise set out in the Land Use By-law, except those defined as follows:

(a) "Active Construction" means that the Owner has active development and building permits for the construction of the apartment building and the associated parking podium, and that construction activity including but not limited to equipment, machinery, and employees, are on-site working towards the necessary building inspections leading to an occupancy permit;

(b) "Ceased Operation" means the stopping of work on a particular building within the Development once active construction has commenced for an extended period of time, but shall not apply to the period of time between phases or stoppages of a seasonal nature or resulting from Force Majeure;

(c) "Commencement" means the date the Owner begins Active Construction on the apartment buildings within this Agreement as permitted by an issued development and building permit;

(d) "Front Lot Line" means the Property line abutting the future public street on PIDs 45213980 and 45234374;

(e) "Mechanical Penthouse" means an enclosed structure and/or area located on the roof surface of the building that may include mechanical equipment such as generators, cooling towers, chillers, electrical equipment, and elevator shafts;

(f) "Minor Change" means an alteration which does not affect the intent of this Agreement or require an amendment to the text of this Agreement;

(g) "Rear Lot Line" means the lot line furthest from or opposite to the front lot line;

(h) "Side Lot Line" means a lot line other than a front or rear lot line;

**1.2 Schedules**

The following attached schedules shall form part of this Agreement:

Schedule A - Legal Description

Schedule B – Site Plan

**1.3 Municipal Planning Strategy, Land Use By-law and Subdivision By-law**

(a) Municipal Planning Strategy means the Municipal Planning Strategy of the Town of Windsor, effective on September 21, 2005, as amended, or successor by-laws;

(b) Land Use By-law means the Land Use By-law of the Town of Windsor, effective on September 21, 2005, as amended, or successor by-laws;

(c) Subdivision By-law means the Subdivision By-law of the Town of Windsor, effective on March 21, 2012, as amended, or successor by-laws.

**PART 2 DEVELOPMENT REQUIREMENTS**

**2.1 Use**

(a) The Parties agree that uses on the Property shall be limited to the following:

(i) those uses permitted by the underlying zoning in the Land Use By-law;

(ii) four, five (5) storey apartment buildings, each containing up to 70 dwelling units, up to an aggregate maximum of 280 apartment units on PIDs 45053030 and 45343894;

(iii) townhouse units including up to 18 dwelling units on PID 45343878;

(iii) amenity space contained within the apartment buildings; and

(iv) underbuilding, underground and surface parking for the uses within the buildings.

Except as otherwise provided in this Agreement, the provisions of the Land Use By-law and the Subdivision By-law apply to any development undertaken pursuant to this Agreement.

## 2.2 Development Location and Design

(a) The Municipality and the Owner acknowledge that the Development as shown on Schedule B is a phased Development. The Development location and design of the townhouse buildings located on PID 45343878 shall follow requirements as listed in Section 2.2 (b). The Development location and design of the apartment buildings located on PIDs 45053030 and 45343894 shall follow the requirements as listed in Section 2.2 (c).

(b) The townhouse buildings shall be limited to a maximum of 18 dwelling units and shall be limited to 6 units per group. The townhouses may include underground and underbuilding parking and shall conform to the following requirements:

| | |
|---|---|
| Minimum Front Yard | 15 ft. (4.57 m.) |
| Minimum Rear Yard | 35 ft. (10.67 m.) |
| Minimum Side Yard | 10 ft. (3.05 m.)* |
| Maximum Building Height | 35 ft. (10.67 m.) |
| Maximum Height of Accessory Building | 15 ft. (4.57 m.) |

*No side yard setback is required along the common lot boundary dividing townhouse units

(c) The four (4) apartment buildings shall be limited to a maximum of 280 dwelling units in total. The buildings may include underground and underbuilding parking and shall conform to the following requirements:

| | |
|---|---|
| Maximum Number of Units per Building | 70 |
| Minimum Front Yard | 25 ft. (7.62 m.) |
| Minimum Rear Yard | 25 ft. (7.62 m.) |
| Minimum Side Yard | 15 ft. (4.57 m.) or half the height of the main building |
| Maximum Storey of Main Buildings | 5 storeys* |
| Maximum Height of Accessory Buildings | 15 ft. (4.57 m.) |

*The building will in no instance exceed 80 ft (24.38 m) in height

(d) Subject to the approval in writing of the Municipal Engineer, the lot for the apartment building located furthest away from the future municipal road may be created on a right-of-way that is at least 19.69 ft. (6 m.) wide and shall not require any frontage. The lots for all other apartment buildings shall have a minimum lot frontage of 100 ft. (30.48 m.) on the future municipal road.

(e) In the event that the Owner chooses to build and occupy one apartment building at a time, the following infrastructure is required for that building:

(i) the necessary services for the proper use and enjoyment of the building including but not limited to a driveway and access, landscaping, pedestrian walkways, parking, lighting, and water and sewer services; and

(ii) the required usable recreation space as per Section 10.5, Recreational Space, of the Land Use By-law.

(f) Accessory buildings are permitted in accordance with Section 5.1 of the Land Use By-law, *Accessory Buildings and Structures*.

(g) Recreational space shall be regulated under Section 10.5 of the Land Use By-law, *Recreational Space*, and may include:

(i) individual balconies;

(ii) dedicated indoor amenity space; and

(iii) common use landscaped areas.

(h) The Owner shall keep all undeveloped areas of the Properties landscaped which may include grass, shrubs, trees or other appropriate vegetative cover.

**2.3 Access and Egress**

(a) The Owner shall develop, construct, and maintain the two shared driveways in the Development. One driveway shall be required for the first and second apartment building and the second driveway shall be required for the remaining apartment buildings. The distance between the driveways must be approved by the Municipal Engineer in accordance with the Municipal Specifications Manual.

(b) The driveways shall be constructed so as to create a stable surface for vehicle traffic and be clearly demarcated and lined by the Owner. They may be constructed using permeable construction materials to assist with stormwater retention. The vehicular entrance and exit shall be clearly demarcated.

(c) The Owner agrees that it will seek and obtain approval in writing from the Municipality before any driveway from the Development is connected to Payzant Drive or any other public road.

**2.4 Road and Municipal Services**

(a) Roads and Municipal Services in the development shall conform to the following:

(i) the layout of the street extension within the development shall be as generally shown on Schedule B. The Development Officer, in consultation with the Municipal Engineer, may give consideration to minor incidental

changes to the design of the street extension, without such changes being deemed to be amendments to this development agreement;

(ii) the street extension, municipal services, and stormwater management within the Development shall be designed and constructed in accordance with the requirements of the Municipal Services Specifications Manual. Detailed design plans of the street networks, water and sewer servicing, and storm water systems shall be approved by the Municipal Engineer for each phase of the development prior to construction commencing for that phase;

(c) Prior to the completion of the first phase of the Development, the water main running through PIDs 45213980 and 45234374 must be replaced at the expense of the Owner; and

(d) A 5 ft. (1.52 m.) wide pedestrian walkway shall be provided along the street extension to the main entrances of the apartment buildings. The pedestrian walkways shall be constructed so as to create a stable surface and may use permeable construction materials to assist with stormwater retention.

(e) Construction of the road extension through the entirety of PIDs 45213980 and 45234374 and all relevant infrastructure shall be completed by 2030, to allow the connection of the extension of Payzant Drive to King Street. If by mutual agreement between the Municipality and the Owner, the road extension completion date may be changed.

**2.5 Parking**

(a) All required parking spaces for the apartment buildings shall be located on the same lot as that building.

(b) All parking spaces for vehicles using the townhouses shall be located on the same lot as the townhouses.

(c) A minimum of one (1) parking space per dwelling unit shall be provided for each apartment building.

(d) Parking may be provided either underbuilding, underground or outside at grade.

(e) Outside parking aisles and spaces shall be constructed so as to create a stable surface for vehicle traffic and be clearly demarcated and lined by the Owner. They may be constructed using permeable construction materials to assist with stormwater retention.

(f) Each required parking space shall be a minimum of 9 ft. by 20 ft. (2.7 m. by 6.1 m.) exclusive of driveways and manoeuvring aisles. Parking spaces provided in addition to the required parking spaces may be built without meeting the minimum size requirement for the use of a compact vehicle. Parking aisles shall be a minimum of 20 ft. (6.1 m.) wide.

(g) The number of parking spaces may be varied in writing by the Development Officer in accordance with Section 2.13, *Variance*, of this Agreement.

**2.6 Fire Safety**

(a) No development permit shall be issued until the location and connection design of any fire hydrant(s) connected to the municipal water supply has been approved by the water utility, in consultation with the district Fire Chief.

(b) Specific curbs shall be designed to be mountable by emergency services vehicles as determined by the Manager of Building and Fire Inspection Services in consultation with the local Fire Chief.

(c) All access routes shall be kept clear of overhead obstructions and wires and be maintained by the Owner to allow unimpeded access to the Properties by emergency services vehicles, unless otherwise agreed to in writing by the Fire Chief.

**2.7 Buffering**

Outdoor parking for the apartment buildings and townhouses shall be screened from lots outside of the Development, through the use of:

(a) a mix of local species of coniferous trees. At planting, each tree shall have a diameter of at least 2 in. measured at 4.5 ft. (1.37 m.) above the surrounding grade and a minimum height of 5 ft. (1.52 m.); or

(b) a hedge of a variety of coniferous shrubs each of which will reach over 6 ft. (1.83 m.) in height at maturity; or

(c) a wall or an opaque fence which is a minimum of 5 ft. (1.52 m.) in height and of sufficient height to provide a visual buffer to the abutting property; or

any combination of the above, all arranged to form a dense or opaque screen, and shall be maintained to that standard.

**2.8 Site Drainage**

(a) No development permit shall be issued until the Owner provides to the Development Officer a stormwater management plan that satisfies the Municipal Engineer that historical flooding patterns and area drainage systems have been

considered and that storm water discharge will balance pre- and post-construction flows to ensure there is no negative impact on downstream properties. If the stormwater management plan provided by the Owner does not in fact balance pre-and post-construction flows to ensure the absence of such impacts the Owner shall undertake such remediation as the Municipal Engineer may reasonably require.

(b) The Owner shall undertake all construction activities in accordance with an erosion and sedimentation control plan prepared by a Professional Engineer, unless otherwise directed by Nova Scotia Environment, and also agrees to assume sole responsibility for compliance with all regulations of Nova Scotia Environment.

**2.9 Servicing**

**(a) Waste Collection**

(i) No Municipal garbage collection will be provided to the apartment buildings. The Owner shall have sole responsibility for collecting, storing and disposing of garbage and other recycling or waste items from the apartment buildings.

(ii) The Owner shall keep any outdoor storage of garbage in an enclosed structure or in some way adequately screened so as not to be visible from or cause a nuisance to nearby properties and abutting roads and it shall not be located closer than 10 ft. (3.05 m.) to an abutting property.

**(b) Water and Sewer Services**

(i) The buildings shall be serviced with water and sewer services provided by West Hants Regional Municipality authorized by the Municipal Engineer. Detailed design plans of the water and sewer servicing connections and layout shall be in accordance with the Municipal Services Specifications Manual and shall be submitted to the Municipal Engineer for approval prior to construction.

(ii) The Owner shall be responsible for constructing, installing and maintaining the water and sewer services on the Properties.

**(c) Snow Plowing**

The Owner shall have sole responsibility for snow plowing within the Development, excluding the street extension to Payzant Drive upon conveyance to the Municipality.

**2.10 Maintenance**

(a) The Owner shall keep the Properties and buildings and any portion thereof clean and in good repair. Any driveways, fences, lawns, trees, shrubs, walkways and other landscaping elements shall be regularly maintained and kept in a tidy state and free from unkempt materials or matter of any kind.

(b) The Owner shall maintain the driveways to a level adequate to allow for access by emergency services vehicles.

**2.11 Signs and Lighting**

Signage and illumination shall be regulated under Sections 5.18 and 7.0 of the Land Use By-law, *Illumination* and *Signs*, which controls lighting, size, location, and number of signs. Exterior lighting for driveways, parking areas, signs or structures shall be shielded and directed downward to ensure there is no light spilling, glare or light cast over neighbouring properties or the street.

**2.12 Subdivision**

(a) As noted in Section 2.2 (e) the lot for the apartment building located furthest from the front lot line shall be permitted to be subdivided on a right-of-way approved in writing by the Municipal Engineer.

(b) At the time of subdivision application, the Owner must convey a right-of-way to ensure continued access/egress from the future municipal road and convey easements for any services including but not limited to water, sewer and stormwater, from the lot on which the driveway is constructed in favour of the subsequent lots to ensure continued access/egress and servicing to those lots regardless of future ownership. The Owner acknowledges that the shared driveways from the future Municipal road and the services which may cross the lot on which the driveway is constructed to service the subsequent lots are a joint and several responsibility of each owner of the lots benefiting from the infrastructure.

(c) Subdivision of the properties shall be permitted in accordance with the applicable Subdivision By-law, with the exception of Section 2.12 (a) and the minimum lot size, which shall be 55,000 sq. ft. per lot. No additional parkland or parkland fees shall be required for subdivision or consolidation of the properties subject to this agreement.

(d) Subject to Section 2.2 (b) of this Agreement, any lot(s) subdivided from PID 45343878 that will be developed as townhouses under this Agreement, shall no longer be subject to this Agreement.

**2.13 Variance**

In accordance with Section 5.40 of the Land Use By-law, *Variance*, the Development Officer may grant a variance for one or more of the following requirements subject to the requirements of the *Municipal Government Act*:

(i) minimum required yard dimensions, excepting side yard setbacks, as required in Section 2.2 (c) of this Agreement;
(ii) minimum required yard dimensions as required in Section 2.2 (d) of this Agreement; and
(iii) number of parking spaces required.

**2.14 Road Reserve**

In accordance with the Payzant Drive Extension Plan, a road reserve on PID 45343894 will be required to ensure that there is available land to construct the Payzant Drive extension, as shown on Schedule B. In the event that the Municipal Engineer determines in their discretion that the road reserve is unnecessary for the construction of the Payzant Drive extension, the Developer may construct on this portion of the lot with the permission in writing of the Municipal Engineer and the Development Officer, and changes to the Site Plan reflecting this will be deemed not to be an amendment to this agreement.

**2.15 Phasing**

(a) Construction of the first apartment building and all relevant infrastructure and landscaping as outlined in Section 2.2 (h) of this Agreement shall be completed within seventy-two (72) months of the commencement of Development outlined in Section 4.1 of this Agreement. If, in the opinion of the Development Officer, this time limit has not been met, Development as per this agreement shall no longer be permitted and this Agreement may be discharged in part at the option of the Municipality by resolution of Council in accordance with Section 229 of the Municipal Government Act thirty (30) days after giving Notice of Intent to Discharge to the Owner. Upon the written request of the Owner, the Municipality, by resolution of Council, may grant an extension to the date of commencement of Development without such an extension being deemed to be an amendment to this Agreement.
(b) Construction of all apartment buildings and all relevant infrastructure and landscaping as outlined in Section 2.2 (h) of this Agreement shall be completed within one hundred and twenty (120) months of the actual commencement of the Development provided that such commencement is within the time limit prescribed in Section 4.1 of this Agreement. If, in the opinion of the Development Officer, this time limit has not been met, Development of the

apartment buildings shall no longer be permitted and this Agreement may be discharged in part solely at the option of the Municipality by resolution of Council in accordance with Section 229 of the Municipal Government Act thirty (30) days after giving Notice of Intent to Discharge to the Owner. Upon the written request of the Owner, the Municipality, by resolution of Council, may grant an extension to the date of commencement of Development without such an extension being deemed to be an amendment to this Agreement.

**PART 3 CHANGES AND DISCHARGE**

**3.1** The Owner shall not increase the number of apartment buildings, or the number of units within any apartment buildings on the Properties from that provided for in Section 2.1 of this Agreement, *Use*, unless a new agreement is entered into with the Municipality or this Agreement is amended.

**3.2** Any matters in this Agreement which are not specified in Subsection 3.3 below are not substantive matters and may be changed with the written consent of Council without a public hearing provided that Council determines that the changes do not significantly alter the intended effect of this Agreement.

**3.3** The following matters are substantive matters:

(a) the maximum number of units permitted within the Development and within each component thereof as listed in Section 2.1, *Use*;
(b) the maximum height and storeys of the apartment buildings as listed in Section 2.2, *Development Location and Design;*
(c) the fire safety requirements listed in Section 2.6, *Fire Safety*;
(d) the landscaping requirements in Section 2.7, *Buffering*; and
(e) the requirements for a stormwater management plan to be submitted prior to a development permit being issued as listed in Section 2.8, *Site Drainage*.

**3.4** Upon conveyance of land by the Owner to either:

(a) the Municipality for the purpose of creating or expanding a public street over the Property; or

(b) the Municipality for the purpose of creating or expanding any municipally owned facility or infrastructure over the Property;

registration of the deed reflecting the conveyance shall be conclusive evidence that that this agreement shall be discharged as it relates to the public street or public facility, as the case may be, as of the date of registration with the Land Registry Office, but this Agreement shall remain in full force and effect for all remaining portions of the Property.

**3.5** Notwithstanding the foregoing, discharge of this Agreement is not a substantive matter, and this Agreement may be discharged by Council without a public hearing.

**3.6** Notice of Intent to Discharge this Agreement in whole or in part may be given by the Municipality to the Owner following a resolution of Council to give such Notice:

(a) as provided for in this Agreement; or

(b) at the discretion of the Municipality, with or without the concurrence of the Owner, where the Development has, in the reasonable opinion of Council on advice from the Development Officer, ceased operation for a period of at least twenty-four (24) months; or

(c) at any time upon the written request of the Owner, provided the use of the Properties is in accordance with the Land Use By-law or a new Agreement has been entered into.

**3.7** Council may discharge this Agreement in whole or in part 30 days after a Notice of Intent to Discharge has been given.

**PART 4 IMPLEMENTATION**

**4.1 Commencement of Development**

(a) The Owner may not commence any construction or use on the Property until the Municipality has issued any development permit, building permit and/or occupancy permit that may be required. The date of commencement will be determined as the date the Owner begins Active Construction on the building within this Agreement as permitted by an issued development and building permit.

(b) Active Construction shall commence not later than forty-eight (48) months from the date this Agreement is signed. If, in the opinion of the Development Officer, this time limit has not been met, this Agreement may be discharged at the option of the Municipality by resolution of Council in accordance with Section 229 of the *Municipal Government Act* 30 days after giving Notice of Intent to Discharge to the Owner. Upon the written request of the Owner, the Municipality, by resolution of Council, may grant an extension to the date of commencement of Development without such an extension being deemed to be an amendment to this Agreement.

(c) If the Owner is bona fide delayed from commencing the Development for reasons which are beyond the Owner's control, the determination of which shall be at the sole discretion of the Development Officer, then performance by the Owner is excused for the period of the delay and the time period for the Owner

to perform their obligations shall be extended by the Development Officer in writing for an equivalent period, without such an extension being deemed to be an amendment to this Agreement.

**4.2 Material to be Provided**

(a) The Owner shall provide record drawings to the Development Officer for any portion of the Development for which an engineered design is required, within ten (10) days of completion of any work which requires the engineered design.

(b) The Owner shall, upon written request, provide the Municipality with copies of any documentation, permits or approvals required by Provincial or Federal governments or agencies.

**PART 5 ADMINISTRATION and COMPLIANCE**

**5.1 Compliance with other By-laws and Regulations**

(a) Nothing in this Agreement shall exempt the Owner from complying with Federal, Provincial and Municipal laws, by-laws and regulations in force or from obtaining any Federal, Provincial, or Municipal license, permission, permit, authority, or approval required thereunder.

(b) Where the provisions of this Agreement conflict with those of any by-law of the Municipality applicable to the Properties (other than the Land Use By-law and Subdivision by-law to the extent expressly varied by this Agreement) or any statute or regulation, the higher or more stringent requirements shall prevail.

**5.2 Severability of Provisions**

The provisions of this Agreement are severable from one another and the invalidity or unenforceability of one provision shall not affect the validity or enforceability of any other provision.

**5.3 Interpretation**

(a) Where the context requires, the singular shall include the plural and the masculine gender shall include the feminine and neutral gender.

(b) Where the written text of this Agreement conflicts with information provided in the Schedules attached to this Agreement, the written text of this Agreement shall prevail.

(c) References to particular sections of statutes and bylaws shall be deemed to be references to any successor legislation and bylaws even if the content has been amended, unless the context otherwise requires.

**5.4 Municipal Responsibility**

(a) The Municipality does not make any representations to the Owner about the suitability of the Properties for the Development proposed by this Agreement. The Owner assumes all risks and must ensure that any proposed Development complies with this Agreement and all other laws pertaining to the Development.

(b) Any failure of the Municipality to insist upon a strict performance of any requirements or conditions contained in this Agreement shall not be deemed a waiver of any rights or remedies that the Municipality may have and shall not be deemed a waiver of any subsequent breach or default in the conditions or requirements contained in this Agreement.

**5.5 Breach of Terms or Conditions**

Upon breach of any term or condition of this Agreement, the Municipality may notify the Owner in writing. In the event that the Owner have not cured any such breach or entered into arrangements with the Municipality related to such breach to the Municipality's satisfaction, acting reasonably, within six (6) months of such notice, then the Municipality may rely upon the remedies contained in Section 264 of the *Municipal Government Act* and may enter the land and perform any of the terms contained in the Development Agreement, or take such remedial action as is considered necessary to correct a breach of the Agreement, including the removal or destruction of anything that contravenes the terms of the Agreement and including decommissioning the site. It is agreed that all reasonable expenses, whether arising out of the entry on the land or from the performance of the terms, are a first lien on the land that is the subject of the Development Agreement.

**5.6 Costs**

The Owner shall pay all costs associated with registering this Agreement and all costs associated with any amendment thereof.

**5.7 Development Agreement Bound to Land**

This Agreement shall be binding upon the parties hereto and their heirs, executors, administrators, successors and assigns, and shall run with the land which is the subject of this Agreement until such time as it is discharged by the Municipality in accordance with Section 229 of the *Municipal Government Act*.

**5.8 Assignment of Agreement**

The Owner may, at any time and from time to time, transfer or assign this Agreement and its rights hereunder and may delegate its obligations hereunder to an assign, successor, heir, or purchaser of the land bound by this Agreement.

**5.9 Written Notice**

(a) The Municipality may serve notice on the Owner personally or by ordinary mail which shall be deemed to have been received within three (3) business days of mailing, addressed to Abraham Zebian at 31 Cochrane Lane, Sweets Corner, NS, B0N 2T0, or at any other address provided in writing or email by the Owner.

(b) The Owner may serve notice on the Municipality by registered mail addressed to the Chief Administrative Officer, West Hants Regional Municipality, 76 Morison Drive, P.O. Box 3000, Windsor, NS, B0N 2T0, or at any successor address provided in writing or email by the Municipality to the Owner.

**5.10 Full Agreement**

This Agreement constitutes the entire agreement and contract entered into by the Municipality and the Owner. No other agreement or representation, oral or written, shall be binding.

**IN WITNESS WHEREOF** this Agreement was properly executed by the respective parties hereto on the day and year first above written.

| | |
|---|---|
| **SIGNED, SEALED AND DELIVERED** | **) WEST HANTS REGIONAL** |
| In the presence of: | **) MUNICIPALITY** |
| | ) |
| | ) |
| | ) |
| _____ | Per: _____ |
| Witness | ) Mark Phillips, Chief Administrative Officer |
| | ) |
| | ) |
| | ) |
| _____ | ) Per: _____ |
| Witness | ) Deanna Snair, Municipal Clerk |
| | ) |
| | ) |
| | ) |
| | **) 3324482 NOVA SCOTIA LIMITED** |
| | ) |
| | ) |

)

_____ Per:_____

Witness ) Abraham Zebian, President

**PROVINCE OF NOVA SCOTIA**
**COUNTY OF HANTS**

**ON THIS** day of , A.D. 2024, before me, the subscriber, personally came and appeared , a subscribing witness to the foregoing Indenture, who, having been by me duly sworn, made oath and said that **WEST HANTS REGIONAL MUNICIPALITY**, one of the parties thereto, caused the same to be executed in its name and on its behalf and its corporate seal to be thereunto affixed in presence.

_____

A Commissioner of the Supreme Court of Nova Scotia

**PROVINCE OF NOVA SCOTIA**
**COUNTY OF HANTS**

**ON THIS** day of , A.D. 2024, before me, the subscriber, personally came and appeared , a subscribing witness to the foregoing Indenture, who, having been by me duly sworn, made oath and said that, **Abraham Zebian**, one of the parties thereto, signed, sealed and delivered the same in presence.

_____

A Commissioner of the Supreme Court of Nova Scotia

**AFFIDAVIT OF CLERK**

**WEST HANTS REGIONAL MUNICIPALITY**

I, Deanna Snair of _____, Hants County, Nova Scotia make oath and swear that:

1. I am the Clerk of the West Hants Regional Municipality (the "Municipality") and I have personal knowledge of the matters to which I have sworn in this Affidavit.

2. The Municipality is a body corporate pursuant to the *Municipal Government Act*, S.N.S. 1988, c.18, as amended.

3. I acknowledge that the Municipality executed the attached Instrument by its proper designates duly authorized in that regard under seal on the date of this Affidavit pursuant to subsection 13(3) of the *Municipal Government Act*, S.N.S. 1988, c.18, as amended. This acknowledgement is made pursuant to subsection 31(a) of the Registry Act, R.S.N.S. 1989, c.392 and/or clause 79(1)(a) of the Land Registry Act, S.N.S. 2001, c.6, as amended, for the purpose of registering or recording the Instrument.

4. The Municipality is resident in Canada for the purposes of the Income Tax Act (Canada).

I certify that on this _____, 2024
the Municipal Clerk, Deanna Snair came before me, made oath,
and swore the foregoing affidavit at
_____, Nova Scotia.

_____
A BARRISTER/COMMISSIONER OF THE
SUPREME COURT OF NOVA SCOTIA

_____
Deanna Snair, Clerk

Canada
Province of Nova Scotia

**AFFIDAVIT & PROOF OF EXECUTION (CORPORATE)**

I, Abraham Zebian, Nova Scotia, make oath and say that:

1. I, Abraham Zebian, of **3324482 NOVA SCOTIA LIMITED** the "Corporation". Except as otherwise stated I have personal knowledge of the matters to which I have sworn in this Affidavit.

2. I acknowledge that I executed the foregoing instrument on behalf of the Corporation on the date of this affidavit; this acknowledgment is made for the purpose of registering such instrument pursuant to s.31(a) of the Registry Act, R.S.N.S. 1989, c.392 or ss.79 and 83 of the Land Registration Act as the case may be.

3. I verify that I have the authority to execute the foregoing instrument on behalf of the corporation and thereby bind the Corporation.

4. The Corporation is a resident of Canada under the Income Tax Act (Canada).

5. The Ownerhip of a share or an interest in a share of the Corporation does not entitle the owner of such share or interest in such share to occupy a dwelling owned by the Corporation.

I certify that on this _____, 2024
the Deponents came before me, made oath,
and swore the foregoing affidavit at
_____, Nova Scotia.

_____ _____

A BARRISTER/COMMISSIONER OF THE SUPREME COURT OF NOVA SCOTIA

Abraham Zebian, President

**Schedule A**
**Legal Description**

**PID 45053030**

ALL THAT lot of land and premises, situate, lying and being in the Town of Windsor, County of Hants, Province of Nova Scotia, being PID # 45053030 and bounded and described as follows:

BOUNDED AND LYING north and east of the road allowance owned by the Town of Windsor, shown as Lot A on an Expropriation Plan registered in the Land Registry Office for the County of Hants on January 01, 1971 as Plan # 126, and being PID # 45213980;

BOUNDED AND LYING south and west of those lands owned by HER MAJESTY THE QUEEN and shown on a plan of survey (Field Plot No. P-063/02) signed on the 14th day of June, 2002 by Greg Smith, Nova Scotia Land Surveyor, and filed in the Department of Natural Resources Office, Halifax, Province of Nova Scotia;

AND BOUNDED AND LYING north of the lands more particularly described as follows and being PID # 45343894:

ALL that certain lot, piece or parcel of land situate, lying and being at Windsor in the County of Hants, Province of Nova Scotia and being more particularly described as follows:

BEGINNING at a survey marker placed on a northern boundary of Lot AB-1, land now or formerly of Dwight Banks, situate (by grid bearings referenced to the Nova Scotia Three degree Modified Transverse Mercator Projection, Zone 5, central meridian Sixty-four degrees Thirty minutes West longitude) North Sixty-four degrees Seventeen minutes Zero One seconds East a distance of Two Hundred Twenty-six decimal Nine Six Three metres from Nova Scotia Coordinate Monument No. 8629 having coordinate values (Northing 4,982,024.877 metres, Easting 5,529,748.857 metres);

THENCE (from the place of beginning) South Sixty-seven degrees Zero Zero minutes Zero Zero seconds West following a northern boundary of Lot AB-1, land now or formerly of Dwight Banks, a distance of One Hundred Thirty-six decimal Six Nine Seven metres to a survey marker on a northern boundary of Parcel OHR-2, land now or formerly of the Town of Windsor, formerly the Old Halifax Road;

THENCE South Eighty-six degrees Twenty-one minutes Twenty-three seconds West following a northern boundary of Parcel OHR-2, land now or formerly of the Town of Windsor, formerly the Old Halifax Road, a distance of Four decimal Four Two Eight metres to a southeastern corner of Lot D, land now or formerly of the Town of Windsor;

THENCE northwesterly following an eastern boundary of Lot D, land now or formerly of the Town of Windsor, to a point being the southwest corner of lands now or formerly of Gary Edward Dill;

THENCE following the southerly boundary of lands now or formerly of Gary Edward Dill to a survey marker placed on a southwestern boundary of lands now or formerly of Her Majesty the Queen, in right of the Province of Nova Scotia, being the Avon View High School lands;

THENCE South Twenty-eight degrees Thirty-eight minutes Fifty-one seconds East following a southwestern boundary of the said school land a distance of Eighty-three decimal Two Nine Five metres to the place of beginning.

The parcel is exempt from the requirement for subdivision approval under the Municipal Government Act because it is the remainder parcel after the subdivision of Adjoining lands.

**PID 45343878**

ALL THAT lot of land and premises, situate, lying and being in the Town of Windsor, County of Hants, Province of Nova Scotia, being PID # 45343878 and bounded and described as follows:

BOUNDED AND LYING south and west of the road allowance owned by the Town of Windsor, shown as Lot A on an Expropriation Plan registered in the Land Registry Office for the County of Hants on January 01, 1971 as Plan # 126, and being PID # 45213980;

AND BOUNDED AND LYING east of the railway lands being PID # 45343894 and shown on Retracement Plan 7004B registered in the Land Registry Office for the County of Hants on January 01, 1993;

AND BOUNDED AND LYING south of the lands conveyed by Annie May Burgess to the Nova Scotia Farm Loan Board by a deed dated the 30th day of September, 1981 and recorded in the Land Registry Office for the County of Hants as Document number 500884241 and being PID # 45358314;

AND BOUNDED AND LYING north and west of the lands conveyed by Phillip Burgess and Patricia Burgess to Gary E. Dill by a deed recorded in the Land Registry Office for the County of Hants on April 14, 2005 as Document number 81731110 and being PID # 45234382;

AND BOUNDED AND LYING north and west of lands owned by the Town of Windsor and described as Part D on a Plan of Survey filed as P-284 in the Land Registry Office for the County of Hants and being PID # 45234416;

AND BOUNDED AND LYING north and west of lands owned by Wilfred J Jodrey as shown on a Plan of Survey filed as P-284 in the Land Registry Office for the County of Hants and being PID # 45053048;

The parcel is exempt from the requirement for subdivision approval under the Municipal Government Act because it is the remainder parcel after the subdivision of adjoining lands.

**PID 45343894**

ALL that certain lot, piece or parcel of land situate, lying and being at Windsor in the County of Hants, Province of Nova Scotia and being more particularly described as follows:

BEGINNING at a survey marker placed on a northern boundary of Lot AB-1, land now or formerly of Dwight Banks, situate (by grid bearings referenced to the Nova Scotia Three degree Modified Transverse Mercator Projection, Zone 5, central meridian Sixty-four degrees Thirty minutes West longitude) North Sixty-four degrees Seventeen minutes Zero One seconds East a distance of Two Hundred Twenty-six decimal Nine Six Three metres from Nova Scotia Coordinate Monument No. 8629 having coordinate values (Northing 4,982,024.877 metres, Easting 5,529,748.857 metres);

THENCE (from the place of beginning) South Sixty-seven degrees Zero Zero minutes Zero Zero seconds West following a northern boundary of Lot AB-1, land now or formerly of Dwight Banks, a distance of One Hundred Thirty-six decimal Six Nine Seven metres to a survey marker on a northern boundary of Parcel OHR-2, land now or formerly of the Town of Windsor, formerly the Old Halifax Road;

THENCE South Eighty-six degrees Twenty-one minutes Twenty-three seconds West following a northern boundary of Parcel OHR-2, land now or formerly of the Town of Windsor, formerly the Old Halifax Road, a distance of Four decimal Four Two Eight metres to a southeastern corner of Lot D, land now or formerly of the Town of Windsor;

THENCE northwesterly following an eastern boundary of Lot D, land now or formerly of the Town of Windsor, to a point being the southwest corner of lands now or formerly of Gary Edward Dill;

THENCE following the southerly boundary of lands now or formerly of Gary Edward Dill to a survey marker placed on a southwestern boundary of lands now or formerly of Her Majesty the Queen, in right of the Province of Nova Scotia, being the Avon View High School lands;

THENCE South Twenty-eight degrees Thirty-eight minutes Fifty-one seconds East following a southwestern boundary of the said school land a distance of Eighty-three decimal Two Nine Five metres to the place of beginning.

SUBJECT to an easement for access and drainage over the above described lands and known as Easement C and being more particularly described as follows:

BEGINNING at a point situated on a northern boundary of Lot AB-1, land now or formerly of Dwight Banks, said point also being the southwestern corner of Parcel B and situate (by grid bearings referenced to the Nova Scotia Three degrees Modified Transverse Mercator Projection, Zone 5, central meridian Sixty-four degrees Thirty minutes West longitude) North Sixty-four degrees Seventeen minutes Zero One seconds East a distance of Two Hundred Twenty-six decimal Nine Six Three metres from Nova Scotia Coordinate Monument No. 8629 having coordinate values (Northing 4,982,024.877 metres, Easting 5,529,748.856 metres);

THENCE (from the place of beginning) South Sixty-seven degrees Zero Zero minutes Zero Zero seconds West following a northern boundary of Lot AB-1, land now or formerly of Dwight Banks a distance of One Hundred Thirty-six decimal Six Nine Seven metres to a point situated on a northern boundary of Parcel OHR-2, land now or formerly of the Town of Windsor, formerly the Old Halifax Road;

THENCE South Eighty-six degrees Twenty-one minutes Twenty-three seconds West following a northern boundary of Parcel OHR-2, land now or formerly of the Town of Windsor, formerly the Old Halifax Road, a distance of Four decimal Four Two Eight metres to a southeastern corner of Lot D, land now or formerly of the Town of Windsor;

THENCE North Zero Eight degrees Fifty-five minutes Twenty-four seconds West following an eastern boundary of Lot D, land now or formerly of the Town of Windsor, a distance of Nineteen decimal Two Two Six metres to a point;

THENCE North Sixty-seven degrees Zero Zero minutes Zero Zero seconds East a distance of One Hundred Thirty-four decimal Two Zero Nine metres to a point situated on a southwestern boundary of Parcel B, which said Parcel B forms a portion of lands now or formerly of Her Majesty the Queen in right of the Province of Nova Scotia, being the Avon View High School lands;

THENCE South Twenty-eight degrees Thirty-eight minutes Fifty-one seconds East following a southwestern boundary of Parcel B a distance of Twenty decimal Two One Five metres to the place of beginning.

The above described Easement C contains Zero decimal Two Seven Seven hectares.

**PID 45234382**

All that certain parcel of land situate at Currys Corner, Windsor, in the County of Hants, Province of Nova Scotia being a triangular piece of land lying to the west of Town of Windsor sewer line which said parcel is sketched as Harry Burgess and Ivan Burgess (Nova Scotia Farm Loan Board) on a Plan of Survey entitled Lands shown as Lots A, B, C, D, & E under Conveyance to the Town of Windsor for a Proposed Sewer Line Right-of-Way, said Lands being in or at

Currys Corner, in the Town of Windsor, NS made by E. Elliott, NSLS and recorded at the Office of the Registry of Deeds for the Registration District of Hants County on Januray 2, 1973 under Plan No. P-284, which said parcel may be more particularly bounded and described as follows:

Beginning at the point on the Westerly boundary of lands of the Town of Windsor shown as Lot A on said plan, intersects the northeasterly boundary of lands formerly of John Dill, now of Gary E. Dill;

Thence North 14 degrees 08 minutes East along lands of the Town of Windsor a distance of 102.0 feet to a point;

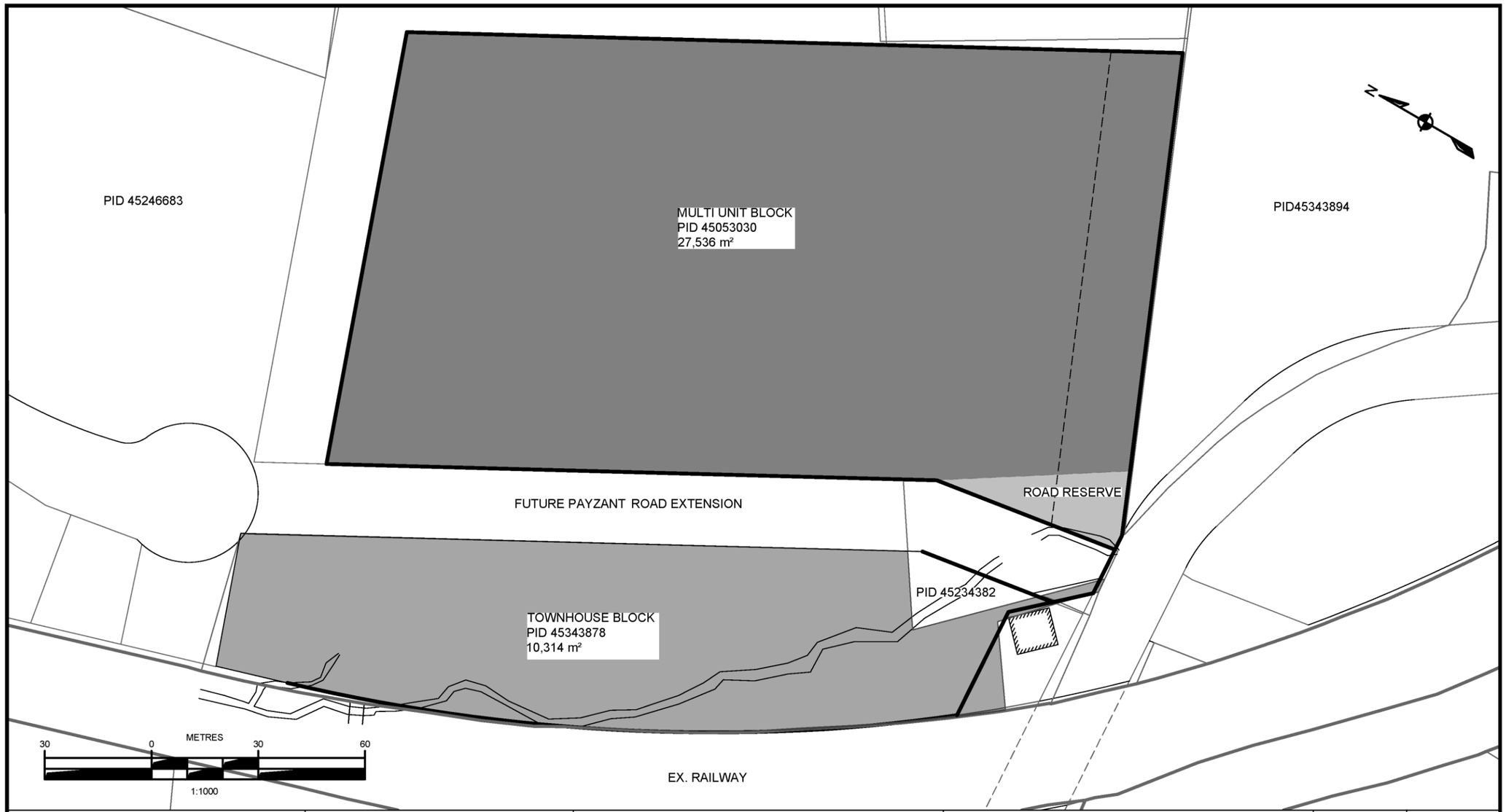
Thence North 7 degrees 45 minutes West continuing along lands of the Town of Windsor a distance of 9 feet, more or less, to a Southeasterly boundary of lands of Gary E. Dill;

Thence South 79 degrees 58 minutes West along lands of Gary E. Dill a distance of 59 feet, more or less to a point;

Thence South 19 degrees 20 minutes East along lands of Gary E. Dill to the place of beginning.

All bearings are magnetic for the year 1971.

**Schedule B**
**Site Plan**




| CONSULTANT | CLIENT | PROJECT DESCRIPTION | SHEET DESCRIPTION | | |
|---|---|---|---|---|---|
| DESIGNPOINT<br>engineering • surveying • solutions<br>902.832.5597 designpoint.ca | PG DEVELOPMENTS | PAYZANT DRIVE EXTENSION<br>WINDSOR, NOVA SCOTIA | SITE PLAN | Engineer: N. FOUGERE<br>Scale: 1:1000<br>Project No.: 22-269<br>Filename: 22-269_Phases.dwg | Drawn: S. LOPES<br>Date: Jan. 29, 2024<br>Drawing No.: 01<br>1 OF 01 |

P:\2022\22-269 Parsons Green - Payzant Drive\01 - Drawings\Eng Design\Sheets\22-269_Phases.dwg, Plot Date: 2024-Jan-29, Plot Size: ANSI FULL BLEED B (11.00 X 17.00 INCHES)

**Attachment C – Public Information Meeting Notes**
**May 11 - May 25, 2023**
**Development Agreement: PIDs 45053030, 45343878, 45343894, and 45234382, Payzant Drive ; File # 23-04**

| | |
|---|---|
| **Meeting date and time** | A Public Information Meeting was held on May 11, 2023 beginning at 6:22 p.m. The meeting was broadcast live on the Municipal Facebook page. |
| **Attending** | In attendance for the first meeting:<br>One (1) Chair:<br>• Jennifer Nicholls (Chair)<br>Four (4) members of staff:<br>• Director Poirier<br>• Planner Dunphy<br>• Planner Fredericks<br>• Planning Assistant Lake<br>PAC/HAC Members:<br>• Councillor Ivey<br>• Councillor Murley<br>• Jane Davis<br>• Stefan Palios<br>• Tasha Rogers<br>• Lisa Bland<br>Approximately 15 members of the public. |
| **Applicant**<br>Noel Taiani on behalf of Abraham Zebian<br>**Property**<br>Payzant Drive, Windsor<br>Multiple Use Residential<br>(PIDs 45053030, 45343878, 45343894, and 45234382) | Planner Dunphy outlined the application to allow up to 280 apartment units and 18 townhouse units grouped on the subject lots by development agreement.<br><br>The applicant did not give a presentation. |
| **Comments** | Comments from the public could be submitted to Alex Dunphy by mail, e-mail and telephone between May 11 – May 25, 2023.<br>Staff received 2 pieces of written submissions during the comment period, included at the bottom of this chart.<br>5 members of the public spoke during the Public Information Meeting. The following are the comments from the public. |

| | |
|---|---|
| | Staff, Chair and applicant responses are included in purple text.<br>• Grant Burgess commented that they live nearby and indicated that they were concerned with the sewer line that runs nearby the brook.<br>• Rick Percal indicated that the sewer line runs through the proposal land. Rick also asked if the road would be extended from Payzant and if the road would connect to King Street and had concerns with traffic. Jennifer Nichols responded that concerns would be brought to the appropriate authorities to address issues such as traffic.<br>• Grant Burgess indicated that the trail between the development was not a right-of-way but was being used as such by the public. Grant was concerned with the traffic on this piece of land.<br>• David Pemberton had concerns regarding the traffic and how it would be addressed. Alex Dunphy replied that part of the application process is to address issues such as traffic through consultation with the Public Works Department and the Municipal Traffic Authority.<br>• Kathy Pemberton was concerned with the view from their property being blocked and the value of their property.<br>• Rick Percal asked what would be developed on the smallest property (PID 45234382). Alex Dunphy replied that nothing was indicated to be located on that property in the proposal and that sometimes the project area includes pieces of land that are not developed on.<br>• Kathy Pemberton asked who the developer was and where they were located. Alex Dunphy replied that the developer was Parsons Green Developments and were present at the meeting.<br>• David Cameron asked where the developer was from and how they acquired the property. David also commented that apartment buildings would introduce more cars and garbage to the area. |
| **Adjournment** | The presentation portion of the PIM ended at approximately 6:38 p.m. |

**Public Email Responses Submitted for the Application**

**May 12, 2023**
**From** Tamara Stevens
**To** Alex Dunphy

Good day,

I wanted to comment on the proposed rezoning for the area on Payzant Dr. The pictures indicate that the area has been cleared and I am guessing it was probably farmland. I am quite concerned with the amount of farmland that is being rezoned both province-wide and locally. The population is increasing, and we are going to continue to need more food not less. I do not believe farmland should be rezoned at all regardless of how long it has been unused. We should be encouraging groups or individuals to develop any unused farmland for growing food not vineyards, actual food. As well, I would be interested in what level of rent will be demanded of tenants. If these apartments are going to be anything but low income, I don't believe that this is good development as I believe it would encourage people from outside the area rather than address the lack of living space for current residents. We have many struggling to find affordable housing, but the developers are only interested in what they can make a profit on. I think it important for government to determine this information prior to approval.

L.Tamara Stevens

---

**May 25, 2023**
**From** John Edgecombe
**To** Alex Dunphy

Dear Mr Dunphy, my name is John Edgecombe and live at *ADDRESS REMOVED* as well own the commercial property at *ADDRESS REMOVED*.

I sat through the public meeting on the 11th and after hearing what is proposed I wanted to send you a note.

The property in mention is zoned single family homes and I feel it should remain that way. As we build our community with families and seniors we need to keep our "town" feeling. If I wanted to be in the city I would have lived there. Having four (4) 70 unit apartments in front of high school with one access road seems absurd. Along with de-valuing our properties. I know West Hants wants to grow and we have lots of space to do that, but let's keep it the way it is as a community. We do not need to become a Bayers Lake with apartments everywhere and nobody knowing their neighbors. Plus, we do not have the infrastructure in place for that many more cars, sewer systems or even people.

As well, I have no idea what it will do to the brook that runs through the property environmentally wise either.

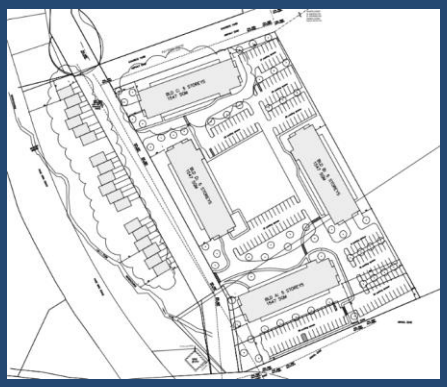
Anyway my two cents worth, I agree to the single family homes but NOT to the apartment buildings.

Sincerely,

John Edgecombe

**Appendix B – 2023-07-26 Traffic Impact Study – Payzant Drive Development**

DRAFT Traffic Impact Study



July 26, 2023

# Payzant Drive Development

**Windsor, NS**


SUBMITTED BY:

**DesignPoint Engineering & Surveying Ltd.**

90 Western Parkway, Suite 500
Bedford, NS  B4B 2J3

SUBMITTED TO:

**4489461 NS Ltd**

C/O Parsons Green Developments
PO Box 36116, RPO Spring Garden
Halifax, NS B3J 3S9
**Hazelview Investments**

# TABLE OF CONTENTS

# 1.0 INTRODUCTION

## 1.1 PROJECT OVERVIEW

DesignPoint Engineering & Surveying Ltd. has been engaged to complete a traffic impact study for a proposed development on Payzant Drive in Windsor, NS. The development proposes adding 298 residential units through the addition of townhouses and multi-unit buildings. The site will be accessed through an extension of Payzant Drive.

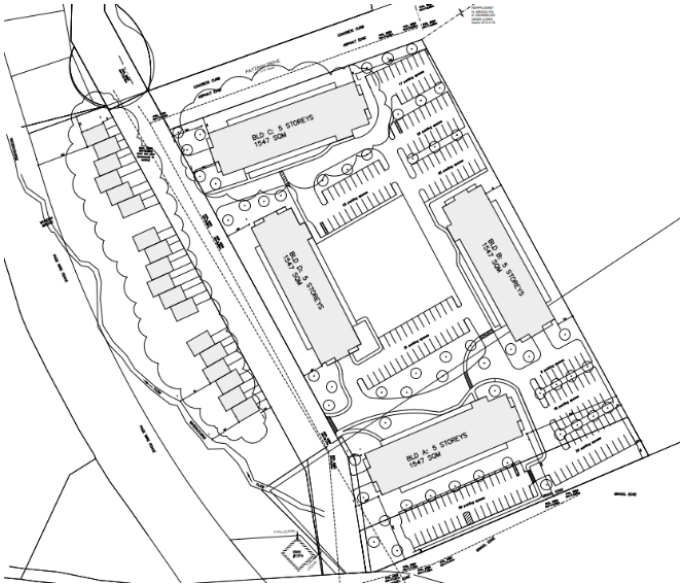


Figure 1 - Proposed Development

## 1.2 STUDY AREA

The site is located at the end of Payzant Drive, adjacent to Avon View High School, as shown in Figure 2. Payzant Drive at Wentworth Road is considered the critical intersection for this analysis, as all other existing intersections are low density residential intersections.


Figure 2 – Proposed development location on Payzant Drive

### *Payzant Drive*

Payzant Drive is two lanes with a posted speed limit of 50km/h. It serves as a primary connection for two destinations: Avon View High School and Hants Community Hospital. Additionally, there are several residential properties on or connecting to Payzant Drive. A sidewalk on the northeast side of the road extends the length of the road. Payzant Drive currently ends at Avon View High School, though the potential for a future connection with King Street has been identified. Payzant Drive is owned by West Hants Regional Municipality.

**Figure 3 - Payzant Drive towards Wentworth Road**

### *Wentworth Road*

Wentworth Road is a two-lane road with a posted speed limit of 50km/h. It serves as a direct connection to Highway 101. Sidewalk on both sides of the road extends from Industrial Drive to O'Brien Street, where sidewalk further extends to King Street on the northwest Side.

Properties on Wentworth Road are primarily commercial, though there is an increase in residential properties towards King Street. Both the West Hants Sports Complex and Hants Exhibition Arena are located on Wentworth Road.

Wentworth Road is owned by West Hants Regional Municipality.

**Figure 4 - Wentworth Road towards Payzant Drive**

### *Payzant Drive at Wentworth Road*

The intersection of Payzant Drive and Wentworth Road is a four-legged, two-way stop-controlled intersection. The commercial driveway on the north side of the intersection acts as the fourth leg. The intersection is stop controlled on Payzant Drive and at the driveway. Payzant Drive and Wentworth Road have left turn lanes with varying storage lengths. The eastbound left turn lane on Wentworth Road has a storage length of 25m, while the westbound left turn lane has a storage length of 80m. The northbound left turn lane on Payzant Drive has a storage length of 60m. Through and right turn movements on Payzant Drive and Wentworth Road share a lane. Through, right, and left turn movements share a lane at the driveway.


**Figure 5 - Existing intersection layout of Payzant Drive and Wentworth Road**

The Municipality of West Hants is undertaking a detailed design to convert this intersection into a roundabout.

*Future Connections*

A note that ongoing work is happening to the west of this development as part of the "The Crossing" project by Brison Developments. This development is in varying stages of completion, construction, and design but ultimately will include several new connections from Payzant Drive. Community Way will connect Payzant Drive to Irven Drive, and Underwood Drive will eventually connect with links to Irven Drive and Cole Drive. From these connections, a road user can navigate through the development to both Wentworth Road and King Street.

For the purposes of this study, we have not included traffic redistribution from either of these connections. This is based largely on two main considerations: the first is that these connections are non-direct circuitous routes through residential areas which makes them less attractive as through routes for drivers, and the second is that by directing all of the site development traffic away from these connections, we are representing a conservative traffic scenario (that is, likely a worst case scenario).

# 2.0 EXISTING CONDITIONS

## 2.1 EXISTING TRAFFIC VOLUMES

Existing traffic volumes for Payzant Drive at Wentworth Road were obtained from the "Windsor Intersection Infrastructure Needs Assessment" prepared by WSP for the West Hants Regional Municipality. Traffic volumes were collected by WSP on Tuesday, January 19, 2021. Data were collected from 7 AM to 9 AM, 11:30 AM to 1:30 PM, and 3:30 PM to 5:30 PM. A seasonal factor of 1.17 and a COVID-19 factor of 1.05 were applied to the raw count data to account for volume fluctuations on the collection day. Anticipated trips generated by the West Hants Sports Complex and Hants County Exhibition were also added by WSP to the data to finalize the existing intersection volumes for 2021. As part of this traffic study, these volumes were compared with data collected for other private developments in the area and found to be appropriately representative of typical traffic patterns.

To represent 2023 existing volumes, an annual growth of 1.5% was applied to the final existing intersection volumes from the 2021 report. This annual growth was identified in the 2021 WSP assessment as the area's growth based on historical traffic data from Highway 101 Section 60 and accounts for growth from unknown developments.

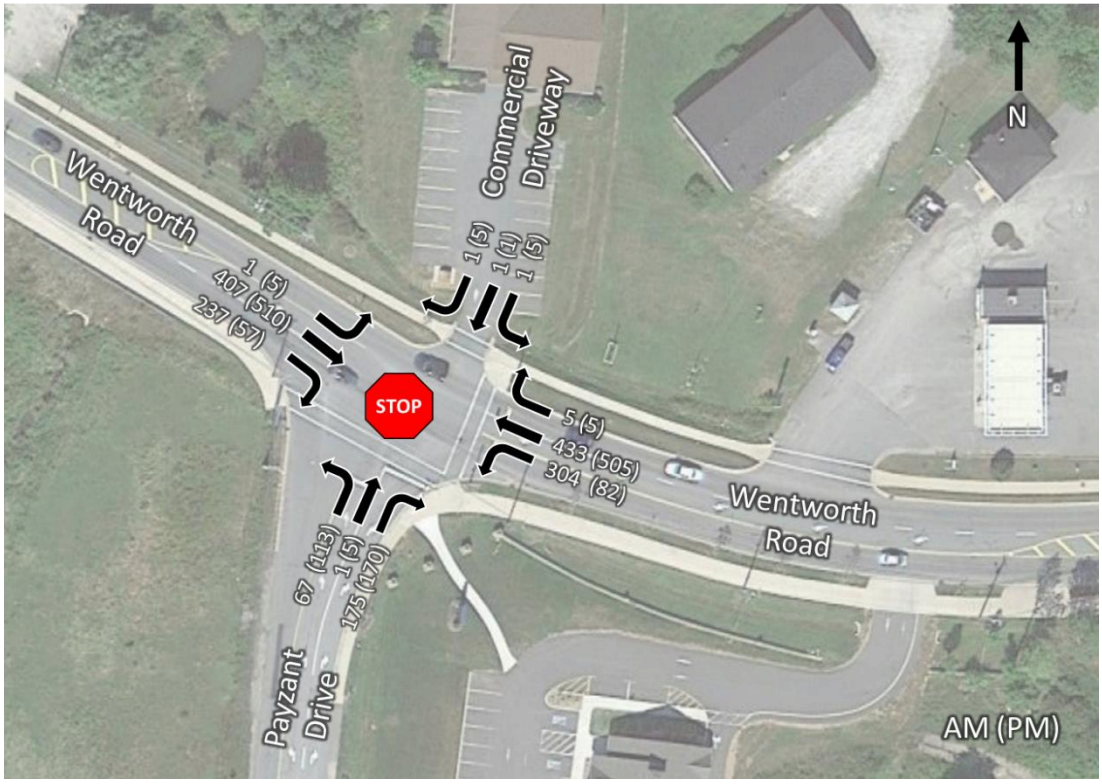



**Figure 6 - 2023 existing traffic volumes for the AM & PM peak hours (based on data from Windsor Intersection Infrastructure Needs Assessment, WSP 2021)**

## 2.2 EXISTING TRAFFIC OPERATIONS

A level of service (LOS) analysis is a method to determine how well a transportation facility, typically an intersection, performs from a driver's perspective during a specific period (usually peak hours). The LOS is measured by the average delay of each vehicle travelling through an intersection with grades ranging from A to F, where A is associated with minimal delay, and F is associated with heavily congested conditions. The desired or acceptable level of service can range depending on the location and context of individual streets. Streets within dense urban corridors are expected to experience some level of congestion during peak hours, and a lower level of service (D or E) is usually acceptable. The acceptable level of service of streets within more rural areas would typically be higher (A to C), where congestion and longer delays are unexpected.

The adjacent table provides the level of service criteria as defined in the *Highway Capacity Manual* (Transportation Research Board, 2010) for unsignalized intersections.

**Table 1 - Level of Service Criteria for Unsignalized Intersections**

| Level of Service | Average Control Delay (seconds per vehicle) |
|---|---|
| A | ≤10 |
| B | >10 – 15 |
| C | >15 – 25 |
| D | >25 – 35 |
| E | >35 – 50 |
| F[1] | >50 |

Source: Highway Capacity Manual 2010, *Transportation Research Board, 2010*

*1. If the volume-to-capacity ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by the control delay.*

A level of service analysis has been completed for the intersection using PTV Vistro traffic modelling software. A summary of the AM and PM peak hour level of service measures for the intersection of Payzant Drive at Wentworth Road has been provided in Table 2. The northbound left turn movement is overcapacity in the AM Peak hour with a level of service of F. All other movements operate below capacity.

**Table 2 - Summary of AM & PM peak hour level of service measures for 2023 existing traffic volumes**

| AM Peak Hour - 2023 Existing Traffic | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOS Criteria | Intersection Control | Wentworth Road | | | Wentworth Road | | | Payzant Drive | | | Driveway | | | |
| | | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | Intersection |
| Vehicle Count | STOP | 1 | 407 | 237 | 304 | 433 | 5 | 67 | 1 | 175 | 1 | 1 | 1 | |
| v/c | | 0.00 | 0.00 | 0.00 | 0.32 | 0.00 | 0.00 | 1.12 | 0.01 | 0.32 | 0.03 | 0.02 | 0.00 | |
| Delay (s) | | 8.2 | 0.0 | 0.0 | 10.6 | 0.0 | 0.0 | 269.2 | 56.7 | 14.8 | 108.8 | 64.6 | 13.4 | 14.77 |
| LOS | | A | A | A | B | A | A | F | F | B | F | F | B | B |
| 95th% Queue (m) | | 0.02 | 0.0 | 0.0 | 10.7 | 0.0 | 0.0 | 41.8 | 10.9 | 10.9 | 1.1 | 1.1 | 1.1 | |
| **PM Peak Hour - 2023 Existing Traffic** | | | | | | | | | | | | | | |
| LOS Criteria | Intersection Control | Wentworth Road | | | Wentworth Road | | | Payzant Drive | | | Driveway | | | |
| | | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | Intersection |
| Vehicle Count | STOP | 5 | 510 | 57 | 82 | 505 | 5 | 113 | 5 | 170 | 5 | 1 | 5 | |
| v/c | | 0 | 0 | 0 | 0 | 0 | 0 | 0.8 | 0.03 | 0.31 | 0.06 | 0.01 | 0.01 | |
| Delay (s) | | 8.43 | 0 | 0 | 8.9 | 0 | 0 | 92.26 | 30.61 | 15.29 | 50.2 | 29.7 | 13.36 | 9.77 |
| LOS | | A | A | A | A | A | A | F | D | C | F | D | B | A |
| 95th% Queue (m) | | 0.1 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 38.2 | 11.6 | 11.6 | 1.8 | 1.8 | 1.8 | |

# 3.0 SITE GENERATED TRAFFIC

## 3.1 ACCESS REVIEW

The site plan for the proposed development includes 18 townhouses and four multi-unit mid-rise residential buildings (70 units each), resulting in 298 new residential units. The proposed townhouse driveways will front Payzant Drive, while the multi-unit buildings will be accessed by two driveways at opposite ends of the development. Stopping sight distance at the access driveways has not been reviewed as part of this study since the roadway has not yet been constructed.

The design of the future road extension should consider adequate sight lines at these driveways.

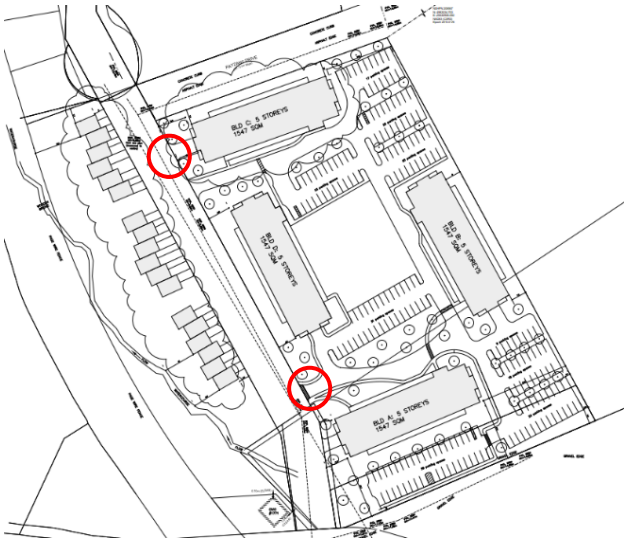


**Figure 7 – Proposed access locations to multi-unit site**

## 3.2 SITE GENERATED TRAFFIC

Site generated traffic has been calculated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual,* 11th Edition. Townhouse trips have been represented by the Single-Family Detached Housing land use to better reflect rural travel patterns. The development is estimated to generate 112 two-way vehicle trips in the AM peak hour and 126 two-way vehicle trips in the PM peak hour.

**Table 3 - Site generated trip calculations**

| Land Use | Code | Units | Variable | Trip Generation Rates[1] | | | | | | Trips Generated | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM Peak | | | PM Peak | | | AM Peak | | PM Peak | |
| | | | | Rate | In | Out | Rate | In | Out | In | Out | In | Out |
| Single-Family Detached Housing | 210 | 18 | Dwelling Units | 0.75 | 0.26 | 0.74 | 0.94 | 0.63 | 0.37 | 4 | 10 | 11 | 6 |
| Multifamily Housing (Mid-Rise) | 221 | 280 | Dwelling Units | 0.35 | 0.26 | 0.74 | 0.39 | 0.6 | 0.4 | 25 | 73 | 66 | 44 |
| Estimated Site Generated Trips | | | | | | | | | | 29 | 83 | 76 | 50 |
| Notes: | Trip generation rates from ITE *Trip Generation Manual* , 11th Edition. | | | | | | | | | | | | |

## 3.3 TRIP DISTRIBUTION

Trip distribution of site generated trips through the study area has been estimated using the distribution of existing traffic volumes. Existing volumes indicate approximately 70% of trips originating from Payzant Drive in the AM peak hour and 60% of trips in the PM peak hour travel towards Highway 101. Due to the proximity and connectivity of Highway 101, it is anticipated site generated trips will also follow this distribution. The estimated distribution is provided in Figure 8, and the distribution of site generated trips at the Payzant Drive and Wentworth Road intersection is shown in Figure 9.

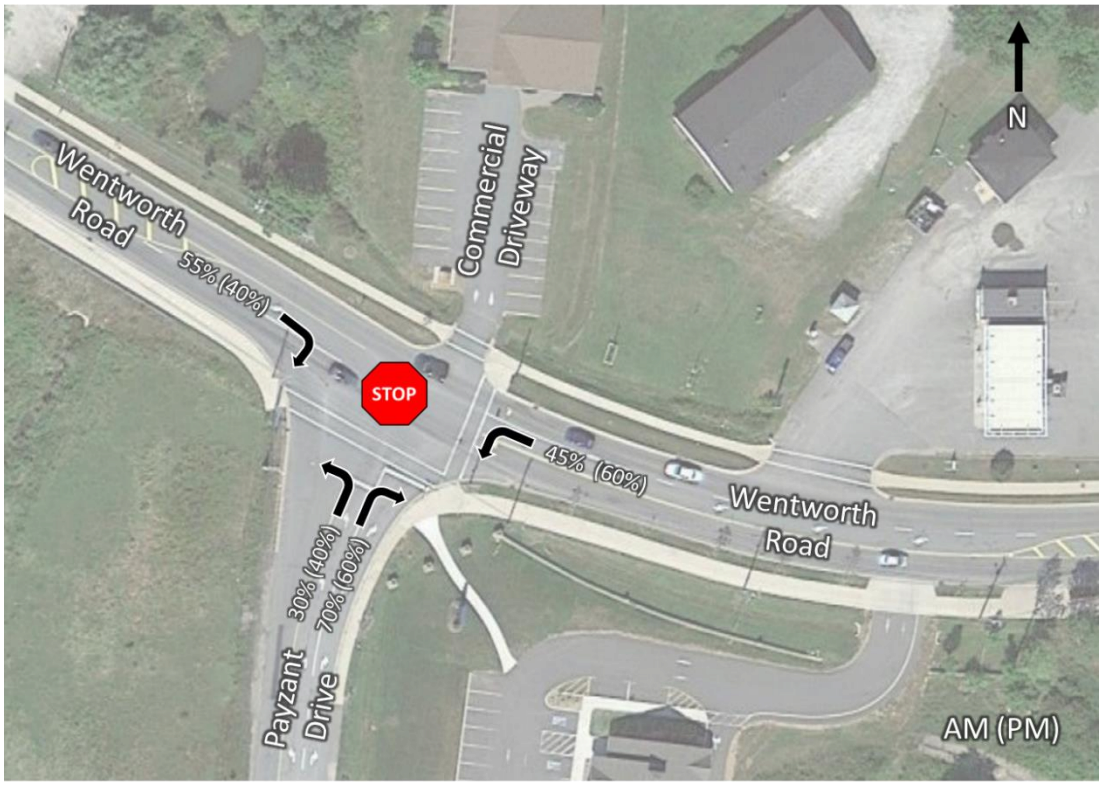



**Figure 8 - Estimated distribution of site generated traffic**

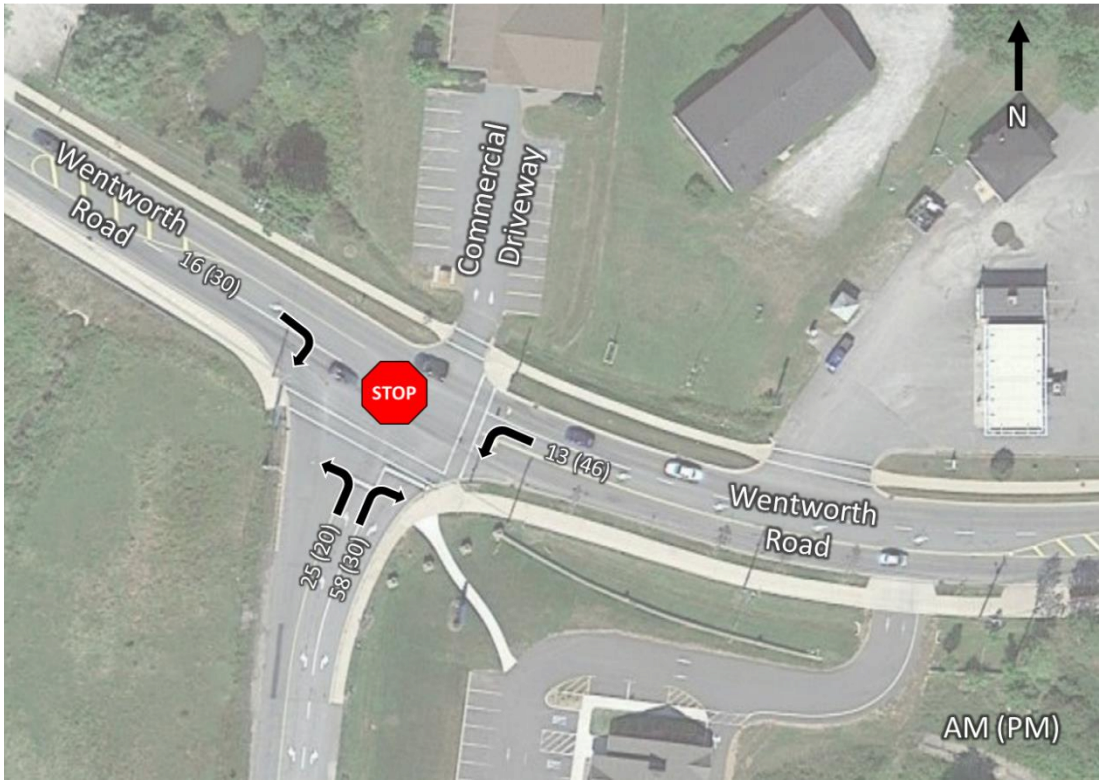



**Figure 9 - AM and PM distribution of site generated traffic at the Payzant Drive and Wentworth Road intersection**

# 4.0 FUTURE CONDITIONS

## 4.1 2033 BACKGROUND TRAFFIC VOLUMES

Background traffic is the traffic added by general annual traffic growth. A 1.5% annual growth rate has been used to calculate background traffic volumes. This annual growth was identified in the 2021 Infrastructure Needs Assessment based on historical traffic trends of Highway 101 Section 60 and to account for growth from unknown developments. All trips from unknown developments are assumed to be captured by this annual growth. This study analyzes a horizon year of 2033 (5 years past an estimated 5-year build out).

As part of the 2021 WSP assessment, the existing intersection was recommended to be upgraded to a roundabout. It is understood that the municipality plans to proceed with this recommendation. Two 2033 background scenarios have been evaluated for this recommendation: the existing two-way stop-controlled intersection and the proposed roundabout. The 2033 Background Traffic Volumes for the two-way stop-controlled scenario are shown in Figure 10, and the 2033 Background Traffic Volumes for the roundabout scenario are shown in Figure 11.

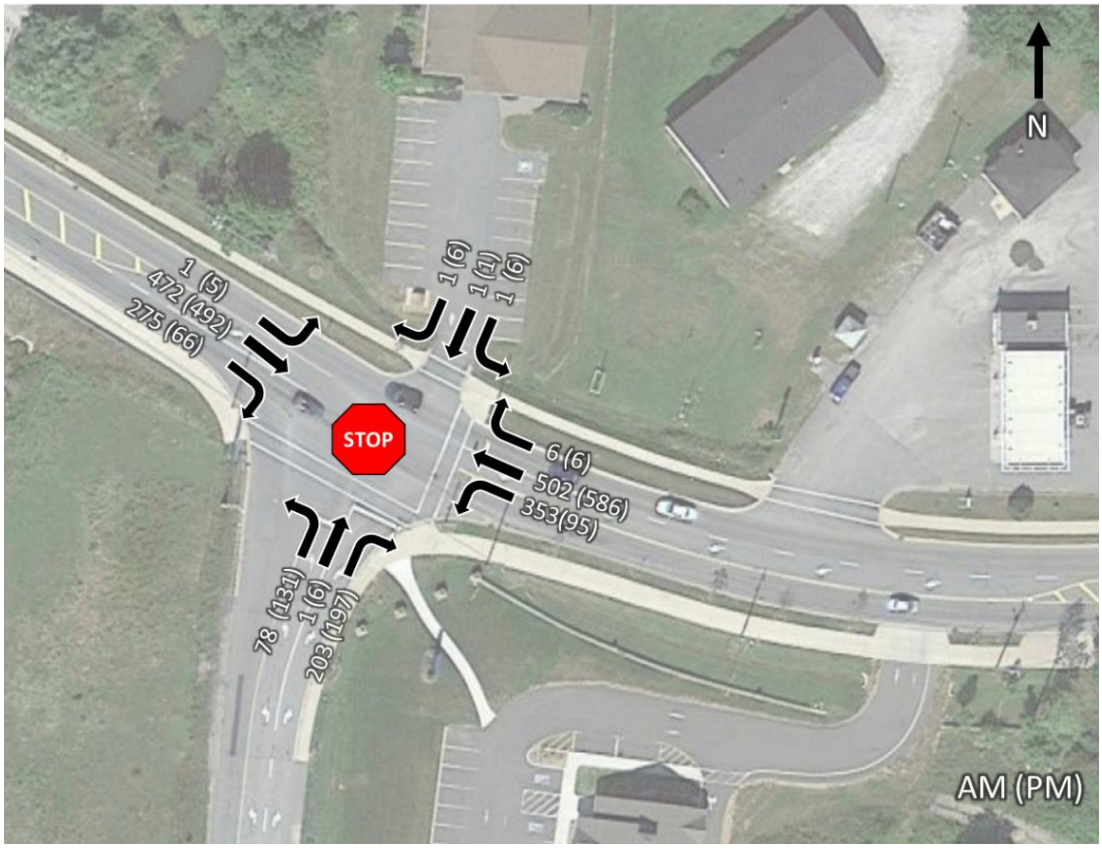



**Figure 10 – 2033 background traffic volumes for the AM & PM peak hours two-way stop-controlled scenario**

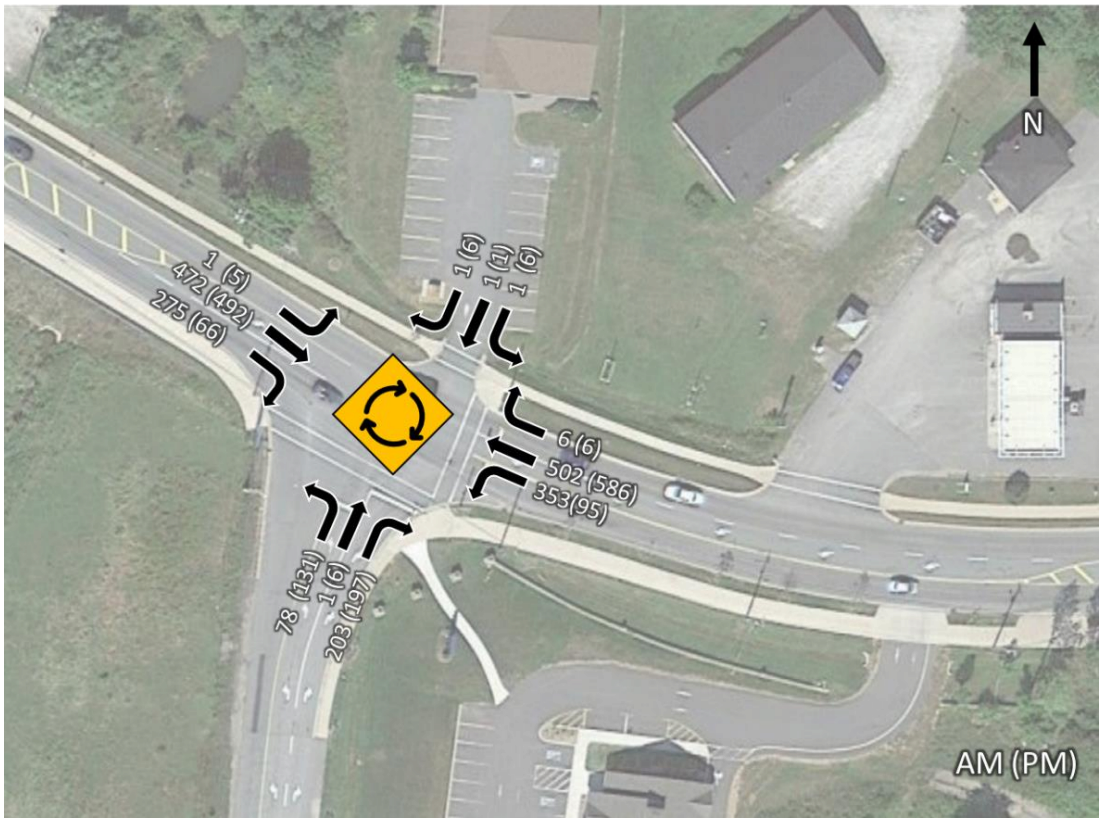



**Figure 11 – 2033 background traffic volumes for the AM & PM peak hours roundabout scenario**

A level of service summary has been completed for the 2033 background traffic volumes to determine how the Payzant Drive at Wentworth Road intersection operates without site generated traffic. A summary of the two-way stop-controlled intersection is provided in Table 4, and a summary of the roundabout is provided in Table 5. In the two-way stop-controlled scenario, northbound left turn movements operate above capacity in the AM and PM peak hours with a level of service of F. With the roundabout, all movements operate below capacity.

**Table 4 - Summary of AM & PM peak hour level of service measures for 2033 two-way stop-controlled background traffic volumes**

| AM Peak Hour - 2033 Background Traffic | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOS Criteria | Intersection Control | Wentworth Road | | | Wentworth Road | | | Payzant Drive | | | Driveway | | | |
| | | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | Intersection |
| Vehicle Count | STOP | 1 | 472 | 275 | 353 | 502 | 6 | 78 | 1 | 203 | 1 | 1 | 1 | |
| v/c | | 0.00 | 0.00 | 0.00 | 0.41 | 0.00 | 0.00 | 2.26 | 0.02 | 0.41 | 0.06 | 0.03 | 0.00 | |
| Delay (s) | | 8.4 | 0.0 | 0.0 | 12.1 | 0.0 | 0.0 | 826.0 | 90.0 | 18.0 | 222.4 | 110.8 | 20.9 | 38.97 |
| LOS | | A | A | A | B | A | A | F | F | C | F | F | C | E |
| 95th% Queue (m) | | 0.02 | 0.0 | 0.0 | 15.4 | 0.0 | 0.0 | 66.9 | 16.4 | 16.4 | 2.0 | 2.0 | 2.0 | |
| **PM Peak Hour - 2033 Background Traffic** | | | | | | | | | | | | | | |
| LOS Criteria | Intersection Control | Wentworth Road | | | Wentworth Road | | | Payzant Drive | | | Driveway | | | |
| | | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | Intersection |
| Vehicle Count | STOP | 6 | 592 | 66 | 95 | 586 | 6 | 131 | 6 | 197 | 6 | 1 | 6 | |
| v/c | | 0.01 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 1.31 | 0.05 | 0.41 | 0.12 | 0.01 | 0.01 | |
| Delay (s) | | 8.7 | 0.0 | 0.0 | 9.3 | 0.0 | 0.0 | 272.6 | 41.1 | 19.0 | 84.2 | 42.2 | 18.5 | 24.32 |
| LOS | | A | A | A | A | A | A | F | E | C | F | E | C | C |
| 95th% Queue (m) | | 0.1 | 0.0 | 0.0 | 2.6 | 0.0 | 0.0 | 70.2 | 17.8 | 17.8 | 3.6 | 3.6 | 3.6 | |

**Table 5 - Summary of AM & PM peak hour level of service measures for 2033 background roundabout background traffic volumes**

| AM Peak Hour - 2033 Background Traffic | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOS Criteria | Intersection Control | Wentworth Road | | | Wentworth Road | | | Payzant Drive | | | Driveway | | | |
| | | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | Intersection |
| Vehicle Count | | 1 | 472 | 275 | 353 | 502 | 6 | 78 | 1 | 203 | 1 | 1 | 1 | |
| v/c | | 0.47 | 0.47 | 0.27 | 0.69 | 0.69 | 0.69 | 0.77 | 0.77 | 0.77 | 0.01 | 0.01 | 0.01 | |
| Delay (s) | | 9.1 | 9.1 | 6.3 | 12.6 | 12.6 | 12.6 | 21.5 | 21.5 | 21.5 | 7.1 | 7.1 | 7.1 | 13.6 |
| LOS | | A | A | A | B | B | B | C | C | C | A | A | A | B |
| 95th% Queue (m) | | 19.69 | 19.7 | 8.6 | 45.6 | 45.6 | 45.6 | 59.0 | 59.0 | 59.0 | 0.1 | 0.1 | 0.1 | |
| **PM Peak Hour - 2033 Background Traffic** | | | | | | | | | | | | | | |
| LOS Criteria | Intersection Control | Wentworth Road | | | Wentworth Road | | | Payzant Drive | | | Driveway | | | |
| | | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | Intersection |
| Vehicle Count | | 6 | 592 | 66 | 95 | 586 | 6 | 131 | 6 | 197 | 6 | 1 | 6 | |
| v/c | | 0.47 | 0.47 | 0.05 | 0.59 | 0.59 | 0.59 | 0.46 | 0.46 | 0.46 | 0.02 | 0.02 | 0.02 | |
| Delay (s) | | 7.7 | 7.7 | 3.3 | 10.4 | 10.4 | 10.4 | 11.5 | 11.5 | 11.5 | 6.5 | 6.5 | 6.5 | 9.35 |
| LOS | | A | A | A | B | B | B | B | B | B | A | A | A | A |
| 95th% Queue (m) | | 19.8 | 19.8 | 1.3 | 30.7 | 30.7 | 30.7 | 18.7 | 18.7 | 18.7 | 0.5 | 0.5 | 0.5 | |

## 4.2 2033 TOTAL TRAFFIC VOLUMES

The 2033 Total Traffic Volumes result from 2033 Background volumes plus site-generated traffic added by the development. Total Traffic Volumes for the stop-controlled scenario are shown in Figure 12, and the Total Traffic Volumes for the roundabout scenario are shown in Figure 13.

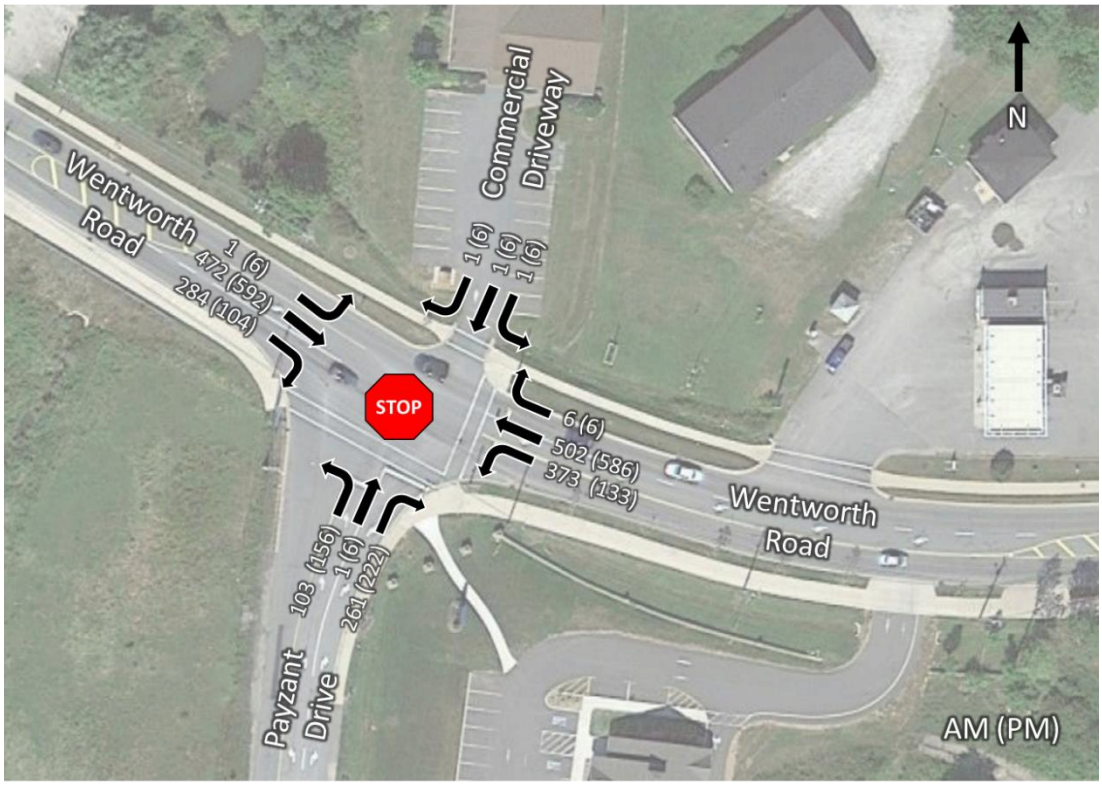



**Figure 12 - 2033 future volumes for the AM and PM peak hours two-way stop controlled scenario**

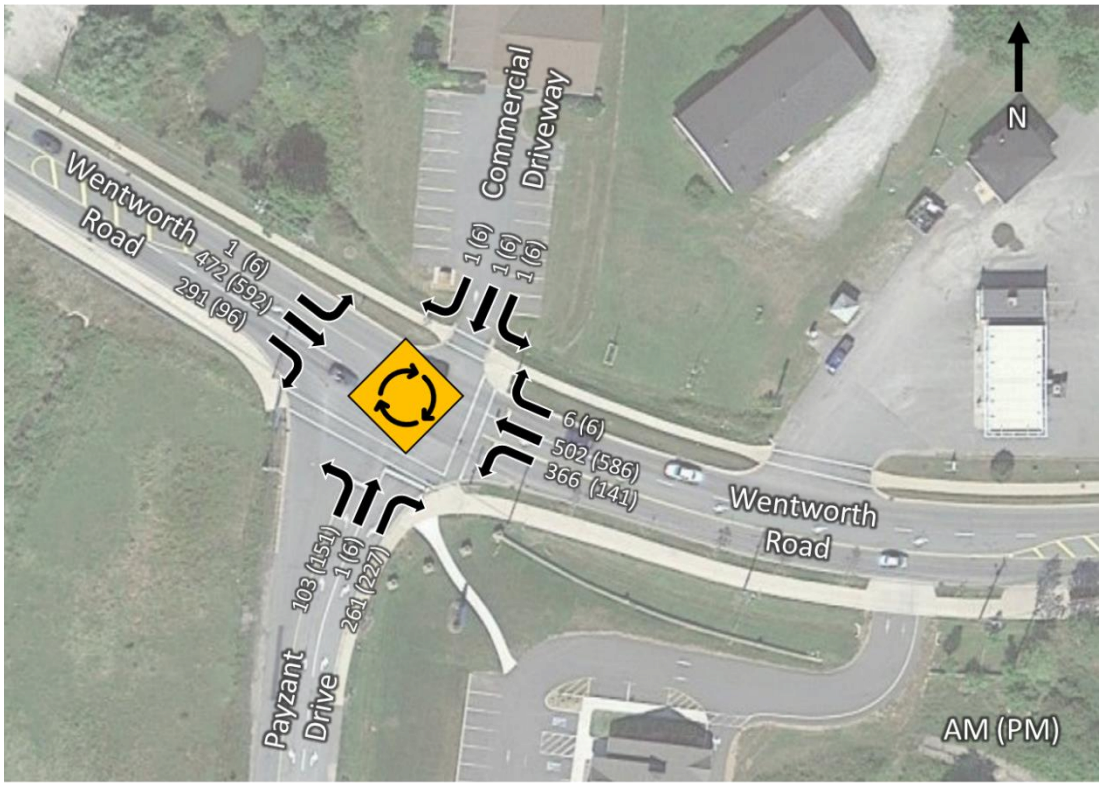



**Figure 13 - 2033 future volumes for the AM and PM peak hours roundabout scenario**

A level of service analysis has been completed for AM and PM peak hours using total traffic volumes to evaluate the impact of traffic added by the development. The analysis has been completed for the existing two-way stop-controlled intersection and the proposed roundabout. The two-way stop-controlled scenario is shown in Table 6, and the roundabout scenario is shown in Table 7. In the AM and PM stop-controlled scenario, northbound left turn movements operate above capacity at a level of service of F. The overall intersection operates at a level of service of F. In the AM and PM roundabout scenario, all movements operate below capacity at a high level of service.

**Table 6 - Summary of AM & PM peak hour level of service measures for 2033 two-way stop-controlled total traffic volumes**

| AM Peak Hour - 2033 Total Traffic | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOS Criteria | Intersection Control | Wentworth Road | | | Wentworth Road | | | Payzant Drive | | | Driveway | | | |
| | | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | Intersection |
| Vehicle Count | STOP | 1 | 472 | 291 | 366 | 502 | 6 | 103 | 1 | 261 | 1 | 1 | 1 | |
| v/c | | 0.00 | 0.00 | 0.00 | 0.43 | 0.00 | 0.00 | 3.28 | 0.02 | 0.53 | 0.08 | 0.03 | 0.00 | |
| Delay (s) | | 8.4 | 0.0 | 0.0 | 12.4 | 0.0 | 0.0 | 1289.0 | 100.6 | 21.6 | 324.1 | 128.3 | 28.6 | 71.55 |
| LOS | | A | A | A | B | A | A | F | F | C | F | F | D | F |
| 95th% Queue (m) | | 0.02 | 0.0 | 0.0 | 16.7 | 0.0 | 0.0 | 92.4 | 25.5 | 25.5 | 2.7 | 2.7 | 2.7 | |
| **PM Peak Hour - 2033 Total Traffic** | | | | | | | | | | | | | | |
| LOS Criteria | Intersection Control | Wentworth Road | | | Wentworth Road | | | Payzant Drive | | | Driveway | | | |
| | | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | Intersection |
| Vehicle Count | STOP | 6 | 592 | 96 | 141 | 586 | 6 | 151 | 6 | 227 | 6 | 1 | 6 | |
| v/c | | 0.01 | 0 | 0 | 0.16 | 0 | 0 | 1.91 | 0.06 | 0.48 | 0.18 | 0.01 | 0.01 | |
| Delay (s) | | 8.7 | 0.0 | 0.0 | 9.7 | 0.0 | 0.0 | 539.9 | 50.8 | 21.9 | 126.7 | 57.6 | 25.8 | 48.90 |
| LOS | | A | A | A | A | A | A | F | F | C | F | F | D | E |
| 95th% Queue (m) | | 0.1 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 101.1 | 23.7 | 23.7 | 5.2 | 5.2 | 5.2 | |

**Table 7 - Summary of AM & PM peak hour level of service measures for 2033 roundabout total traffic volumes**

| AM Peak Hour - 2033 Total Traffic | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOS Criteria | Intersection Control | Wentworth Road | | | Wentworth Road | | | Payzant Drive | | | Driveway | | | |
| | | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | Intersection |
| Vehicle Count | | 1 | 472 | 291 | 366 | 502 | 6 | 103 | 1 | 261 | 1 | 1 | 1 | |
| v/c | | 0.48 | 0.48 | 0.29 | 0.72 | 0.72 | 0.72 | 0.44 | 0.44 | 0.44 | 0.01 | 0.01 | 0.01 | |
| Delay (s) | | 9.3 | 9.3 | 6.6 | 13.8 | 13.8 | 13.8 | 10.0 | 10.0 | 10.0 | 7.4 | 7.4 | 7.4 | 11.00 |
| LOS | | A | A | A | B | B | B | A | A | A | A | A | A | B |
| 95th% Queue (m) | | 20.1 | 20.1 | 9.4 | 50.9 | 50.9 | 50.9 | 17.4 | 17.4 | 17.4 | 0.1 | 0.1 | 0.1 | |
| **PM Peak Hour - 2033 Total Traffic** | | | | | | | | | | | | | | |
| LOS Criteria | Intersection Control | Wentworth Road | | | Wentworth Road | | | Payzant Drive | | | Driveway | | | |
| | | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | Intersection |
| Vehicle Count | | 6 | 592 | 96 | 141 | 586 | 6 | 151 | 6 | 227 | 6 | 1 | 6 | |
| v/c | | 0.49 | 0.49 | 0.08 | 0.64 | 0.64 | 0.64 | 0.53 | 0.53 | 0.53 | 0.02 | 0.02 | 0.02 | |
| Delay (s) | | 8.3 | 8.3 | 3.6 | 11.9 | 11.9 | 11.9 | 13.2 | 13.2 | 13.2 | 6.9 | 6.9 | 6.9 | 10.48 |
| LOS | | A | A | A | B | B | B | B | B | B | A | A | A | B |
| 95th% Queue (m) | | 21.4 | 21.4 | 2.0 | 37.4 | 37.4 | 37.4 | 24.2 | 24.2 | 24.2 | 0.6 | 0.6 | 0.6 | |

# 4.3 FUTURE CONNECTION TO KING STREET

## 4.3.1 2033 Background Volumes

The 2021 WSP assessment evaluated the impacts of extending Payzant Drive to connect to King Street as a stop-controlled T-intersection. The proposed intersection geometry includes a warranted eastbound left turn lane on King Street and separated right and left turning movements on Payzant Drive.

The WSP report evaluated the intersection for 2030 background traffic volumes, where 1.5% annual growth was applied between 2021 and 2030. The background volumes also consider the redistribution of trips caused by the Payzant Drive connection and trips generated by the Hants County Exhibition Expansion.

The 1.5% annual growth was applied for three additional years to reach 2033 background volumes. The 2033 Background Traffic Volumes for the intersection are shown in Figure 15.


**Figure 14 - Approximate location of the future Payzant Drive connection**

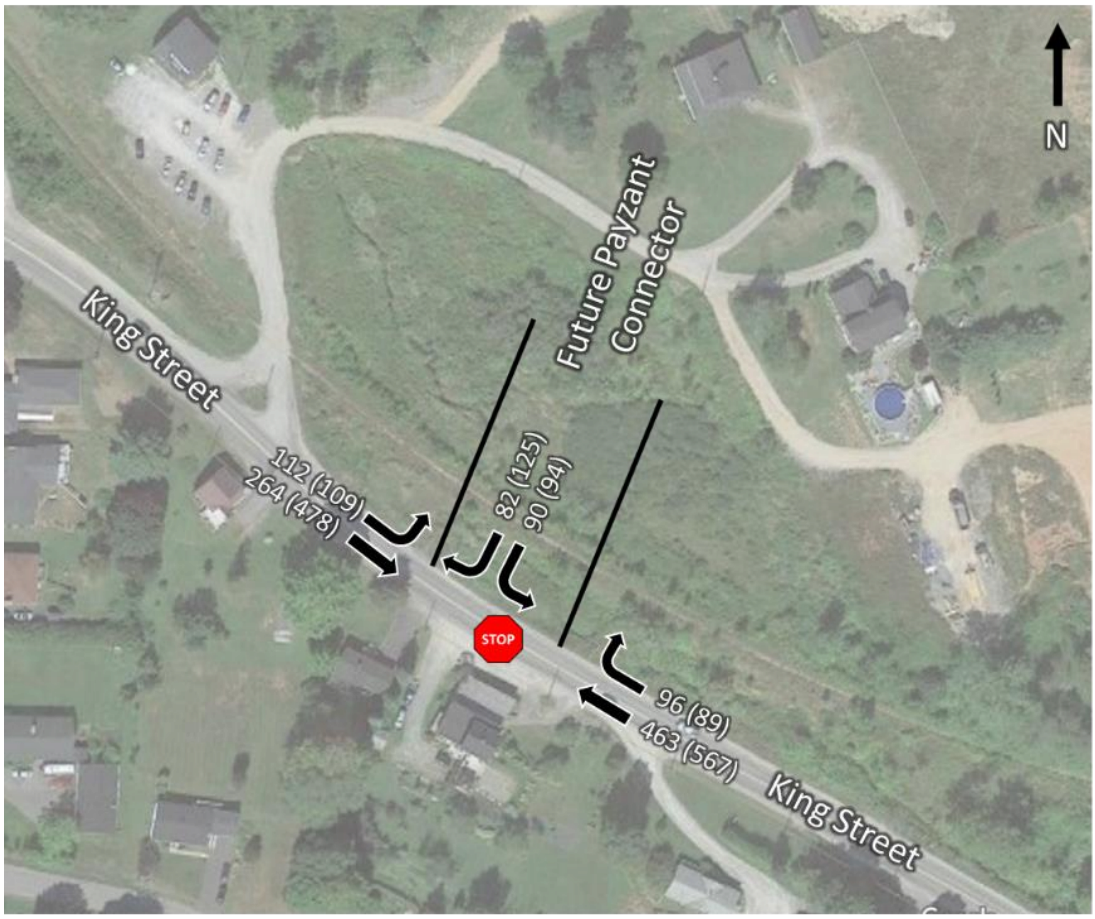



**Figure 15: 2033 background volumes for the AM and PM peak hours at King Street**

A level of service analysis has been completed for AM and PM peak hours using background traffic volumes to evaluate the impact the connection has on traffic operations. A summary of the intersection is shown Table 8. Though the southbound left turn movement experiences a level of service of F and high delays, it operates below capacity.

**Table 8 - Summary of AM & PM peak hour level of service measured for 2033 King Street background traffic volumes.**

| AM Peak Hour - 2033 Background Volumes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOS Criteria | Intersection Control | King Street | | | King Street | | | | | | Payzant Drive | | | |
| | | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | Intersection |
| Vehicle Count | STOP | 112 | 276 | | | 463 | 96 | | | | 90 | | 82 | |
| v/c | | 0.12 | 0.00 | | | 0.00 | 0.00 | | | | 0.39 | | 0.15 | |
| Delay (s) | | 9.0 | 0.0 | | | 0.0 | 0.0 | | | | 30.1 | | 12.5 | 4.26 |
| LOS | | A | A | | | A | A | | | | D | | B | A |
| 95th% Queue (m) | | 2.98 | 0.0 | | | 0.0 | 0.0 | | | | 13.2 | | 3.9 | |
| **PM Peak Hour - 2033 Background Volumes** | | | | | | | | | | | | | | |
| LOS Criteria | Intersection Control | King Street | | | King Street | | | | | | Payzant Drive | | | |
| | | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | Intersection |
| Vehicle Count | STOP | 109 | 478 | | | 567 | 89 | | | | 94 | | 125 | |
| v/c | | 0.12 | 0 | | | 0 | 0 | | | | 0.6 | | 0.25 | |
| Delay (s) | | 9.38 | 0 | | | 0 | 0 | | | | 58.43 | | 14.75 | 5.72 |
| LOS | | A | A | | | A | A | | | | F | | B | A |
| 95th% Queue (m) | | 3.0 | 0.0 | | | 0.0 | 0.0 | | | | 24.6 | | 7.9 | |

### 4.3.2 Trip Distribution

Considering the distribution of site generated trips to the future intersection of Payzant Drive and King Street, we have assumed an even split between vehicles heading north and south. In this scenario there is 50% of site generated trips are assigned to the new intersection.

Distribution of trips at the future Payzant Drive and King Street intersection has been estimated using the distribution proposed in the 2021 Infrastructure Needs Assessment. The turning movement distribution at Payzant Drive and King Street is shown in Figure 16. The site generated trip distribution is shown in Figure 17.

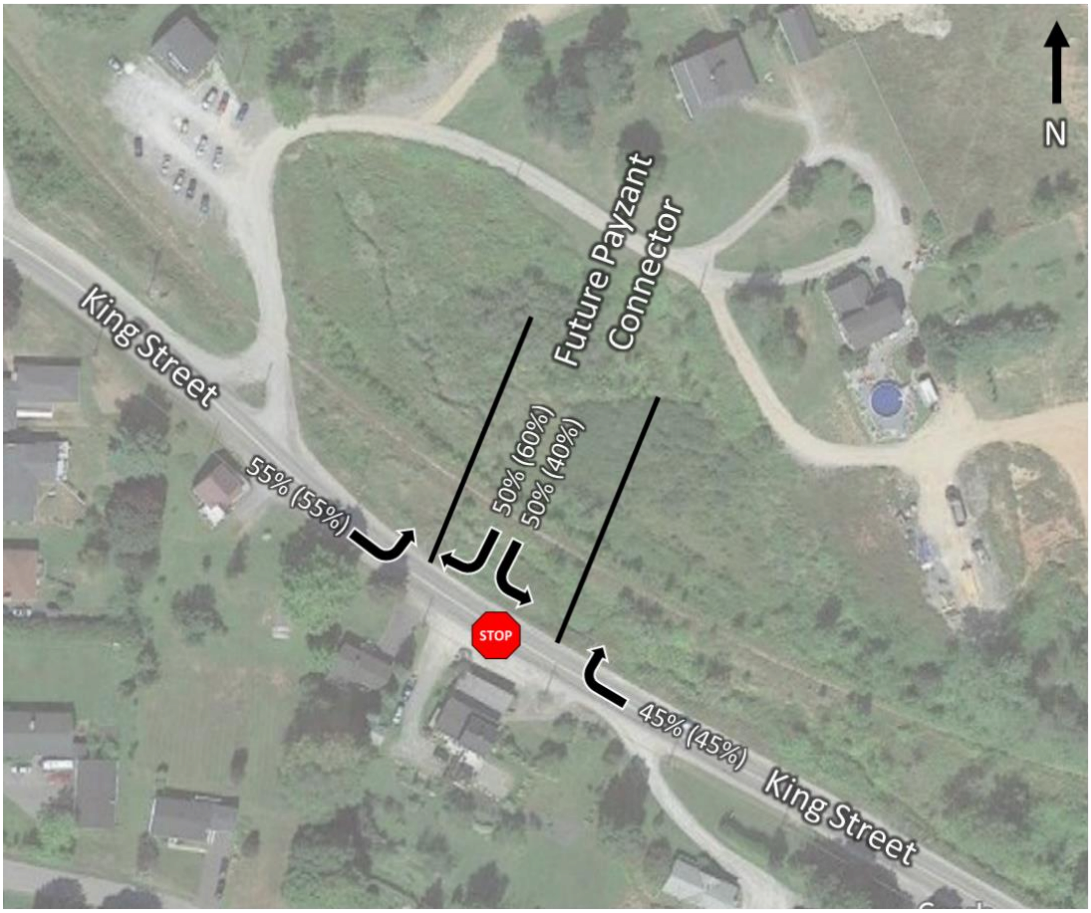



**Figure 16 - AM and PM distribution of traffic at the future Payzant Drive and King Street intersection**

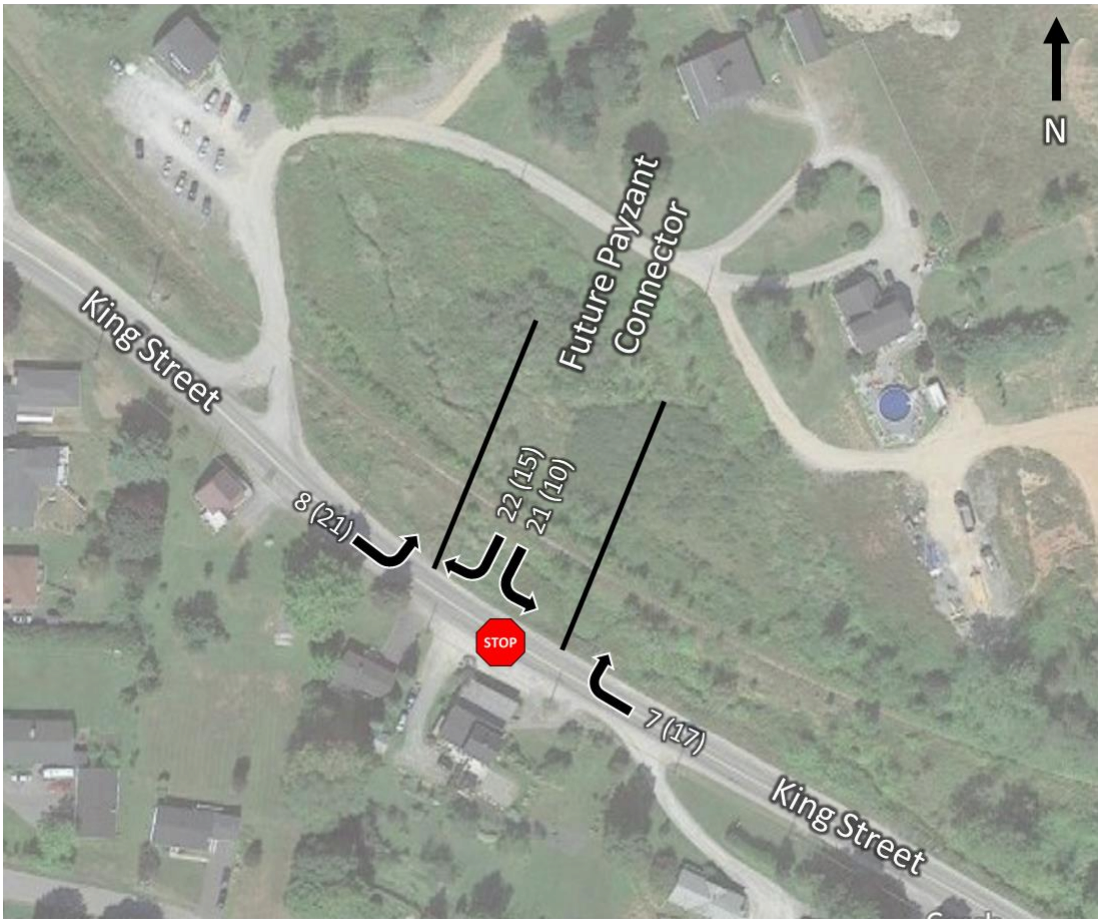



**Figure 17 - Estimated distribution of site generated traffic at King Street**

### 4.3.3 2033 Total Traffic Volumes

The 2033 Total Traffic Volumes result from 2033 Background volumes plus site-generated traffic added by the development. The 2023 Total Traffic Volumes are shown in Figure 18.


**Figure 18 - 2033 future volumes for the AM and PM peak hours at King Street**

A level of service analysis has been completed for AM and PM peak hours using total traffic volumes to evaluate the impact site generated traffic will have on the proposed intersection. A summary of the intersection is shown in Table 9. The southbound left turn movement experiences increased delay but still operates below capacity. The southbound right turn movement experiences a decrease in level of service from B to C due to site generated traffic.

From these results, we can conclude that site generated trips do not result in a significant impact on this intersection in the future scenario. The southbound left LOS 'F' for the PM Peak Hour is observed under both the future background growth and total traffic scenario and is not created by the new trips generated by this development. We recommend that once this intersection is constructed, the Municipality monitors the location to determine if traffic signals are warranted in the future.

**Table 9 - Summary of AM & PM peak hour level of service measures for 2033 King Street total traffic volumes**

| AM Peak Hour - 2033 Future Volumes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOS Criteria | Intersection Control | King Street | | | King Street | | | | | | Payzant Drive | | | |
| | | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | Intersection |
| Vehicle Count | STOP | 125 | 276 | | | 463 | 103 | | | | 111 | | 104 | |
| v/c | | 0.12 | 0.00 | | | 0.00 | 0.00 | | | | 0.50 | | 0.19 | |
| Delay (s) | | 9.1 | 0.0 | | | 0.0 | 0.0 | | | | 36.1 | | 12.9 | 5.48 |
| LOS | | A | A | | | A | A | | | | E | | B | A |
| 95th% Queue (m) | | 3.23 | 0.0 | | | 0.0 | 0.0 | | | | 19.2 | | 5.2 | |
| **PM Peak Hour - 2033 Future Volumes** | | | | | | | | | | | | | | |
| LOS Criteria | Intersection Control | King Street | | | King Street | | | | | | Payzant Drive | | | |
| | | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | Intersection |
| Vehicle Count | STOP | 130 | 478 | | | 567 | 106 | | | | 104 | | 140 | |
| v/c | | 0.14 | 0 | | | 0 | 0 | | | | 0.74 | | 0.29 | |
| Delay (s) | | 9.57 | 0 | | | 0 | 0 | | | | 81.08 | | 15.32 | 7.75 |
| LOS | | A | A | | | A | A | | | | F | | C | A |
| 95th% Queue (m) | | 3.8 | 0.0 | | | 0.0 | 0.0 | | | | 33.2 | | 9.0 | |

### 4.3.4 Auxiliary Turn Lane Warrant Analysis

Turn lane warrants are not required for this site until the extension to King Street has been completed.

The site access has been reviewed for a southbound left turn lane and a northbound right turn lane into the development for the future scenario with this connection made.

#### *Left Turn Lane*

Site generated trips and the anticipated trips at the Payzant Drive and King Street intersection were used to evaluate a left turn lane into the development. The MTO Design Supplement for TAC 2017 was used to identify the need for a left turn. Based on the analysis, a southbound left turn lane into the development is not warranted. This analysis is included in Appendix B.

#### *Right Turn Lane*

Site generated trips and the anticipated trips at the Payzant Drive and King Street intersection were used to evaluate a right turn lane into the development. The Ohio Department of Transportation's State Highway Access Management Manual right turn lane warrant analysis was used to identify the need for a right turn lane. Based on the analysis, a northbound right turn lane into the development is not warranted. This analysis is included in Appendix B.

# 5.0 CONCLUSIONS

The following conclusions were developed from this traffic impact study:

- The proposed development will add four mid-rise multi-unit buildings (280 units) and 18 townhouses for a total of 298 units.
- Townhouses will front Payzant Drive, and multi-unit buildings will be accessed from a driveway connecting to Payzant Drive.
- The proposed development is estimated to generate 112 two-way vehicle trips (29 entering and 83 exiting) in the AM peak hour and 126 two-way vehicle trips (76 entering and 50 existing) in the PM peak hour.
- Sight distance was not measured at the proposed access locations since this street has not yet been constructed.
- The Payzant Drive and Wentworth Road intersection is the critical intersection for this analysis. The traffic analysis shows that northbound left turn movements exceed capacity in the AM peak hour under existing conditions.
- Two scenarios were evaluated for background and future conditions: the existing two-way stop control and a proposed roundabout. Northbound left turn movements continue to operate above capacity in the AM and PM peak hours under two-way stop control in the background and total traffic volumes. The intersection operates at a level of service F under total traffic volumes in the AM peak hour. These issues are resolved with the construction of the planned roundabout.
- The proposed Payzant Drive connection to King Street was evaluated for background and total traffic volumes. Under both scenarios, the southbound left turn movements operate below capacity but have high delays. The overall intersection operates at an acceptable level of service.
- Auxiliary left and right turn lanes entering the site are not warranted.

# 6.0 RECOMMENDATIONS

There are no recommended improvements to accommodate traffic generated by the proposed development.

The street network, under future conditions, can accommodate traffic generated by the proposed development without upgrades beyond those already planned by the Municipality. We recommend that if the Payzant Drive extension is completed and a new intersection is constructed at King Street, the Municipality monitors the location to determine if traffic signals are warranted in the future.

# APPENDIX A – VISTRO REPORTS

**Intersection Level Of Service Report**
**Intersection 1: Payzant at Wentworth**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 269.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.122 |

**Intersection Setup**

| Name | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 60.00 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 25.00 | 30.48 | 30.48 | 80.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 65 | 1 | 170 | 1 | 1 | 1 | 1 | 395 | 230 | 295 | 420 | 5 |
| Base Volume Adjustment Factor | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 67 | 1 | 175 | 1 | 1 | 1 | 1 | 407 | 237 | 304 | 433 | 5 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 17 | 0 | 44 | 0 | 0 | 0 | 0 | 102 | 59 | 76 | 108 | 1 |
| Total Analysis Volume [veh/h] | 67 | 1 | 175 | 1 | 1 | 1 | 1 | 407 | 237 | 304 | 433 | 5 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Stop | Stop | Free | Free |
|---|---|---|---|---|
| Flared Lane | No | No | | |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 1.12 | 0.01 | 0.32 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.32 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 269.21 | 56.67 | 14.82 | 108.79 | 64.59 | 13.39 | 8.21 | 0.00 | 0.00 | 10.64 | 0.00 | 0.00 |
| Movement LOS | F | F | B | F | F | B | A | A | A | B | A | A |
| 95th-Percentile Queue Length [veh/ln] | 5.49 | 1.43 | 1.43 | 0.14 | 0.14 | 0.14 | 0.00 | 0.00 | 0.00 | 1.41 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 41.81 | 10.93 | 10.93 | 1.07 | 1.07 | 1.07 | 0.02 | 0.00 | 0.00 | 10.72 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 85.13 | | | 62.26 | | | 0.01 | | | 4.36 | | |
| Approach LOS | F | | | F | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 14.77 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 1: Payzant at Wentworth**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 92.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.803 |

**Intersection Setup**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 60.00 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 25.00 | 30.48 | 30.48 | 80.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 110 | 5 | 165 | 5 | 1 | 5 | 5 | 495 | 55 | 80 | 490 | 5 |
| Base Volume Adjustment Factor | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 113 | 5 | 170 | 5 | 1 | 5 | 5 | 510 | 57 | 82 | 505 | 5 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 28 | 1 | 43 | 1 | 0 | 1 | 1 | 128 | 14 | 21 | 126 | 1 |
| Total Analysis Volume [veh/h] | 113 | 5 | 170 | 5 | 1 | 5 | 5 | 510 | 57 | 82 | 505 | 5 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Stop | Stop | Free | Free |
|---|---|---|---|---|
| Flared Lane | No | No | | |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.80 | 0.03 | 0.31 | 0.06 | 0.01 | 0.01 | 0.00 | 0.01 | 0.00 | 0.08 | 0.01 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 92.26 | 30.61 | 15.29 | 50.20 | 29.74 | 13.36 | 8.43 | 0.00 | 0.00 | 8.90 | 0.00 | 0.00 |
| Movement LOS | F | D | C | F | D | B | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 5.01 | 1.52 | 1.52 | 0.24 | 0.24 | 0.24 | 0.01 | 0.00 | 0.00 | 0.27 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 38.16 | 11.55 | 11.55 | 1.83 | 1.83 | 1.83 | 0.11 | 0.00 | 0.00 | 2.03 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 45.76 | | | 31.59 | | | 0.07 | | | 1.23 | | |
| Approach LOS | E | | | D | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 9.77 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 1: Payzant at Wentworth**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 826.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 2.263 |

**Intersection Setup**

| Name | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 60.00 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 25.00 | 30.48 | 30.48 | 80.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 65 | 1 | 170 | 1 | 1 | 1 | 1 | 395 | 230 | 295 | 420 | 5 |
| Base Volume Adjustment Factor | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 78 | 1 | 203 | 1 | 1 | 1 | 1 | 472 | 275 | 353 | 502 | 6 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 0 | 51 | 0 | 0 | 0 | 0 | 118 | 69 | 88 | 126 | 2 |
| Total Analysis Volume [veh/h] | 78 | 1 | 203 | 1 | 1 | 1 | 1 | 472 | 275 | 353 | 502 | 6 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Stop | Stop | Free | Free |
|---|---|---|---|---|
| Flared Lane | No | No | | |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 2.26 | 0.02 | 0.41 | 0.06 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.41 | 0.01 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 825.97 | 90.04 | 17.96 | 222.38 | 110.80 | 20.89 | 8.41 | 0.00 | 0.00 | 12.05 | 0.00 | 0.00 |
| Movement LOS | F | F | C | F | F | C | A | A | A | B | A | A |
| 95th-Percentile Queue Length [veh/ln] | 8.77 | 2.15 | 2.15 | 0.27 | 0.27 | 0.27 | 0.00 | 0.00 | 0.00 | 2.02 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 66.86 | 16.36 | 16.36 | 2.02 | 2.02 | 2.02 | 0.02 | 0.00 | 0.00 | 15.39 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 241.71 | | | 118.02 | | | 0.01 | | | 4.94 | | |
| Approach LOS | F | | | F | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 38.43 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 1: Payzant at Wentworth**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 272.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.311 |

**Intersection Setup**

| Name | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 60.00 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 25.00 | 30.48 | 30.48 | 80.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 110 | 5 | 165 | 5 | 1 | 5 | 5 | 495 | 55 | 80 | 490 | 5 |
| Base Volume Adjustment Factor | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 131 | 6 | 197 | 6 | 1 | 6 | 6 | 592 | 66 | 95 | 586 | 6 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 33 | 2 | 49 | 2 | 0 | 2 | 2 | 148 | 17 | 24 | 147 | 2 |
| Total Analysis Volume [veh/h] | 131 | 6 | 197 | 6 | 1 | 6 | 6 | 592 | 66 | 95 | 586 | 6 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Stop | Stop | Free | Free |
|---|---|---|---|---|
| Flared Lane | No | No | | |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 1.31 | 0.05 | 0.41 | 0.12 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.10 | 0.01 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 272.64 | 41.11 | 19.01 | 84.22 | 42.17 | 18.46 | 8.68 | 0.00 | 0.00 | 9.31 | 0.00 | 0.00 |
| Movement LOS | F | E | C | F | E | C | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 9.21 | 2.33 | 2.33 | 0.47 | 0.47 | 0.47 | 0.02 | 0.00 | 0.00 | 0.34 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 70.21 | 17.76 | 17.76 | 3.60 | 3.60 | 3.60 | 0.14 | 0.00 | 0.00 | 2.59 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 118.88 | | | 50.63 | | | 0.08 | | | 1.29 | | |
| Approach LOS | F | | | F | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 24.32 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 1: Payzant at Wentworth**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 13.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 65 | 1 | 470 | 1 | 1 | 1 | 1 | 395 | 230 | 295 | 420 | 5 |
| Base Volume Adjustment Factor | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 78 | 1 | 561 | 1 | 1 | 1 | 1 | 472 | 275 | 353 | 502 | 6 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 0 | 140 | 0 | 0 | 0 | 0 | 118 | 69 | 88 | 126 | 2 |
| Total Analysis Volume [veh/h] | 78 | 1 | 561 | 1 | 1 | 1 | 1 | 472 | 275 | 353 | 502 | 6 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 1 | | | 1 | | | 1 | | |
| Circulating Flow Rate [veh/h] | 483 | | | 952 | | | 362 | | | 82 | | |
| Exiting Flow Rate [veh/h] | 642 | | | 8 | | | 593 | | | 1055 | | |
| Demand Flow Rate [veh/h] | 78 | 1 | 561 | 1 | 1 | 1 | 1 | 472 | 275 | 353 | 502 | 6 |
| Adjusted Demand Flow Rate [veh/h] | 78 | 1 | 561 | 1 | 1 | 1 | 1 | 472 | 275 | 353 | 502 | 6 |

**Lanes**

| | | | | | |
|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1380.00 | 1380.00 | 1420.00 | 1420.00 | 1380.00 |
| B (coefficient) | 0.00102 | 0.00102 | 0.00091 | 0.00091 | 0.00102 |
| HV Adjustment Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Entry Flow Rate [veh/h] | 653 | 4 | 483 | 281 | 879 |
| Capacity of Entry and Bypass Lanes [veh/h] | 843 | 523 | 1022 | 1022 | 1270 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 827 | 513 | 1002 | 1002 | 1245 |
| X, volume / capacity | 0.77 | 0.01 | 0.47 | 0.27 | 0.69 |

**Movement, Approach, & Intersection Results**

| | | | | | |
|---|---|---|---|---|---|
| Lane LOS | C | A | A | A | B |
| 95th-Percentile Queue Length [veh] | 7.74 | 0.02 | 2.58 | 1.12 | 5.98 |
| 95th-Percentile Queue Length [m] | 58.96 | 0.13 | 19.69 | 8.55 | 45.59 |
| Approach Delay [s/veh] | 21.47 | 7.09 | 8.10 | | 12.56 |
| Approach LOS | C | A | A | | B |
| Intersection Delay [s/veh] | 13.60 | | | | |
| Intersection LOS | B | | | | |

**Intersection Level Of Service Report**
**Intersection 1: Payzant at Wentworth**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 9.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 110 | 5 | 165 | 5 | 1 | 5 | 5 | 495 | 55 | 80 | 490 | 5 |
| Base Volume Adjustment Factor | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 131 | 6 | 197 | 6 | 1 | 6 | 6 | 592 | 66 | 95 | 586 | 6 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 33 | 2 | 49 | 2 | 0 | 2 | 2 | 148 | 17 | 24 | 147 | 2 |
| Total Analysis Volume [veh/h] | 131 | 6 | 197 | 6 | 1 | 6 | 6 | 592 | 66 | 95 | 586 | 6 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 1 | | | 1 | | | 1 | | |
| Circulating Flow Rate [veh/h] | 616 | | | 828 | | | 104 | | | 146 | | |
| Exiting Flow Rate [veh/h] | 165 | | | 18 | | | 737 | | | 811 | | |
| Demand Flow Rate [veh/h] | 131 | 6 | 197 | 6 | 1 | 6 | 6 | 592 | 66 | 95 | 586 | 6 |
| Adjusted Demand Flow Rate [veh/h] | 131 | 6 | 197 | 6 | 1 | 6 | 6 | 592 | 66 | 95 | 586 | 6 |

**Lanes**

| | | | | | |
|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1380.00 | 1380.00 | 1420.00 | 1420.00 | 1380.00 |
| B (coefficient) | 0.00102 | 0.00102 | 0.00091 | 0.00091 | 0.00102 |
| HV Adjustment Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Entry Flow Rate [veh/h] | 341 | 14 | 610 | 68 | 701 |
| Capacity of Entry and Bypass Lanes [veh/h] | 737 | 593 | 1292 | 1292 | 1190 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 722 | 582 | 1267 | 1267 | 1166 |
| X, volume / capacity | 0.46 | 0.02 | 0.47 | 0.05 | 0.59 |

**Movement, Approach, & Intersection Results**

| | | | | | |
|---|---|---|---|---|---|
| Lane LOS | B | A | A | A | B |
| 95th-Percentile Queue Length [veh] | 2.46 | 0.07 | 2.60 | 0.16 | 4.03 |
| 95th-Percentile Queue Length [m] | 18.74 | 0.52 | 19.83 | 1.26 | 30.72 |
| Approach Delay [s/veh] | 11.53 | 6.45 | 7.28 | | 10.36 |
| Approach LOS | B | A | A | | B |
| Intersection Delay [s/veh] | 9.35 | | | | |
| Intersection LOS | A | | | | |

**Intersection Level Of Service Report**
**Intersection 1: Payzant at Wentworth**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 1,289.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 3.278 |

**Intersection Setup**

| Name | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 60.00 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 25.00 | 30.48 | 30.48 | 80.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 65 | 1 | 170 | 1 | 1 | 1 | 1 | 395 | 230 | 295 | 420 | 5 |
| Base Volume Adjustment Factor | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 25 | 0 | 58 | 0 | 0 | 0 | 0 | 0 | 16 | 13 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 103 | 1 | 261 | 1 | 1 | 1 | 1 | 472 | 291 | 366 | 502 | 6 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 26 | 0 | 65 | 0 | 0 | 0 | 0 | 118 | 73 | 92 | 126 | 2 |
| Total Analysis Volume [veh/h] | 103 | 1 | 261 | 1 | 1 | 1 | 1 | 472 | 291 | 366 | 502 | 6 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Stop | Stop | Free | Free |
|---|---|---|---|---|
| Flared Lane | No | No | | |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 3.28 | 0.02 | 0.53 | 0.08 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 | 0.01 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 1288.99 | 100.59 | 21.56 | 324.14 | 128.27 | 28.57 | 8.41 | 0.00 | 0.00 | 12.41 | 0.00 | 0.00 |
| Movement LOS | F | F | C | F | F | D | A | A | A | B | A | A |
| 95th-Percentile Queue Length [veh/ln] | 12.13 | 3.34 | 3.34 | 0.35 | 0.35 | 0.35 | 0.00 | 0.00 | 0.00 | 2.19 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 92.44 | 25.48 | 25.48 | 2.65 | 2.65 | 2.65 | 0.02 | 0.00 | 0.00 | 16.70 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 379.43 | | | 160.32 | | | 0.01 | | | 5.19 | | |
| Approach LOS | F | | | F | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 71.55 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 1: Payzant at Wentworth**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 539.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.910 |

**Intersection Setup**

| Name | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 60.00 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 25.00 | 30.48 | 30.48 | 80.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 110 | 5 | 165 | 5 | 1 | 5 | 5 | 495 | 55 | 80 | 490 | 5 |
| Base Volume Adjustment Factor | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 20 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 30 | 46 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 151 | 6 | 227 | 6 | 1 | 6 | 6 | 592 | 96 | 141 | 586 | 6 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 38 | 2 | 57 | 2 | 0 | 2 | 2 | 148 | 24 | 35 | 147 | 2 |
| Total Analysis Volume [veh/h] | 151 | 6 | 227 | 6 | 1 | 6 | 6 | 592 | 96 | 141 | 586 | 6 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| Priority Scheme | Stop | Stop | Free | Free |
|---|---|---|---|---|
| Flared Lane | No | No | | |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 1.91 | 0.06 | 0.48 | 0.18 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.16 | 0.01 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 539.92 | 50.75 | 21.86 | 126.65 | 57.56 | 25.80 | 8.68 | 0.00 | 0.00 | 9.70 | 0.00 | 0.00 |
| Movement LOS | F | F | C | F | F | D | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 13.26 | 3.11 | 3.11 | 0.69 | 0.69 | 0.69 | 0.02 | 0.00 | 0.00 | 0.55 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 101.05 | 23.70 | 23.70 | 5.24 | 5.24 | 5.24 | 0.14 | 0.00 | 0.00 | 4.19 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 226.03 | | | 74.79 | | | 0.08 | | | 1.87 | | |
| Approach LOS | F | | | F | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 48.90 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report**
**Intersection 1: Payzant at Wentworth**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 11.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 65 | 1 | 170 | 1 | 1 | 1 | 1 | 395 | 230 | 295 | 420 | 5 |
| Base Volume Adjustment Factor | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 25 | 0 | 58 | 0 | 0 | 0 | 0 | 0 | 16 | 13 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 103 | 1 | 261 | 1 | 1 | 1 | 1 | 472 | 291 | 366 | 502 | 6 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 26 | 0 | 65 | 0 | 0 | 0 | 0 | 118 | 73 | 92 | 126 | 2 |
| Total Analysis Volume [veh/h] | 103 | 1 | 261 | 1 | 1 | 1 | 1 | 472 | 291 | 366 | 502 | 6 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 1 | | | 1 | | | 1 | | |
| Circulating Flow Rate [veh/h] | 483 | | | 990 | | | 375 | | | 107 | | |
| Exiting Flow Rate [veh/h] | 671 | | | 8 | | | 618 | | | 749 | | |
| Demand Flow Rate [veh/h] | 103 | 1 | 261 | 1 | 1 | 1 | 1 | 472 | 291 | 366 | 502 | 6 |
| Adjusted Demand Flow Rate [veh/h] | 103 | 1 | 261 | 1 | 1 | 1 | 1 | 472 | 291 | 366 | 502 | 6 |

**Lanes**

| | | | | | |
|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1380.00 | 1380.00 | 1420.00 | 1420.00 | 1380.00 |
| B (coefficient) | 0.00102 | 0.00102 | 0.00091 | 0.00091 | 0.00102 |
| HV Adjustment Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Entry Flow Rate [veh/h] | 373 | 4 | 483 | 297 | 892 |
| Capacity of Entry and Bypass Lanes [veh/h] | 843 | 503 | 1010 | 1010 | 1238 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 827 | 493 | 990 | 990 | 1213 |
| X, volume / capacity | 0.44 | 0.01 | 0.48 | 0.29 | 0.72 |

**Movement, Approach, & Intersection Results**

| | | | | | |
|---|---|---|---|---|---|
| Lane LOS | A | A | A | A | B |
| 95th-Percentile Queue Length [veh] | 2.28 | 0.02 | 2.64 | 1.23 | 6.68 |
| 95th-Percentile Queue Length [m] | 17.40 | 0.14 | 20.12 | 9.39 | 50.92 |
| Approach Delay [s/veh] | 9.97 | 7.38 | 8.29 | | 13.81 |
| Approach LOS | A | A | A | | B |
| Intersection Delay [s/veh] | 11.00 | | | | |
| Intersection LOS | B | | | | |

**Intersection Level Of Service Report**
**Intersection 1: Payzant at Wentworth**

| | | | |
|---|---|---|---|
| Control Type: | Roundabout | Delay (sec / veh): | 10.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | | |

**Intersection Setup**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

**Volumes**

| Name | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 110 | 5 | 165 | 5 | 1 | 5 | 5 | 495 | 55 | 80 | 490 | 5 |
| Base Volume Adjustment Factor | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 | 1.0300 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 | 1.1600 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 20 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 30 | 46 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 151 | 6 | 227 | 6 | 1 | 6 | 6 | 592 | 96 | 141 | 586 | 6 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 38 | 2 | 57 | 2 | 0 | 2 | 2 | 148 | 24 | 35 | 147 | 2 |
| Total Analysis Volume [veh/h] | 151 | 6 | 227 | 6 | 1 | 6 | 6 | 592 | 96 | 141 | 586 | 6 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

**Intersection Settings**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Conflicting Circulating Lanes | 1 | | | 1 | | | 1 | | | 1 | | | |
| Circulating Flow Rate [veh/h] | 616 | | | 896 | | | 151 | | | 166 | | | |
| Exiting Flow Rate [veh/h] | 243 | | | 18 | | | 758 | | | 842 | | | |
| Demand Flow Rate [veh/h] | 151 | 6 | 227 | 6 | 1 | 6 | 6 | 592 | 96 | 141 | 586 | 6 | |
| Adjusted Demand Flow Rate [veh/h] | 151 | 6 | 227 | 6 | 1 | 6 | 6 | 592 | 96 | 141 | 586 | 6 | |

**Lanes**

| | | | | | |
|---|---|---|---|---|---|
| Overwrite Calculated Critical Headway | No | No | No | No | No |
| User-Defined Critical Headway [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Overwrite Calculated Follow-Up Time | No | No | No | No | No |
| User-Defined Follow-Up Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| A (intercept) | 1380.00 | 1380.00 | 1420.00 | 1420.00 | 1380.00 |
| B (coefficient) | 0.00102 | 0.00102 | 0.00091 | 0.00091 | 0.00102 |
| HV Adjustment Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Entry Flow Rate [veh/h] | 392 | 14 | 610 | 98 | 748 |
| Capacity of Entry and Bypass Lanes [veh/h] | 737 | 554 | 1238 | 1238 | 1165 |
| Pedestrian Impedance | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Capacity per Entry Lane [veh/h] | 722 | 543 | 1214 | 1214 | 1142 |
| X, volume / capacity | 0.53 | 0.02 | 0.49 | 0.08 | 0.64 |

**Movement, Approach, & Intersection Results**

| | | | | | |
|---|---|---|---|---|---|
| Lane LOS | B | A | A | A | B |
| 95th-Percentile Queue Length [veh] | 3.17 | 0.07 | 2.81 | 0.26 | 4.91 |
| 95th-Percentile Queue Length [m] | 24.18 | 0.56 | 21.43 | 1.96 | 37.39 |
| Approach Delay [s/veh] | 13.18 | 6.92 | 7.63 | | 11.83 |
| Approach LOS | B | A | A | | B |
| Intersection Delay [s/veh] | 10.48 | | | | |
| Intersection LOS | B | | | | |

**Intersection Level Of Service Report**
**Intersection 3: Payzant at King**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 30.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.389 |

**Intersection Setup**

| Name | | | | | | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | | | | | | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 86 | 78 | 112 | 264 | 443 | 92 |
| Base Volume Adjustment Factor | 1.0457 | 1.0457 | 1.0457 | 1.0457 | 1.0457 | 1.0457 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 90 | 82 | 117 | 276 | 463 | 96 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 23 | 21 | 29 | 69 | 116 | 24 |
| Total Analysis Volume [veh/h] | 90 | 82 | 117 | 276 | 463 | 96 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.39 | 0.15 | 0.12 | 0.00 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 30.10 | 12.49 | 9.02 | 0.00 | 0.00 | 0.00 |
| Movement LOS | D | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 1.74 | 0.51 | 0.39 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 13.23 | 3.87 | 2.98 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 21.70 | | 2.69 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.26 | | | | | |
| Intersection LOS | D | | | | | |

**Intersection Level Of Service Report**
**Intersection 3: Payzant at King**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 58.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.605 |

**Intersection Setup**

| Name | | | | | | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | | | | | | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 90 | 120 | 104 | 457 | 542 | 85 |
| Base Volume Adjustment Factor | 1.0457 | 1.0457 | 1.0457 | 1.0457 | 1.0457 | 1.0457 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 94 | 125 | 109 | 478 | 567 | 89 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 24 | 31 | 27 | 120 | 142 | 22 |
| Total Analysis Volume [veh/h] | 94 | 125 | 109 | 478 | 567 | 89 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.60 | 0.25 | 0.12 | 0.00 | 0.01 | 0.00 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 58.43 | 14.75 | 9.38 | 0.00 | 0.00 | 0.00 |
| Movement LOS | F | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 3.23 | 1.00 | 0.40 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 24.62 | 7.59 | 3.02 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 33.50 | | 1.74 | | 0.00 | |
| Approach LOS | D | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.72 | | | | | |
| Intersection LOS | F | | | | | |

**Intersection Level Of Service Report**
**Intersection 3: Payzant at King**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 36.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.497 |

**Intersection Setup**

| Name | | | | | | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | | | | | | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 86 | 78 | 112 | 264 | 443 | 92 |
| Base Volume Adjustment Factor | 1.0457 | 1.0457 | 1.0457 | 1.0457 | 1.0457 | 1.0457 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 21 | 22 | 8 | 0 | 0 | 7 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 111 | 104 | 125 | 276 | 463 | 103 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 28 | 26 | 31 | 69 | 116 | 26 |
| Total Analysis Volume [veh/h] | 111 | 104 | 125 | 276 | 463 | 103 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.50 | 0.19 | 0.12 | 0.00 | 0.00 | 0.00 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 36.09 | 12.89 | 9.09 | 0.00 | 0.00 | 0.00 |
| Movement LOS | E | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 2.52 | 0.68 | 0.42 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 19.17 | 5.15 | 3.23 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 24.86 | | 2.83 | | 0.00 | |
| Approach LOS | C | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.48 | | | | | |
| Intersection LOS | E | | | | | |

**Intersection Level Of Service Report**
**Intersection 3: Payzant at King**

| | | | |
|---|---|---|---|
| Control Type: | Two-way stop | Delay (sec / veh): | 81.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.739 |

**Intersection Setup**

| Name | | | | | | |
|---|---|---|---|---|---|---|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

**Volumes**

| Name | | | | | | |
|---|---|---|---|---|---|---|
| Base Volume Input [veh/h] | 90 | 120 | 104 | 457 | 542 | 85 |
| Base Volume Adjustment Factor | 1.0457 | 1.0457 | 1.0457 | 1.0457 | 1.0457 | 1.0457 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 10 | 15 | 21 | 0 | 0 | 17 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 104 | 140 | 130 | 478 | 567 | 106 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 26 | 35 | 33 | 120 | 142 | 27 |
| Total Analysis Volume [veh/h] | 104 | 140 | 130 | 478 | 567 | 106 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

**Intersection Settings**

| Priority Scheme | Stop | Free | Free |
|---|---|---|---|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

**Movement, Approach, & Intersection Results**

| V/C, Movement V/C Ratio | 0.74 | 0.29 | 0.14 | 0.00 | 0.01 | 0.00 |
|---|---|---|---|---|---|---|
| d_M, Delay for Movement [s/veh] | 81.08 | 15.32 | 9.57 | 0.00 | 0.00 | 0.00 |
| Movement LOS | F | C | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 4.35 | 1.18 | 0.49 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 33.18 | 8.96 | 3.75 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 43.35 | | 2.05 | | 0.00 | |
| Approach LOS | E | | A | | A | |
| d_I, Intersection Delay [s/veh] | 7.75 | | | | | |
| Intersection LOS | F | | | | | |

# APPENDIX B – AUXILIARY TURN LANE WARRANTS

# Estimated Left Turning Traffic Scenarios for Proposed Development

**Data and Assumptions:**

| |
|---|
| Posted Speed: 50 km/h |
| Design Speed: 60 km/h |

Assume 50% of site generated trips turn left into development

Assume 50/50 split from development

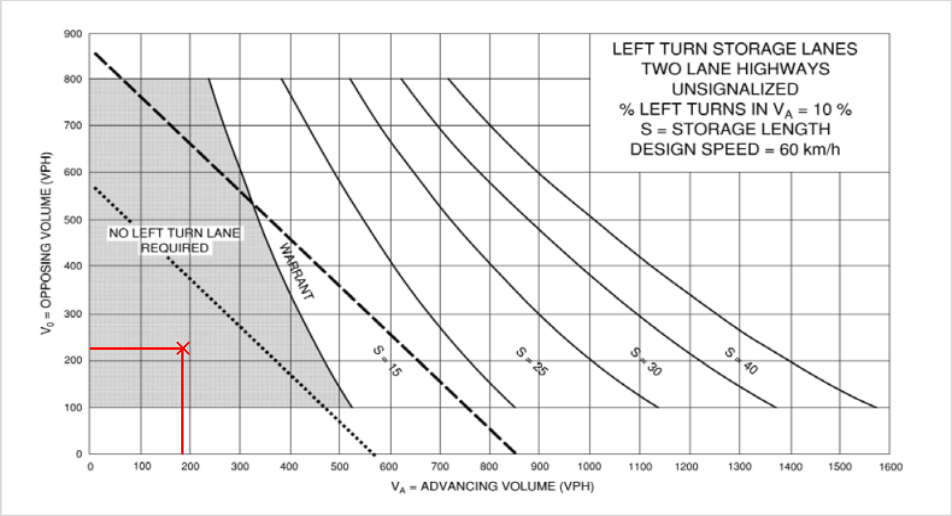
Left turn volume= 15 (based off Trip Generation rates)

$V_A$ = Southbound volume + Left turn volume

$V_O$ = Northbound volume

**2033 Future Traffic Volumes**

| | |
|---|---|
| 2-way Peak Hour Volume = | 415 vph |
| $V_A$ = | 187 vph |
| $V_O$ = | 228 vph |
| % Left Turns in $V_A$= | 8% |



# Estimated Left Turning Traffic Scenarios for Proposed Development

**Data and Assumptions:**

| |
|---|
| Posted Speed: 50 km/h |
| Design Speed: 60 km/h |

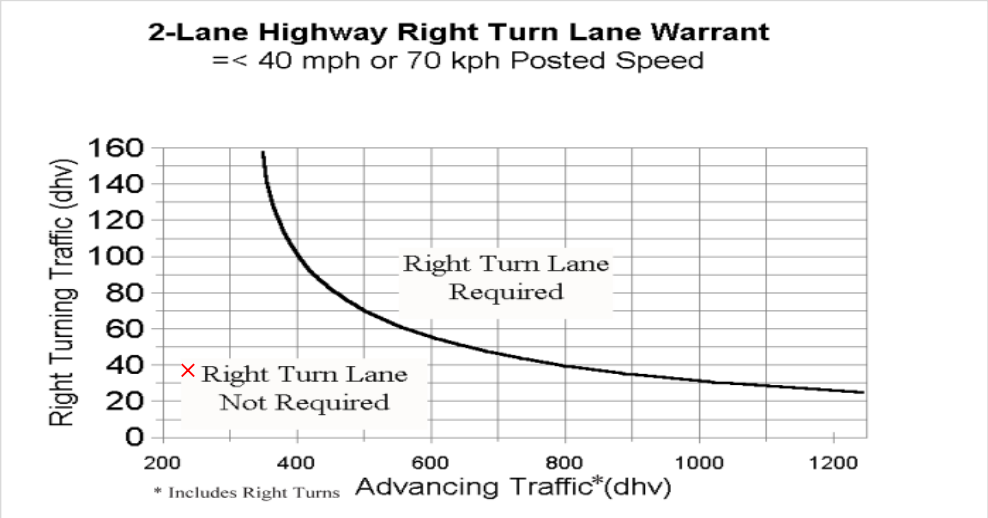
Assume 50% of site generated trips turn right into development

Right Turn Volume = 38 (based off Trip Generation rates)

$V_A$ = Northbound Volume
$V_O$ = Southbound Volume

**2033 Future Traffic Volumes**

| | |
|---|---|
| 2-way Peak Hour Volume = | 493 vph |
| $V_A$ = | 236 vph |
| $V_O$ = | 257 vph |



# Estimated Left Turning Traffic Scenarios for Proposed Development

**Data and Assumptions:**

| |
|---|
| Posted Speed: 50 km/h |
| Design Speed: 60 km/h |

Assume 50% of site generated trips turn left into development

Left turn volume= 38 (based off Trip Generation rates)

$V_A$ = Southbound volume + Left turn volume
$V_O$ = Northbound volume

**2033 Future Traffic Volumes**

| | |
|---|---|
| 2-way Peak Hour Volume = | 493 vph |
| $V_A$ = | 257 vph |
| $V_O$ = | 236 vph |
| % Left Turns in $V_A$= | 15% |