



## WEST HANTS REGIONAL MUNICIPALITY REPORT

Information <input type="checkbox"/>	Recommendation X	Decision Request <input type="checkbox"/>	Councillor Activity <input type="checkbox"/>
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**To:** Mayor Zebian and Members of West Hants Regional Municipality Council

**Submitted by:** \_\_\_\_\_  
Alex Dunphy, Senior Planner

**Date:** November 25, 2025

**Subject:** Development Agreement: Irving Lands  
(PIDs 45439098, 45190386 & 45055282), Windsor; File # 25-07A

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### LEGISLATIVE AUTHORITY

Municipal Government Act Section 230

### RECOMMENDATION

To allow the requested development, staff recommend that the Council forward a positive recommendation by passing the following motions:

...that Council gives First Reading and will hold a Public Hearing to consider entering into a development agreement to allow a large-format retail store and several smaller retail stores on Cole Drive (PIDs 45439098, 45190386 & 45055282) in Windsor by development agreement, which is substantively the same as the draft set out in Attachment B of the report File #25-07 to the Planning and Heritage Advisory Committee dated November 13, 2025.

...that Council requires that the development agreement with J. D. Irving, Limited which permits a large-format retail store and several smaller retail stores on Cole Drive (PIDs 45439098, 45190386 & 45055282) 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.

...that Council approves the necessary land transfer of a portion of PID 45055282 to the Owner and a portion of PID 45439098 to the Municipality, as well as an easement across a portion of PID 45055282 in favour of the Municipality and two easements across PID 45439098 in favour

of the Municipality, as part of this Development Agreement.

## BACKGROUND

Property X	Public Opinion <input type="checkbox"/>	Environment <input type="checkbox"/>	Social <input type="checkbox"/>	Economic <input type="checkbox"/>	Councillor Activity <input type="checkbox"/>
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A completed application was received from Chrystal Fuller of Brighter Community Planning on behalf of the landowner, J. D. Irving, Limited, on March 13, 2025. The application is to allow a large-format retail store and several smaller retail stores by development agreement.

This application also included a rezoning component which is considered in a separate report under File # 25-11 and 25-12. The development agreement portion of this application is not contingent on the rezoning portion of the application.

## DISCUSSION

A Public Information Meeting was held on March 5, 2025. Staff received a question regarding lighting of the proposed development. The applicant responded that the lighting of the proposed development would be required to be shielded to only their property and they would make efforts to address any issues with lighting.

On November 13, 2025, staff presented a recommendation report to the Planning and Heritage Advisory Committee (PAC/HAC) (Appendix A). During the meeting the Committee discussed the cost-sharing aspect of the stormwater management plan and the existing stormwater ponds labeled on the site plan. The Committee also discussed pedestrian infrastructure leading to the development and a specific breakdown of the traffic study. Staff were unable to provide specific responses to questions surrounding the details of the stormwater management negotiations and the traffic study. Due to this, staff have asked the Municipal Project Engineer and the Municipal Traffic Authority to be present at the First Reading presentation to provide more detailed information on both of the topics of discussion from the Committee meeting. Following the discussion, the Committee recommended in favour of the proposed development agreement.

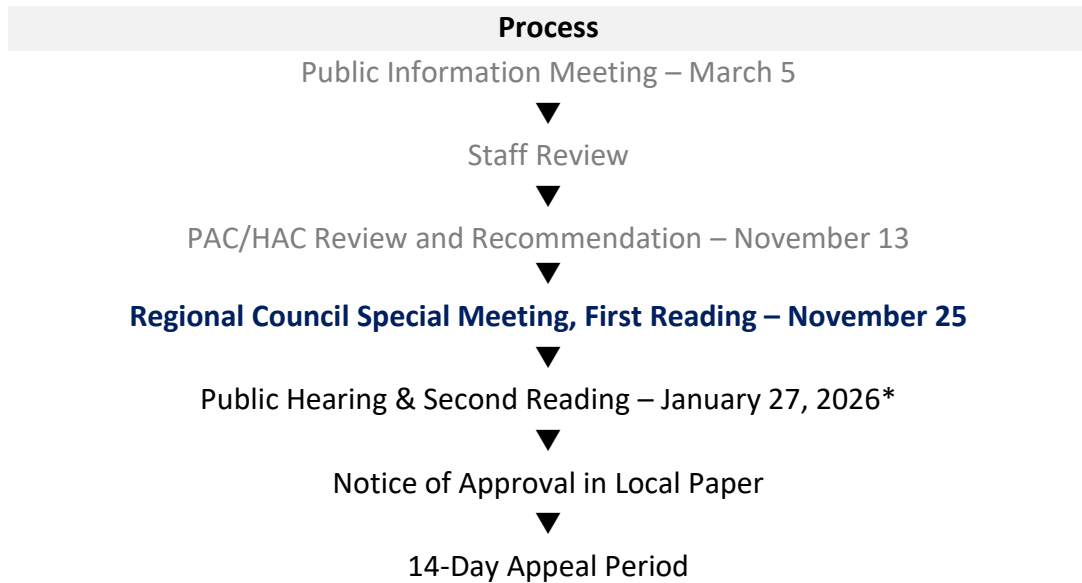
Staff have identified some discrepancies in the attached report to the Planning and Heritage Advisory Committee (Appendix A) and will correct them here:

1. Due to a subdivision being processed during this application, the PIDs have been updated following the filing of the previous report. Staff identified this and utilized the newer PIDs during the presentation to the Planning and Heritage Advisory Committee. Staff have also updated all references to the PIDs in this report and file name.

2. The reference in the second paragraph of Next Steps Section was outdated and referred to a meeting that did not take place. Please disregard that portion of the report.
3. The Financial Implications section of the report did not indicate the cost-sharing incurred through the stormwater management plan. Staff have updated the Financial Implications Section of this report to reflect the negotiations.

**NEXT STEPS**

The anticipated process for this application is as follows:



\*Final Dates are set by Council

**FINANCIAL IMPLICATIONS**

As part of the negotiations for the stormwater management of the proposed development, the Municipality shall pay for 25% of the cost for Ponds 2 and 3 and 65% of the cost for Pond 4, up to a maximum amount of \$281,821.88 + HST. Further, the municipality has been awarded 50% of the project cost or up to a maximum of \$145,207.01 funding under the Nova Scotia Provincial Capital Assistance Program (PCAP) to carry out the municipal portion of this project.

This would make up part of the Tregothic Creek Storm Water System Upgrades in the 2025-26 capital budget. The total budget amount for this project is \$600,000 to be funded through long-term borrowing. This portion of the project would account for 48.7% of the total project.

The borrowing would be reduced by the PCAP funding to \$147,493.19 and the estimated debt servicing of \$10,377.78.

**ALTERNATIVES**

In response to this application, Council may:

- hold First Reading and authorize a Public Hearing to approve the development agreement as drafted or as specifically revised by direction of Council;
- hold First Reading and authorize a Public Hearing to refuse the development agreement as drafted, citing the criteria that Council consider not to be met; or
- provide alternative direction such as requesting further information on a specific topic.

**APPDENIX**

Appendix A 2025-11-13 Staff Report - Development Agreement: Irving Lands (PIDs 45190386, 45055241, 45055282, and 45366457), Windsor; File # 25-07

**CHIEF ADMINISTRATIVE OFFICER REVIEW**

I support the recommendation.

Report Prepared by: \_\_\_\_\_

Alex Dunphy, Senior Planner


Report Approved by: \_\_\_\_\_

Kari Fougere, Acting Director of Planning and Development

Report Approved by: \_\_\_\_\_

Carlee Rochon, Director of Financial Services

Report Approved by: \_\_\_\_\_

  
Mark Phillips, Chief Administrative Officer

**Appendix A – 2025-11-13 Staff Report - Development Agreement: Irving Lands  
(PIDs 45190386, 45055241, 45055282, and 45366457), Windsor; File # 25-07**



## WEST HANTS REGIONAL MUNICIPALITY REPORT

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

**Submitted by:** \_\_\_\_\_  
Alex Dunphy, Senior Planner

**Date:** November 13, 2025

**Subject:** Development Agreement: Irving Lands (PIDs 45190386, 45055241, 45055282, and 45366457), Windsor; File # 25-07

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### LEGISLATIVE AUTHORITY

Municipal Government Act Section 230

### RECOMMENDATION

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 a large-format retail store and several smaller retail stores on Cole Drive (PIDs 45190386, 45055241, 45055282, and 45366457) in Windsor by development agreement, which is substantively the same as the draft set out in Attachment B of the report File #25-07 to the Planning and Heritage Advisory Committee dated November 13, 2025.

...that PAC/HAC recommends that Council require that the development agreement with J. D. Irving, Limited which permits a large-format retail store and several smaller retail stores on Cole Drive (PIDs 45190386, 45055241, 45055282, and 45366457) 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.

...that PAC/HAC recommends that Council approves the necessary land transfer of a portion of PID 45055282 to the Owner and a portion of PID 45190386 to the Municipality, as well as an

easement across a portion of PID 45055282 in favour of the Municipality and two easements across PID 45190386 in favour of the Municipality, as part of this Development Agreement.

## BACKGROUND

Property X	Public Opinion <input type="checkbox"/>	Environment <input type="checkbox"/>	Social <input type="checkbox"/>	Economic <input type="checkbox"/>	Councillor Activity <input type="checkbox"/>
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This application also included a rezoning component which is considered in a separate report under File # 25-11 and 25-12. The development agreement portion of this application is not contingent on the rezoning portion of the application.

## DISCUSSION

While some of the subject lots extend past the boundary of the Windsor planning area, the proposed development area all takes place within the Windsor planning area. In considering this application, staff have only considered the portion of the subject lots within the Windsor planning area and the applicable policies within the Windsor planning documents.

The subject lots vary in designation. PIDs 45190386 and 45055241 are included entirely in the Wentworth Road Gateway District as well as being split designated Commercial on the portions fronting Wentworth Road and designated Residential on the rear portions. PID 45055282 is designated Joint Industrial and PID 45055282 is designated Residential. The designation of each property is based on the Generalized Future Land Use Map (GFLUM) of the Windsor Municipal Planning Strategy (WMPS) (Figure 1). PID 45055241 and the front portion of PID 45190386 are zoned Wentworth Road Commercial (WR-C). The rear portion of PID 45190386 is zoned Agriculture (AG). PID 45055282 is zoned Light Industrial Type Three (LI-3). And PID 45055282 is zoned Medium Density Residential (R-2). The zoning of each property is based on Schedule A of the Windsor Land Use By-law (WLUB) (Figure 2).

The subject lots are all primarily undeveloped land. Uses surrounding the proposed development include newly established residential development, fast food restaurants, a gas station, a grocery store, hotel, and the exhibition grounds.

### ***Windsor Land Use By-law***

Section 6.0 of the WLUB, *Development Agreements*, states that: *The following developments may be considered only by development agreement in accordance with the Municipal Government Act and the Municipal Planning Strategy:*

- (j) *development proposals in the Wentworth Road Gateway District in accordance with Policy 8.6.15 of the Municipal Planning Strategy for: comprehensively designed developments of grouped dwellings with three or more dwelling units which may include townhouse dwellings, triplex dwellings and mixed use apartment dwellings, large format retail stores exceeding 50,000 ft<sup>2</sup> (4,645 m<sup>2</sup>) in commercial floor area; regional shopping centres; institutional uses; mixed use; multiple unit residential; or light industrial development;*

### ***Development Agreement***

A development agreement is a contract between an owner of land and the Municipality to allow Council to consider a use that is not a listed permitted use within a zone on a specific lot. The ability for Council to consider a development agreement must be stated in the Land Use By-law and the Municipal Planning Strategy must identify the kinds of uses Council may consider in each area. Uses which Council may consider are those which Council has determined may have sufficient impact on an area that a negotiated process is required to ensure the potential impact is minimized. A proposal being considered must be measured against only the specific and general criteria for the proposal in the MPS and not any other criteria.

### ***Municipal Planning Strategy Review***

Policy 8.5.1 of the WMPS is the primary enabling policy to be considered for this application. This policy provides Council with the ability to consider the permitting of large format retail stores and expansions to existing large format retail stores by development agreement. The full list of criteria is included within this report in Attachment A. In summary, the proposal meets the criteria since the proposed development is for a large format retail store.

Policy 8.5.2 of the WMPS provides the criteria to consider development agreements applications enabled by Policy 8.5.1. The full list of criteria is included with this report in Attachment A. In summary, the proposal meets the criteria as:

- the proposal included an acceptable traffic impact study and meets all parking, access, and pedestrian safety concerns;
- the proposed development agreement meets all architectural, setback, landscaping, and buffering requirements;
- the proposed development agreement will not conflict with neighbouring uses; and
- the Development Officer and Municipal Traffic Authority have no concerns which have not been addressed in this report.

Policy 8.6.16 of the WMPS provides additional criteria to consider when reviewing proposals for development agreements applications in the Wentworth Road Gateway District. The full list of

criteria is included with this report in Attachment A. In summary, the proposal meets the criteria as:

- the proposed development agreement will not conflict with neighbouring uses;
- the proposed development agreement meets all architectural requirements and includes landscaping along the road frontage of the proposed development;
- the proposal included an acceptable traffic impact study; and
- the Development Officer and Municipal Traffic Authority have no concerns which have not been addressed in this report.

Policy 8.6.4 of the WMPS provides justification to require additional landscaping requirements on the road frontage of developments in the Wentworth Road Gateway District. The draft development agreement requires landscaping and buffering which meet the requirements set out in this policy. Neither the Development Officer or the Traffic Authority had any concerns regarding the streetscape, pedestrian movement, or vehicle traffic.

Policy 8.6.8 of the WMPS provides certain provisions to be included within development agreement applications for proposals within the Wentworth Road Gateway District. The full list of criteria is included with this report in Attachment A. In summary, the proposal meets the criteria as:

- the proposed development agreement includes a natural buffer along the road frontage of the proposed development as well as a provision to require landscaping within the parking areas;
- the proposal does not raise any pedestrian safety concerns; and
- the Development Officer and Municipal Traffic Authority have no concerns which have not been addressed in this report.

Policy 16.3.1 of the WMPS establishes the general criteria that must be considered for all development agreements applications. 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;
- no municipal costs related to the proposal are anticipated; 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,

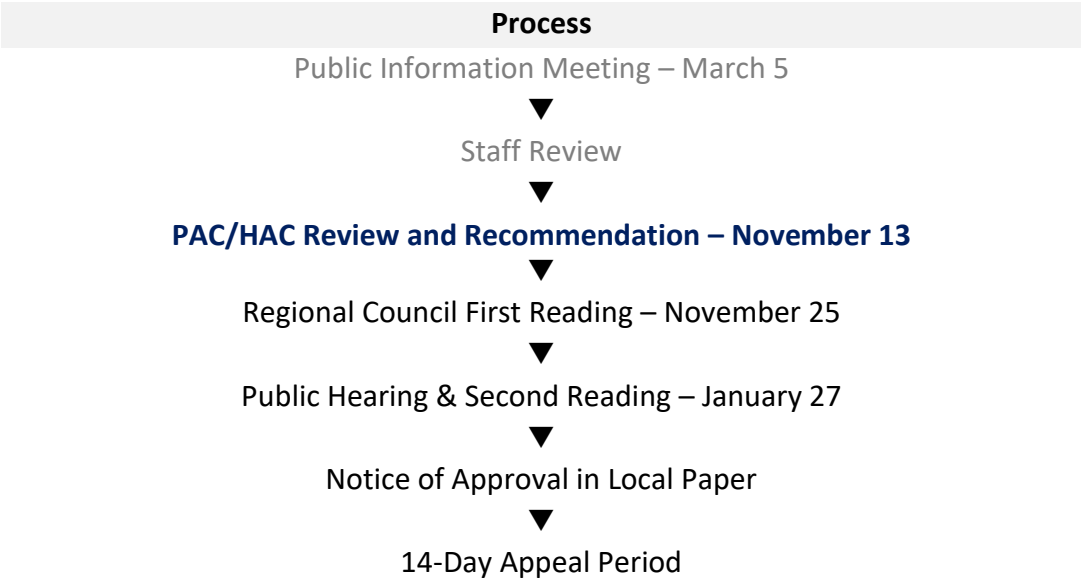
which shows the expected damage is to occur along the coastline. The second scenario shows the simulated flooding extent for probable maximum flood due to climate change. Under this scenario most of the community of Windsor will experience extensive flooding. However, only a small portion of the subject lots fronting on Wentworth Road would be at risk based on the mapping. The subject lots do not contain any identified watercourses. The Municipal Public Works department has already received a stormwater management plan that has been deemed acceptable to address any issues regarding runoff.

Property owners are responsible for ensuring that the lot is suitable for the proposed uses.

**NEXT STEPS**

As noted above, the draft development agreement is consistent with the intent, objectives, policies and criteria of the WMPS. As a result, it is reasonable to consider permitting large-format retail store and several smaller retail stores on Cole Drive (PIDs 45190386, 45055241, 45055282, and 45366457) in Windsor by development agreement.

Additionally, note that the process has been accelerated based on a request received from the applicant for a Special Council Meeting to take place the same day as the Planning and Heritage Advisory Committee Meeting, which was subsequently approved by Council on July 22<sup>nd</sup>, 2025.



**FINANCIAL IMPLICATIONS**

There are no financial implications to the Municipality or residents with regard to the filing of this report.

**ALTERNATIVES**

In response to this application, PAC/HAC may recommend that Council:

- hold First Reading and authorize a Public Hearing to approve the development agreement as drafted or as specifically revised by direction of PAC/HAC;
- hold First Reading and authorize a Public Hearing to refuse the development agreement as drafted, citing the criteria that PAC/HAC consider not to be met; 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	Traffic Impact Study
Attachment D	Public Information Meeting Notes

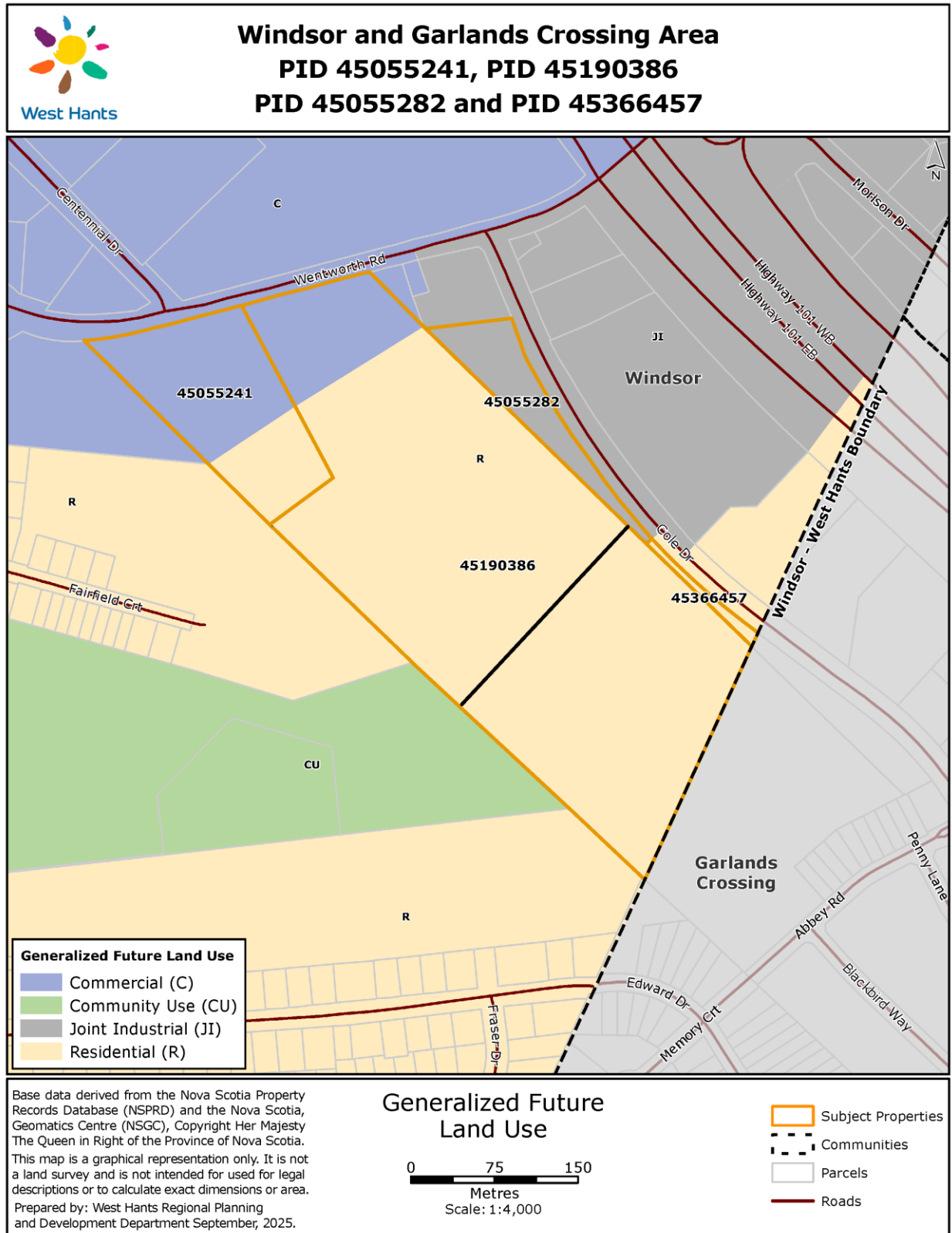
Report Prepared by: \_\_\_\_\_

Alex Dunphy, Senior Planner

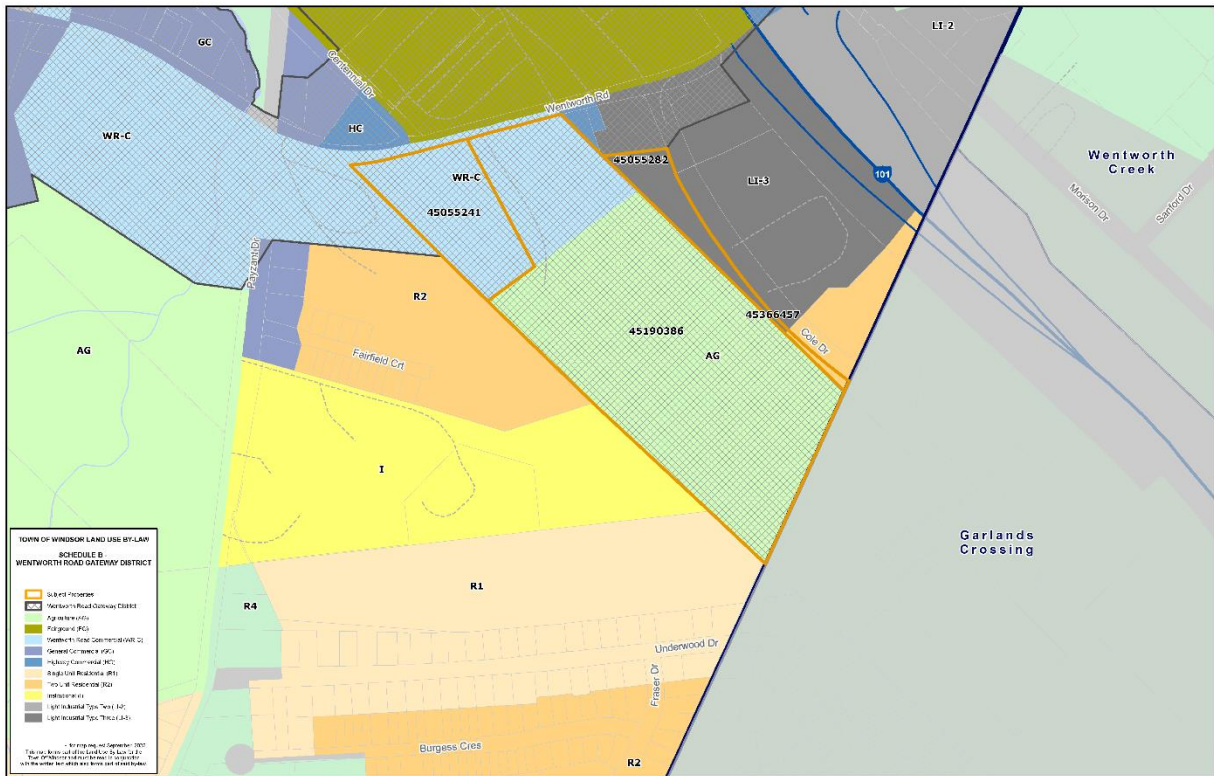
Report Approved by: \_\_\_\_\_

Kari Fougere, Acting Director of Planning and Development

Figure 1 – Windsor GFLUM Extract



**Figure 2 – Windsor Zoning Map Extract**



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

<b>Policy 8.5.1</b> <i>It shall be the policy of Council to consider the following categories of large format retail stores by development agreement: (Amendment WMPS 09-02 Effective September 3, 2009)</i>	
<i>(a) new large format retail stores exceeding 50,000 ft<sup>2</sup> (4,645 m<sup>2</sup>) in commercial floor area in the Wentworth Road Gateway District;</i>	The proposed development is to allow for a new large format retail store exceeding 50,000 sq. ft. in commercial floor area.
<i>(b) new large format retail stores in the Joint Industrial Type Three (LI-3) zone; and</i>	Not applicable.
<i>(c) expansions greater than 5,000 ft<sup>2</sup> (464.5 m<sup>2</sup>) to existing large format retail stores.</i>	Not applicable.

<b>Policy 8.5.2</b> <i>In considering a development agreement pursuant to Policy 8.5.1, Council shall have due regard to the following criteria: (Amendment WMPS 09-02 Effective September 3, 2009)</i>	
<i>(a) adequate provision is made for parking and access;</i>	The draft development agreement requires one parking space per 300 sq. ft. of commercial floor area and must be landscaped to avoid the appearance of large, uninterrupted expanses of asphalt. The Development Officer did not have any concerns regarding parking provided by the proposed development. As part of the development agreement negotiations, the Municipality will be providing additional access to Cole Drive through an easement and a conveyed parcel of land to construct two driveways. The Traffic Authority had no concerns regarding access, based on the negotiated terms.
<i>(b) pedestrian access and safety are addressed;</i>	The draft development agreement requires a defined pedestrian access to the primary building entrance. The Traffic Authority had no concerns regarding pedestrian access and safety.

<p><i>(c) adequate setbacks and yards shall be provided;</i></p>	<p>The setbacks within the draft development agreement meet the requirements of the Land Use By-law. The Development Officer had no concerns regarding setbacks.</p>
<p><i>(d) adequate provision, including screening and buffering, is made to minimize conflict between the proposed development and neighbouring uses with respect to access, parking, noise and hours of operation;</i></p>	<p>The draft development agreement has provisions which require buffering of the proposed development from neighbouring residential properties. The Development Officer had no concerns regarding the proposed buffering.</p>
<p><i>(e) the proposed use will not conflict with neighbouring uses;</i></p>	<p>The proposed development is similar in nature to the existing uses in the area. Surrounding properties are either commercial or undeveloped for the majority of the area abutting the subject property.</p>
<p><i>(f) the architectural design and scale of the proposed development is compatible with surrounding buildings;</i></p>	<p>The intent of the Wentworth Road Commercial (WR-C) zone is to host large scale commercial uses. The proposed development will match the design and scale of the surrounding commercial buildings.</p>
<p><i>(g) the building design incorporates windows and other elements in the street level façade to avoid the appearance of solid blank walls;</i></p>	<p>The draft development agreement has provisions to prevent the appearance of an uninteresting street level façade.</p>
<p><i>(h) landscaping is provided which reduces the visual impact of the development on neighbouring properties, particularly with respect to large parking lots;</i></p>	<p>The draft development agreement has provisions which require the parking areas to be buffered from neighbouring residential properties. Additionally, there is a provision to require landscaping within the parking areas to avoid the appearance of large, uninterrupted expanses of asphalt.</p>
<p><i>(i) the developer provides a traffic study conducted by a qualified person which demonstrates that the surrounding street network will efficiently accommodate the</i></p>	<p>A Traffic Impact Study was completed by DesignPoint on behalf of the applicant on January 24, 2025. There are a few recommendations stemming</p>

<i>anticipated traffic flows and that the development will not necessitate major infrastructure improvements such as traffic lights at the expense of the municipal unit;</i>	from the report including upgrading Payzant Drive intersection, installing a turning lane on Wentworth Road and Cole Drive, driveway alignment with the Exhibition Grounds entrance, and exploring the feasibility of upgrading the Cole Drive intersection. The Traffic Authority acknowledged this report and did not have any concerns with it.
<i>(j) if the proposed development is located in the Wentworth Road Gateway District, the specific provisions for development as contained in Policy 8.6.16;</i>	See Policy 8.6.16 below.
<i>(k) any other matter which may be addressed by development agreement; and</i>	All relevant matters have been addressed in this report.
<i>(l) the provisions of Policy 16.3.1.</i>	See Policy 16.3.1 below.

<b>Policy 8.6.16</b> <i>It shall be the policy of Council to have due regard to the following in reviewing proposals in the Wentworth Road Gateway District for rezoning to the WR-C zone pursuant to Policy 8.6.14 or development agreements pursuant to Policy 8.6.15:</i>	
<i>(a) the proposed use will not conflict with neighbouring uses;</i>	See Criteria (e) of Policy 8.5.2 above.
<i>(b) the architectural design and scale of the proposed development is compatible with surrounding commercial and/or residential buildings and enhances the appearance of the streetscape, consistent with the objectives of the Wentworth Road Gateway District;</i>	See Criteria (f) of Policy 8.5.2 above. Additionally, the proposed development aligns with the objectives of the Wentworth Road Gateway district through conformance to the commercial nature of the area as well as the inclusion of landscaping and pedestrian walkway on the subject property.
<i>(c) the building design incorporates windows and other elements in the street level façade to avoid the appearance of solid blank walls;</i>	See Criteria (g) of Policy 8.5.2 above.
<i>(d) the developer provides a traffic study, acceptable to the Town and conducted by a qualified person, which demonstrates that the surrounding street network will efficiently</i>	See Criteria (i) of Policy 8.5.2 above.

<i>accommodate the anticipated traffic flows and that the development will not necessitate major infrastructure improvements such as traffic lights at the expense of the Town;</i>	
<i>(e) the provisions of Policies 8.6.4 and 8.6.8;</i>	See Policies 8.6.4 and 8.6.8 below.
<i>(f) any other matter which may be addressed in a development agreement or land use by-law; and</i>	All relevant matters have been addressed in this report.
<i>(g) the provisions of Policy 16.3.1</i>	See Policy 16.3.1 below.

<b>Policy 8.6.4</b> <i>It shall be the policy of Council to treat the Wentworth Road Gateway District as a special development area where new developments shall be required to provide landscaping and other features that contribute to the overall attractiveness of the streetscape and create a safe and pleasant pedestrian environment, as well as allowing for efficient traffic movement.</i>	All such matters are dealt with in the draft development agreement. Neither the Development Officer or the Traffic Authority had any concerns regarding the streetscape, pedestrian movement, or vehicle traffic.
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<b>Policy 8.6.8</b> <i>It shall be the intention of Council that, within the Wentworth Road Gateway District, the following matters will be addressed through Land Use By-law requirements and development agreement provisions:</i>	
<i>(a) landscaping along the street frontage to enhance the overall attractiveness of the streetscape and provide a buffer between the sidewalk and commercial or other development;</i>	The development agreement portion of the proposed development does not have street frontage on Wentworth Road. However, the draft development agreement does include provisions regarding landscaping along the street frontage on Cole Drive. A large portion of this street frontage is proposed as two stormwater retention ponds, which will help to provide a buffer between the streetscape and the proposed development.
<i>(b) landscaping within parking lots to avoid the appearance of large, uninterrupted expanses of asphalt;</i>	The draft development agreement includes a provision to require landscaping within the parking areas to

	avoid the appearance of large, uninterrupted expanses of asphalt.
<i>(c) safe pedestrian access from the sidewalk to new developments by means of walkways or clearly defined trails;</i>	See Criteria (b) of Policy 8.5.2 above.
<i>(d) other similar provisions.</i>	All relevant matters have been addressed in this report.

<b>Policy 16.3.1</b>	
<i>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:</i>	
<i>(a) whether the proposal is considered premature or inappropriate in terms of:</i>	
<i>(i) the adequacy of sewer and water services;</i>	The Public Works Engineering Division commented that they do not have any concerns regarding the adequacy of sanitary sewer and water services for the proposed development.
<i>(ii) the adequacy of school facilities;</i>	Not applicable for a commercial development.
<i>(iii) the adequacy of fire protection;</i>	The local Fire Chief commented that an additional hydrant on the premises would be ideal. This has been relayed to the applicant and has been accepted. The draft development agreement includes a provision to require consultation with the Fire Chief, prior to development permits being issued.  Otherwise, both the local fire Chief and the Manager of Building and Fire Inspection Services commented they had no concerns regarding the adequacy of fire protection for the proposed development.

<p><i>(iv) the adequacy of road networks adjacent to, or leading to the development; and</i></p>	<p>The Traffic Authority has no concerns regarding the adequacy of road networks to or surrounding the proposed development.</p>
<p><i>(v) the financial capacity of the Town to absorb any costs relating to the development.</i></p>	<p>Part of the negotiations of the draft development agreement include the conveyance of real property through easements or land transfer. The reason for this was to allow road access to the development and to ensure that stormwater could be managed properly. This negotiation was conducted by the Planning and Public Works departments with the applicant. No financial issues were raised based on the agreed upon terms of the negotiations between all parties.</p>
<p><i>(b) the suitability with any aspect relative to the movement of auto, rail and pedestrian traffic;</i></p>	<p>The Traffic Authority commented that they have no concerns regarding pedestrian or vehicle traffic. There is no active rail line in the vicinity.</p>
<p><i>(c) the adequacy of the dimensions and shape of the lot for the intended use;</i></p>	<p>The proposed development will meet the general lot requirements of the Land Use By-law. The Development Officer did not have any concerns regarding the dimensions and shape of the lot.</p>
<p><i>(d) the pattern of development which the proposal might create;</i></p>	<p>The proposed development aligns with the pattern of development in the area. The Development Officer had no concerns regarding the pattern of development.</p>
<p><i>(e) the suitability of the area in terms of steepness of grade, soil and geological conditions, location of water courses, wetlands, and susceptibility of flooding;</i></p>	<p>The Environmental constraints (Dykeland) overlay covers a small portion of the front of the PID 45055241 and 45190386. Otherwise, the majority of the subject lot appears to be gently sloped. No waterbodies or</p>

	<p>wetlands appear to be present on the mapping for the subject lot. Regarding the environmental constraint overlay, the applicant stated that “Irving will leave this area as open green space, except for constructing two driveways to Wentworth Road”. Plus, a stormwater management plan has been provided and accepted by the Public Works Department.</p>
<p><i>(f) whether the proposal meets the requirements of the appropriate provincial or federal agencies as well as whether it conforms to all other relevant municipal by-laws and regulations; and</i></p>	<p>All Municipal, Provincial, and Federal regulations will have to be met.</p>
<p><i>(g) any other matter required by relevant policies of this Strategy.</i></p>	<p>All relevant matters have been addressed in this report.</p>

**Attachment B – Draft Development Agreement**



West Hants

**DEVELOPMENT AGREEMENT**

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

**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 -

**J.D. IRVING, LTD.**, a body corporate with a head office at 300 Union Street, Saint John, Province of New Brunswick,

(Hereinafter referred to as the “Owner”)

OF THE SECOND PART

**WHEREAS** the Owner is the registered owner of the parcels of land located at a portion of PID 45190386 and PID 45366457, and has been authorized by the owner of PID 45055282 located on Wentworth Road in Windsor, NS, hereinafter referred to as the “Properties”, which are lands more particularly described in Schedule B attached hereto bound with a dashed black line; and

**WHEREAS** the Properties are partially designated Commercial and included in the Wentworth Road Gateway District and partially designated Residential on the Generalized Future Land Use Map of the Municipal Planning Strategy and partially zoned Wentworth Road Commercial (WR-

C) and partially zoned High Density Residential (R-3) 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 a large-scale commercial development consisting of multiple retail buildings on the Property (the “Development”); and

**WHEREAS** Policy 8.6.15 of the Municipal Planning Strategy and Section 6.1 (j) of the Land Use By-law enables Council to consider large format retail stores exceeding 50,000 sq. ft. (4,645 sq. m.) in commercial floor area by development agreement; and

**WHEREAS** the Council of the Municipality, at a meeting held on **MONTH DAY, YEAR**, approved this request and adopted this Agreement by policy, subject to the execution of this development agreement by the parties hereto and the other conditions herein;

**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 building(s), 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 the Development once active construction has commenced for an extended period of time, but shall not apply to stoppages of a seasonal nature or resulting from Force Majeure; and
- (c) “Commencement” means the date the Owner begins Active Construction on the buildings within this Agreement as permitted by an issued development and building permit.

### **1.2 Schedules**

The following attached schedules shall form part of this agreement:

Schedule A - Legal Description

Schedule B - Site Layout

Schedule C – Stormwater and Access Layout

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

- (a) Municipal Planning Strategy means the Windsor Municipal Planning Strategy, effective on September 21, 2005, as amended, or successor by-laws;
- (b) Land Use By-law means the Windsor Land Use By-law, effective on September 21, 2005, as amended, or successor by-laws;
- (c) Subdivision By-law means the Windsor Subdivision By-law, effective on March 21, 2012, as amended, or successor by-laws.

**PART 2 DEVELOPMENT REQUIREMENTS**

**2.1 Use**

The Parties agree that uses on the Properties shall be limited to the following:

- (a) those uses permitted by the underlying zoning in the Land Use By-law; and
- (b) one large format retail store not permitted by underlying zoning except through this agreement, up to and exceeding 50,000 sq. ft. (4,645 sq. m.) in commercial floor area.

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 Development location and design shall be generally consistent with the Site Plan shown in Schedule B.
- (b) The Development Officer may approve changes to the Site Plan in accordance with reports generated in Section 2.9, *Site Drainage*, of this Agreement.
- (c) The Development shall conform to the following site requirements:

Minimum front yard	25 ft. (7.62 m.)
Minimum side yard	25 ft. (7.62 m.)
Minimum rear yard	25 ft. (7.62 m.)
Maximum storey of main building	3 storeys
Maximum height of accessory building	20 ft. (4.57 m.)

- (d) Accessory buildings are permitted in accordance with Section 5.1 of the Land Use By-law, Accessory Buildings and Structures.
- (e) The Owner shall keep all undeveloped areas of the Property landscaped with the exception where it is not practical to do so such as areas of excessive slope or areas used for drainage. Landscaping may include grass, shrubs, trees or other appropriate vegetative cover.
- (f) The Development shall incorporate architectural treatments on the front façades to provide visual interest and avoid the appearance of solid blank walls. Such treatments may include, but are not limited to, windows, variations in building materials, changes in plane, or other design features.

### **2.3 Access and Egress**

- (a) The Owner shall develop, construct, and maintain the driveways in the Development in general conformance with the driveways shown on Schedule B.
- (b) WHRM shall grant Easement A (shown on Schedule C) to the Owner, allowing a driveway to connect to Cole Drive.
- (c) WHRM shall convey Parcel A (shown on Schedule C) to the Owner, thereby providing additional frontage for the Development on Cole Drive and access for a second driveway through Parcel A. This parcel shall be subject to a storm drainage easement in favour of West Hants.
- (d) A safe, continuous and clearly defined pedestrian walkway shall be provided from the street and the parking areas to the primary building entrance; the walkways may be a combination of crosswalks, sidewalks and trails.

### **2.4 Parking**

- (a) All parking spaces shall be located on the lot and shall be generally located as shown in Schedule B.
- (b) A minimum of one parking space per 300 sq. ft. of commercial floor area shall be provided for the Development.
- (c) Outside parking aisles and spaces shall be constructed to create a stable surface for vehicle traffic and be clearly demarcated and lined by the Owner. At the Owners option, they may be constructed using permeable construction materials to assist with stormwater retention.
- (d) Each parking space shall be a minimum of 9 ft. by 20 ft. (2.7 m. by 6.1 m.) exclusive of driveways and maneuvering aisles. Parking aisles shall be a minimum of 20 ft. (6.1 m.) wide.

- (e) Landscaped islands must be provided within parking areas to avoid the appearance of large, unbroken expanses of asphalt; islands may be located at the end of banks of parking stalls or separating banks of stalls.
- (f) The number of parking spaces may be varied by the Development Officer if requested by the Owner.

## **2.5 Buffering**

Outdoor parking shall be screened on the southwest and southeast sides of the Development Site, as shown on Schedule B, 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. above the surrounding grade and a minimum height of 5 ft.; or
- (b) a hedge of a variety of coniferous shrubs each of which will reach over 6 ft. in height at maturity; or
- (c) a wall or an opaque fence which is a minimum of 5 ft. 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 maintained for as long as the buffer is required.

## **2.6 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. Notwithstanding the Land Use By-law, one pylon sign shall be permitted on Cole Drive within the area impacted by this agreement. The Owner shall take reasonable steps to ensure exterior lighting for driveways, parking areas, signs or structures are shielded and directed downward to ensure there is no light spilling, glare or light cast over neighbouring properties or the street.

## **2.7 Maintenance**

- (a) The Owner shall keep the Property and building and any portion thereof in a reasonably 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.
- (b) The Owner shall maintain the driveways to a level adequate to allow for access by emergency services vehicles.

## **2.8 Servicing**

**(a) Waste Collection**

The Owner shall have sole responsibility for waste collection within the Development.

**(b) Water and Sewer Services**

(i) The building shall be serviced with water and sewer services provided by West Hants Regional Municipality and 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 Property.

**(c) Snow Plowing**

The Owner shall have sole responsibility for snow plowing within the Development.

**2.9 Site Drainage**

(a) No development permit shall be issued until the Owner provides to the Development Officer a stormwater management plan (Plan) in accordance with the WHRM Municipal Service Systems Specifications Manual. The Plan must satisfy 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 on the private parcels being developed to ensure there is no negative impact on downstream properties. Following construction, if the Municipal Engineer determines that the pre-and post-construction flows on the private parcels being developed have not been sufficiently balanced through the implementation of the Plan (or for any other performance issues related to the implementation of the Plan), the Owner shall undertake such remediation as the Municipal Engineer may reasonably require. The Owner will be responsible for future adherence to the Plan on the private parcels being developed, including ongoing maintenance of the stormwater management features included in the Plan. Nothing in this development agreement relieves the Owner or their stormwater engineer from any liability they would otherwise have to owners or occupants of other properties for post-construction stormwater flows, and neither the Municipality or the Municipal Engineer is liable in any way for acceptance of stormwater management plans stamped by a professional engineer accredited with Engineers Nova Scotia.

(b) The pre/post construction flows from the private parcels being developed may be balanced through a combination of stormwater management features on the

private parcels being developed, on lands currently owned by WHRM and on lands which will be deeded to WHRM through this DA.

- (c) Except as may be varied by the Municipal Engineer in writing:
- (i) In addition to the requirement of 2.9 (a) for balancing flow rates on the private parcels being developed, the stormwater management plan shall include new flow control structures for Ponds 2-3 and an additional stormwater detention pond (“Pond 4”) upstream of Pond 3 to mitigate existing flooding at the intersection of Cole Drive and Wentworth Road during high intensity rainfall events. The parties acknowledge and accept that the improvements to Ponds 2-3 and construction of Pond 4 will be completed by the Owner. Upon completion and transfer, Ponds 2-4 will be owned and operated by WHRM. WHRM be responsible for ongoing maintenance and future adherence to the Stormwater Management Plan related to these ponds.
  - (ii) Upon substantial completion of Ponds 2, 3 and 4 as verified by the Owner’s engineer and Municipal Engineer, WHRM shall pay for 25% of the cost for Ponds 2-3 and 65% of the cost for Pond 4, up to a maximum of \$281,821.88 + HST.
  - (iii) The Owner shall convey Parcel B (shown on Schedule C) to WHRM. Upon conveyance, Parcel B shall no longer be subject to this Agreement but shall continue to satisfy the pre/post requirements as if the pond was on the Owner’s lands.
  - (iv) The Owner shall grant Easement B and C (shown on Schedule C) to WHRM, allowing access to Pond 4 and allowing municipal storm drainage to flow from Abbey Road to Pond 4, and from Pond 4 to Cole Drive.

## **2.10 Fire Safety**

- (a) No development permit shall be issued until the location and connection design of any fire hydrant(s) to the Municipal water supply has been approved by the water utility, in consultation with the district Fire Chief.
- (b) All curbs shall be designed to be mountable by emergency services vehicles.
- (c) All access routes shall be kept clear of overhead obstructions and wires that could impede emergency vehicles and be maintained by the Owner, unless otherwise agreed to in writing by the Fire Chief.

## **2.11 Subdivision**

Subdivision of the Properties shall be permitted in accordance with the applicable Subdivision By-law, with the exception that the Subdivision shall be permitted using the

Easements shown in Schedule C under the terms of this agreement.

### **PART 3 CHANGES and DISCHARGE**

- 3.1** The Owner shall not vary or change the use of the Property 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 approved in writing by the Development Officer without a public hearing, in accordance with Section 230 of the *Municipal Government Act*, provided that the Development Officer determines that the changes do not significantly alter the intended effect of this Agreement.
- 3.3** The following matters are substantive matters:
- (a) the uses permitted on the Property as listed in Section 2.1, *Use*;
  - (b) the site drainage requirements listed in Section 2.9, *Site Drainage*, and
  - (c) the fire safety requirements listed in Section 2.10, *Fire Safety*.
- 3.4** Notwithstanding the foregoing, discharge of this Agreement is not a substantive matter, and this Agreement may be discharged by the Chief Administrative Officer in accordance with Section 229 of the *Municipal Government Act*.
- 3.5** Notice of Intent to Discharge this Agreement may be given by the Municipality to the Owner following a resolution of Council to give such Notice:
- (a) as provided for in Section 4.1, *Commencement of Development*, of 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.
- 3.6** This agreement may be discharged this Agreement thirty (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 (except civil grading) or use on the Property until the Municipality has issued any development permit, building permit and/or occupancy permit, if 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's Chief Administrative Officer 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, 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 Bylaws 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 Property (other than the Land Use By-law to the extent 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 neutral gender shall include the masculine and feminine.
- (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 Property 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 has 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*. 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.

#### **5.8 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 J.D. IRVING, LTD., 300 Union Street, Saint John, New Brunswick, E2L 4M3, or at any other address provided by the Owner in writing.
- (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 by the Municipality to the Owner in writing.

#### **5.9 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**

In the presence of:

) **WEST HANTS REGIONAL**

) **MUNICIPALITY**

)

)

)

Per: \_\_\_\_\_

\_\_\_\_\_  
Witness

) Abraham Zebian, Mayor

)

)

) Per: \_\_\_\_\_

\_\_\_\_\_  
Witness

) Deanna Snair, Municipal Clerk

)

)

) **J.D. IRVING, LTD.**

)

)

Per: \_\_\_\_\_

\_\_\_\_\_  
Witness

) **Signing Authority, Title**

**PROVINCE OF NOVA SCOTIA  
COUNTY OF HANTS**

**ON THIS**            day of            , A.D. **YEAR**, 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 **THE 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. **YEAR**, 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, **Signing Authority**, 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 \_\_\_\_\_, **YEAR**  
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  
Print name/affix seal

\_\_\_\_\_  
Deanna Snair, Clerk

Canada  
Province of Nova Scotia

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

I, **Signing Authority**, Nova Scotia, make oath and say that:

1. I, **Signing Authority** of **J.D. IRVING, LTD.**, 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 ownership 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 \_\_\_\_\_, **YEAR**  
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

\_\_\_\_\_  
**Signing Authority, Title**

**Schedule A**  
**Legal Description – PID 4505241**

Parcel Description

Registration County: Hants County

Street/Place Name: Wentworth Road/Windsor

Title of Plan: Plan of Subdivision Lot GL-1 Lands of Ralph G. Lawrence, Windsor, Hants County,  
Nova Scotia

Designation of Parcel on Plan: Lot GL-1

Registration Number of Plan: 6641

Registration Date of Plan: 1991-11-04

\*\*\* Municipal Government Act, Part IX Compliance \*\*\*

Compliance:

The parcel is created by a subdivision (details below) that has been filed under the Registry Act  
or registered under the Land Registration Act

Registration District: HANTS COUNTY

Registration Year: 1991

Plan or Document Number: 6641

## Legal Description – PID 45190386

### Parcel Description

ALL that certain parcel of land being at Cole Road, Windsor, in the County of Hants, Province of Nova Scotia, being LOT KL-22-R1 as shown on a plan entitled, Plan of Subdivision of LOTS 1 TO 47 and PARCELS AR, BW, PL and SWP being a Subdivision and Consolidation of LOT KL-21 and LOT KL-22 Lands of J.D. IRVING LIMITED. Prepared by DesignPoint Engineering & Surveying Ltd. being certified by Luke J. Sarginson, NSLS, dated the 16th day of April, 2024, being more particularly described as follows:

COMMENCING at a survey marker placed in the south road limit of Wentworth Road and at the Northeast corner of the lands of Kenneth Lawrence and Lucy G. Van Kippersluis, being PID 45055241 and Lot GL-1 as conveyed at Book 882 Page 830 and shown on Registry Plan Number 6641 registered at the Land Registration Office for Hants County at Windsor;

THENCE N 74 degrees 25 minutes 05 seconds E a distance of 386.62 feet to a survey marker;

THENCE southeasterly along the southwest sides of the lands formerly of Thomas and Ruth Davis now of Di Diao Real Estate, Lot 5 shown on a Plan of Survey recorded as Plan No. 8881, Windsor West Hants Industrial Commission and the remainder of Lot KL-21, lands of J.D. Irving limited shown as Lot 8 and remaining lands on Plan no. 87134277 to the west side of Lot 2 shown on the first mentioned plan of subdivision a distance of 2,163 feet more or less;

THENCE southwesterly along the northwest side of Lots 2, 3, 4, 5, and 6 to the survey marker at the north west corner of lot 6 shown on the said plan of subdivision of lands of J. D. Irving Limited;

THENCE south 42 degrees 43 minutes 22 seconds east 133.76 feet to at survey marker on the north west side of Abbey Road;

THENCE south 47 degrees 16 minutes 38 seconds west 316.87 feet to a survey marker on the north side of parcel RR-1 lands of 3229190 Nova Scotia Limited;

THENCE north 48 degrees 26 minutes 10 seconds west 411.26 feet to a survey marker at the northern most corner of Lot 19-A lands of John and Sandra Ritter;

THENCE northwesterly by the northeast line of lands of Robert P. And Mary A. Davidson, Hants Community Hospital, and Lot 2-W-1 shown on document number 107280720 a distance of 1,508 feet more or less to the said Lot GL-1;

THENCE N 53 degrees 44 minutes 18 seconds E a distance of 234.00 feet to a survey marker;

THENCE N 29 degrees 24 minutes 01 seconds W a distance of 578.21 feet to a survey marker at the point of commencement.

SUBJECT TO a right of way with Her Majesty the Queen recorded at the Hants County Registry of Deeds on February 4, 1970 in Book 278 at Page 240 as Document 66.

\*\*\* Municipal Government Act, Part IX Compliance \*\*\*

Compliance:

The parcel is created by a subdivision (details below) that has been filed under the Registry Act or registered under the Land Registration Act

Registration District: HANTS COUNTY

Registration Year: 2024

Plan or Document Number: 125174434

### Legal Description – PID 45434164

ALL that certain parcel of land being at Cole Road, Windsor, in the County of Hants, Province of Nova Scotia, being LOT KL-22-R2 as shown on a plan entitled, Plan of Subdivision of LOTS 1 TO 47 and PARCELS AR, BW, PL and SWP being a Subdivision and Consolidation of LOT KL-21 and LOT KL-22 Lands of J.D. IRVING LIMITED. Prepared by Design Point Engineering & Surveying Ltd. being certified by Luke J. Sarginson, NSLS, dated the 16th day of April, 2024, being more particularly described as follows:

Commencing at a survey marker at the southeasterly corner of Lot 8 shown on a plan of subdivision recorded in the Land Registry for Hants County as document number 87134277 where it intersects a road reserve shown as Parcel CD-4 on the said plan of subdivision;

THENCE south 46 degrees 53 minutes 58 seconds east 434.29 feet to a survey marker;

THENCE southeasterly by the southwestern line of lands of J.D. Irving Limited described in the second description of a deed conveyed to J.D. Irving Limited dated July 8, 2021, and registered as document number 118990093 on July 23, 2021, 1687 feet more or less to a survey marker at the northwestern corner of Parcel A shown on a plan of survey recorded in the Land Registration Office for Hants County as document number 84319913 on February 10, 2006;

THENCE southeasterly along the southwest side of the said Parcel A 808.69 feet more or less to a survey marker;

THENCE southwesterly along the northern boundary of lands of Jason and Krista Hart 354 feet more or less to Lot 5ABC shown on a plan of survey recorded in the Land Registration Office for Hants County as plan number 7730;

THENCE northwesterly by the northeastern line of the said Lot 5ABC, Lots 6-11 shown on Plan number 5518, Lot 12-13 shown on Plan number 5518, Lot 13A shown on Plan number 7404, Lots 28 to 32 including Parcel LL-2 shown on Plan document number 92673467, to a survey marker placed 34.20 feet from the northern most corner of Lot A-10 lands of Glenn Johnson, 2041feet more or less;

THENCE North 47 degrees 57 minutes 49 seconds West 710.75 feet to a survey marker placed at the south side of Abbey Road;

THENCE North 47degrees 16 minutes 38 seconds East 186.80 feet to a survey marker placed

THENCE south 87degrees 43 minutes 22 seconds East 21.19 feet to a survey marker placed

THENCE south easterly by the south side of Blackbird Way 711.5 feet to a survey marker placed

THENCE North 42 degrees 17 minutes 40 seconds East 52.50 feet to a survey marker placed;

THENCE northwesterly following the north side of Blackbird Way 706.94 feet to a survey marker placed;

THENCE North 2 degrees 16 minutes 38 seconds East 21.19 feet to a survey marker placed;

THENCE following the south side of Abbey Road North 47degrees 16 minutes 38 seconds East 139.02 feet to a point of curvature and a survey marker placed;

THENCE following the south side of Abbey Road the arc of a curve 78.41 feet to a survey marker placed;

THENCE following the south side of Abbey Road North 61 degrees 46 minutes 07 seconds East 91.79 feet to a survey marker placed;

THENCE south 73 degrees 16 minutes 39 seconds East 21.01 feet to a survey marker placed

THENCE southeasterly following the south side of Penny Lane 575.47 to a survey marker placed;

THENCE North 43 degrees 35 minutes 01seconds East 52.50 feet to a survey marker placed;

THENCE northwesterly following the north side of Penny Lane 558.84 feet to a survey marker placed;

THENCE North 16 degrees 43 minutes 21 seconds East 20.88 feet to a survey marker placed;

THENCE along the south side of Abbey Road to Lot 8 shown on a plan of subdivision recorded in the Land Registry for Hants County as document number 87134277 aforesaid;

THENCE south 46 degrees 53 minutes 57 seconds East 102.05 feet to the place of beginning.

THIS IS A NEW DESCRIPTION FOR REMAINDER LANDS CREATED BY PLAN.

\*\*\* Municipal Government Act, Part IX Compliance \*\*\*

Compliance:

The parcel is created by a subdivision (details below) that has been filed under the Registry Act or registered under the Land Registration Act

Registration District: HANTS COUNTY

Registration Year: 2024

Plan or Document Number: 125174434

DESCRIPTION FOR REMAINDER LANDS

**Legal Description – PID 45055282**

Comments

LOC:ALSO NO 101 HIGHWAY- REMAINDER OF PARCEL 1

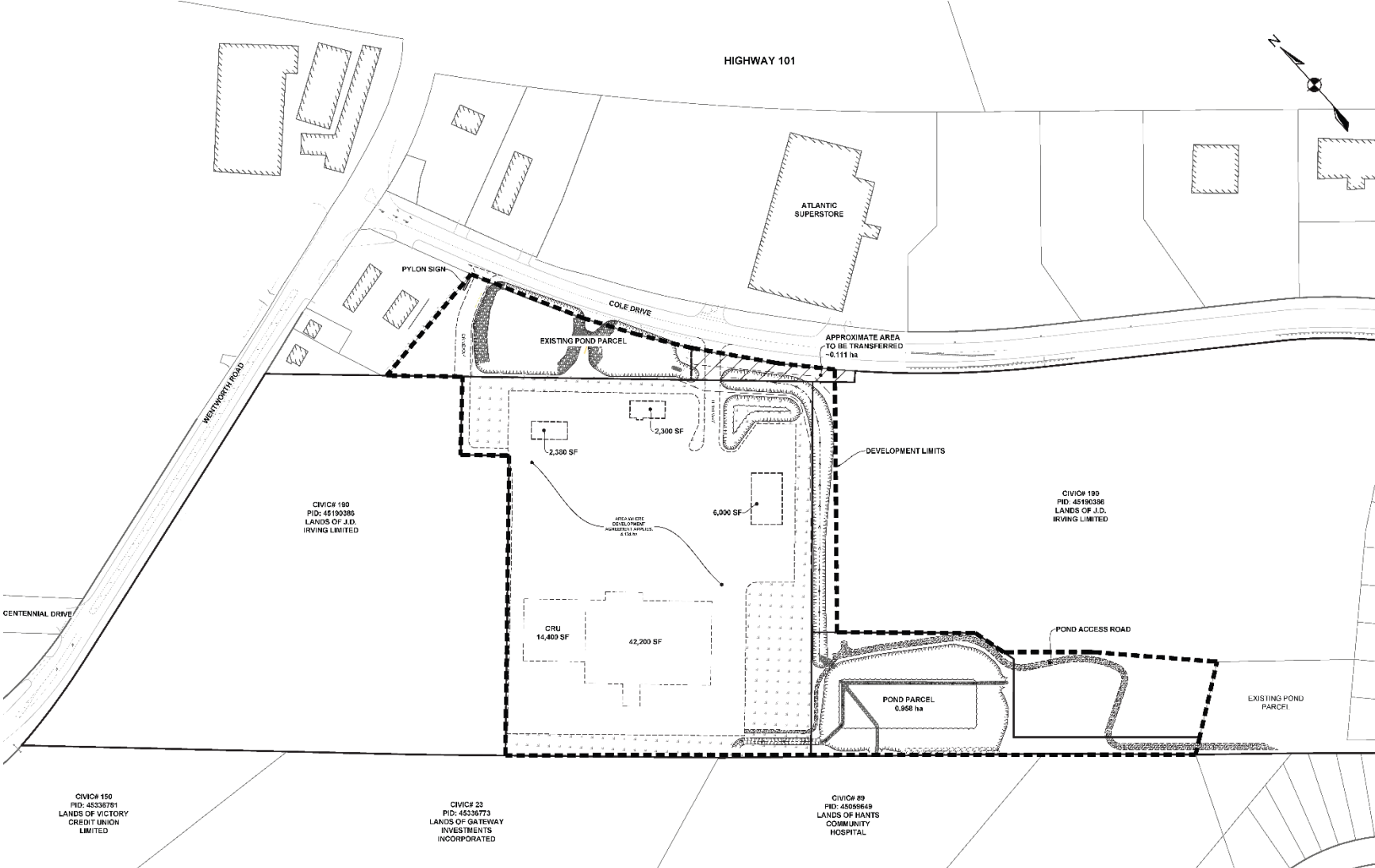
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MAP:0244990064100

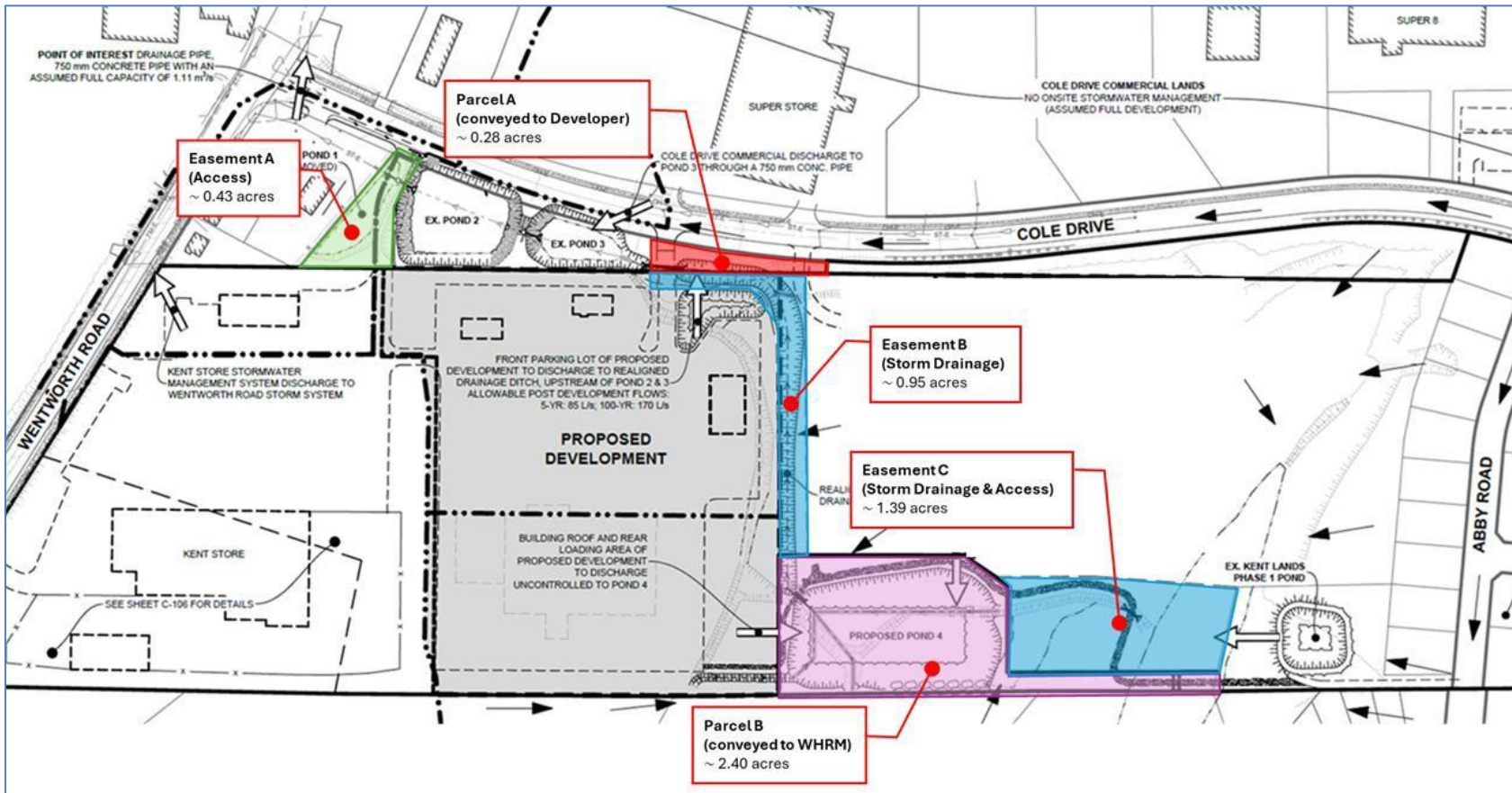
MAP:05L0969

MAP:1044950064100

# Schedule B Site Plan



## Schedule C Stormwater and Access Layout



## **Attachment C – Traffic Impact Study**

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# Traffic Impact Study

January 24, 2025

## Kent Building Supplies- Windsor Traffic Impact Study

DP Project #23-512 Engineering Services

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SUBMITTED BY:

**DesignPoint Engineering & Surveying Ltd.**

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

SUBMITTED TO:

**Kent Building Supplies Limited**



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<p>Senior Transportation Engineer          Paul Burgess, M.Eng. P. Eng.</p> 		

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# 1.0 INTRODUCTION

## 1.1 Project Overview

DesignPoint Engineering & Surveying has been engaged by Kent Building Supplies to prepare a traffic impact study for its development at the corner of Wentworth Road and Cole Drive in Windsor. The development will consist of a new Kent Building Supplies store and six commercial buildings. The general location of the site is shown in Figures 1 and 2 below.

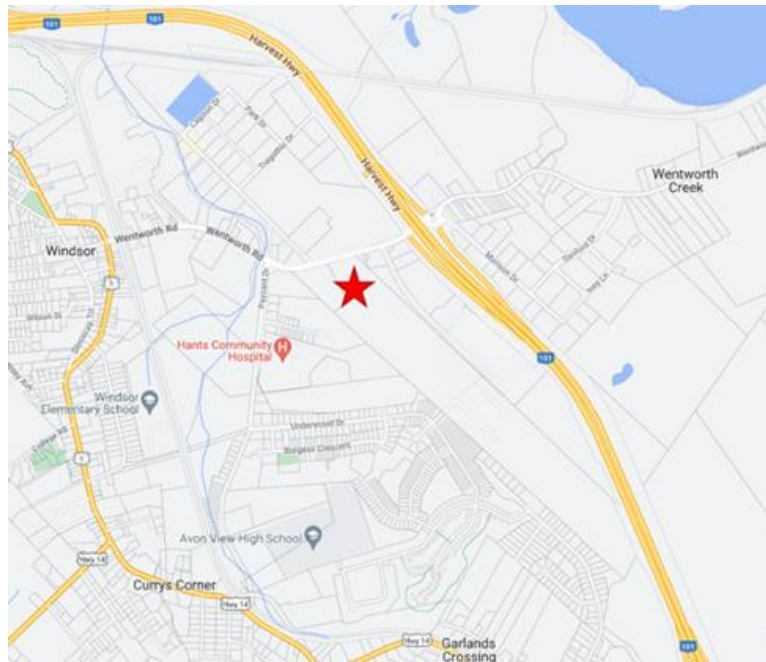


Figure 1 - Site Location

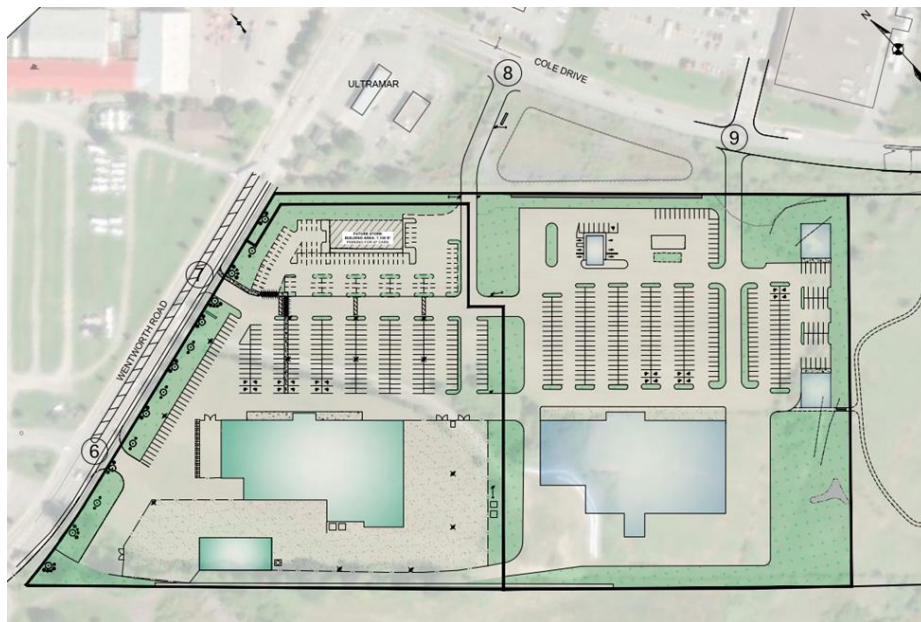


Figure 2 - Concept Plan

# 2.0 2024 EXISTING CONDITIONS

## 2.1 Study Area

The study area includes the signalized intersection at Cole Drive, the stop-controlled intersections at Payzant Drive, Centennial Drive, and Industrial Drive, and the roundabout at the Highway 101 northbound ramps terminal.

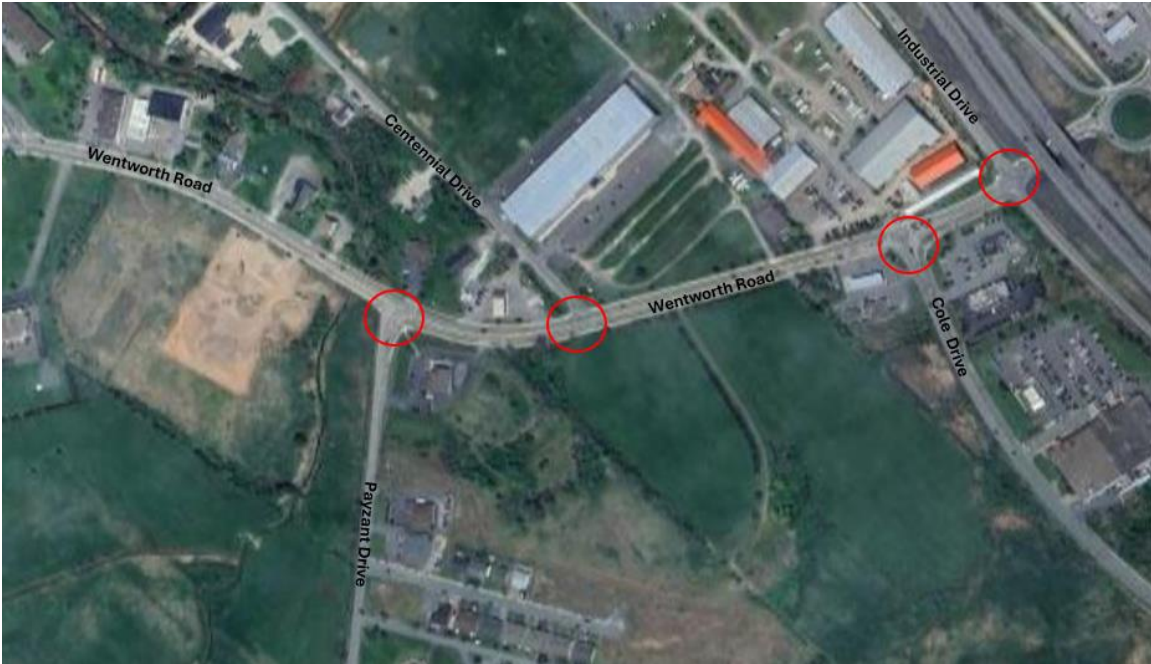


Figure 3: Study Intersection

### Wentworth Road

Wentworth Road is a two-lane east-west major collector roadway that connects Highway 101 to King Street. There are sidewalks on both sides, and a painted median for left turning traffic.

The section from Highway 101 to Payzant Drive has a posted speed of 50 km/h and six commercial driveways



*Payzant Drive*

Payzant Drive is a north-south minor collector roadway that serves as a direct access point to commercial and residential properties. It has a posted speed of 50/h.

Payzant Drive is the main access to the Hospital and the High School.



*Centennial Drive*

Centennial Drive is a two-lane local roadway that provides access to the Industrial Park and the West Hants Sports Complex. It also has a posted speed of 50 km/h



*Cole Drive*

Cole Drive is a two-lane north-south minor collector that provides access to Tim Hortons, McDonalds, and the Real Atlantic Superstore. It also provides access to the Crossing residential subdivision.



### *Industrial Drive*

Industrial Drive is a two-lane north-south minor collector that provides access to the Highway 101 southbound off ramp and the Industrial Park.

It has a posted speed of 50 km/h.



### *Intersection of Wentworth Road and Payzant Drive*

The Wentworth Road and Payzant Drive intersection is a four-leg stop-controlled intersection. The northbound, eastbound and westbound approaches all have exclusive left turn lanes.

West Hants Municipality has plans to upgrade this intersection with traffic signals and an eastbound right-turn lane.

The fourth-leg is a private driveway.



*Intersection of Wentworth Road and Centennial Drive*

The Wentworth Road and Centennial Drive intersection is a stop-controlled Tee intersection. The eastbound approach has an exclusive left turn lane.



*Intersection of Wentworth Road and Cole Drive*

The Wentworth Road and Cole Drive intersection is a four-way signalized intersection. The westbound approach has an exclusive left turn lane with a protected left turn phase. The eastbound approach has an exclusive right turn lane. The northbound approach has a right turn channel.



*Intersection of Wentworth Road and Industrial Drive/ Highway 101 Eastbound Entrance 5A Ramp*

The Wentworth Road at Industrial Drive intersection is a 4-leg stop-controlled intersection. The south leg is the Highway 101 southbound on ramp. The southbound approach is Industrial Drive which also serves as the Highway 101 southbound off ramp.

The westbound approach has a shared through-right turn lane and an exclusive left turn lane.



### *Wentworth Road Roundabout*

The intersection of Wentworth Road and the northbound Highway 101 ramps is a five-leg single-lane roundabout with an internal circle diameter of approximately 55 metres. The south leg is the Highway 101 northbound off ramp. The north leg is the Highway 101 on ramp. Morrison Drive is the fifth-leg.



## 2.2 2024 Existing Traffic Conditions

A Miovision traffic counting device was set up to collect traffic volume data on the following dates:

- Wentworth Road at Centennial Drive : Thursday, November 14, 2024
- Wentworth Road at Cole Drive: Tuesday, November 19, 2024
- Wentworth Road at Industrial Drive: Thursday, November 21, 2024
- Wentworth Road at Payzant Drive: Thursday, November 14, 2024
- Wentworth Road Roundabout Tuesday, November 26,2024

The volumes were recorded for the AM, PM, and noon peak hour periods (7-9 am, 11-1 pm, and 4 -6 pm). The traffic volume data was adjusted by the average group factor of 1.04 taken from Provincial 2023 Count Program Factor for a class A roadway. The data indicates that traffic volumes in November tend to be lower than the average daily volume. A summary of the AM and PM Peak existing traffic volumes used in our analysis is shown in Figures 4 and 5.

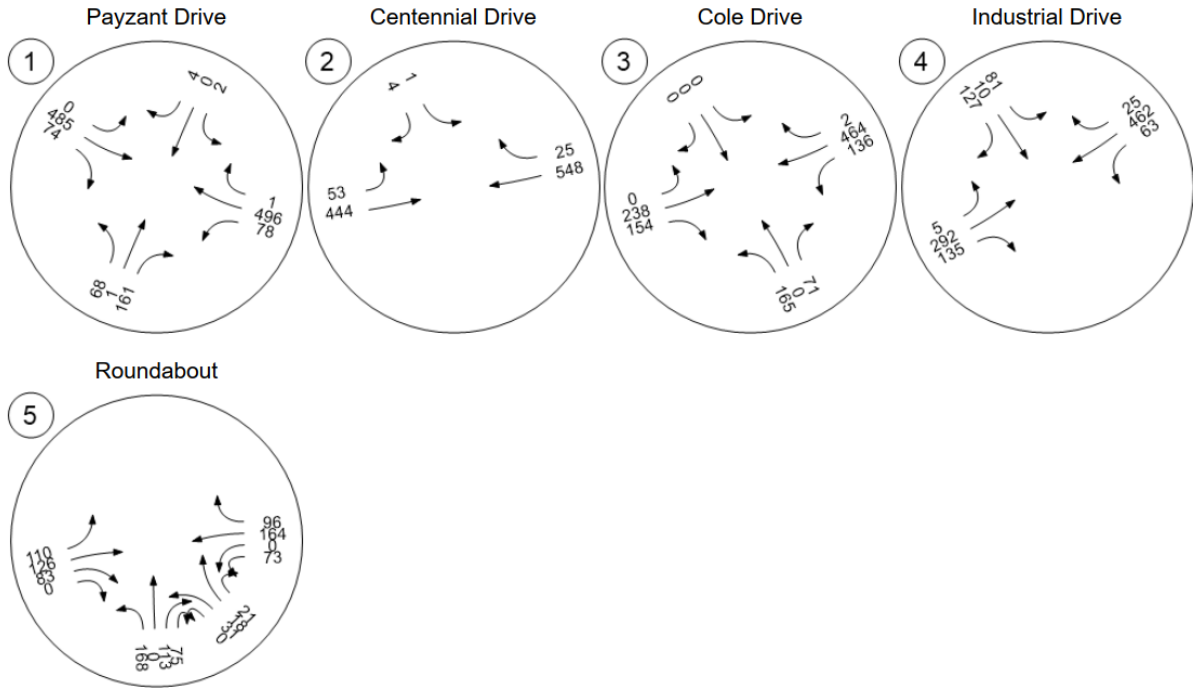


Figure 4 - Existing AM Peak Hour Volumes

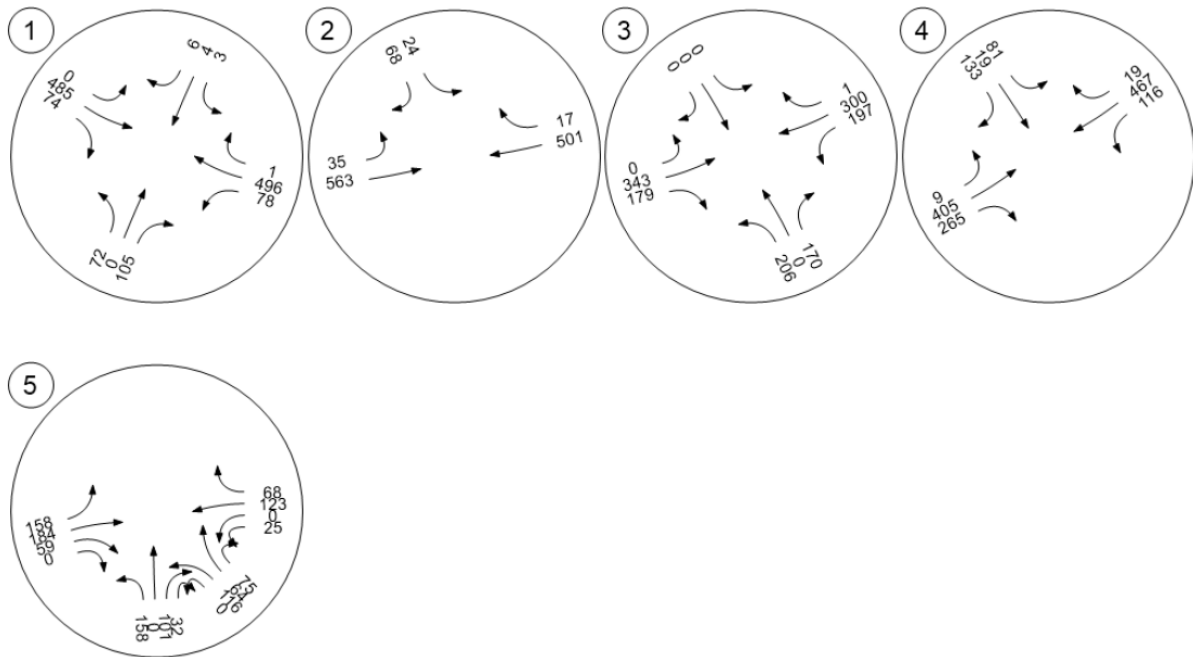


Figure 5 - Existing PM Peak Hour Volumes

## 2.3 Traffic Operations

The Highway Capacity Manual’s (HCM) level of service (LOS) analysis is the most common method used to measure how well an intersection performs from a driver’s perspective during a specific period. For urban roadways, the most common period studied is the weekday AM and PM peak hour. This usually occurs between 7 and 9 am, and between 4 and 6 pm.

The LOS is a measure of the average delay of each vehicle traveling through an intersection with grades ranging from ‘A’ to ‘F’. ‘A’ is associated with minimal delay, and ‘F’ is associated with heavily congested conditions with unacceptable delays for drivers. Table 1 shows the LOS delay thresholds for a signalized intersection with a v/c ratio less than 1.00. If any intersection approach has a v/c > 1.00, the LOS is automatically designated as a LOS F.

Table 1 - Highway Capacity Manual LOS Thresholds

Level of Service Thresholds for Signalized Intersections with v/c ratio < 1.00		
Level of Service	Average Control Delay (seconds per vehicle)	General Description
A	≤ 10	Free flow
B	10 – 20	Stable flow (slight delays)
C	20 – 35	Stable flow (acceptable delays)
D	35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	55 – 80	Unstable flow (intolerable delay)
F	> 80	Forced flow (congested and queues fail to clear)

The LOS criteria for stop-controlled intersections and roundabouts differs somewhat from the criteria for signalized intersections, primarily because user’s perceptions differ among transportation facility types.<sup>1</sup> Table 2 shows the LOS delay thresholds for stop controlled intersections and roundabouts with a v/c ratio less than 1.00. If any intersection approach has a v/c > 1.00, the LOS is automatically designated as a LOS F.





Table 2 - Highway Capacity Manual LOS Threshold Requirements


Level of Service Thresholds for Stop-Controlled Intersections and Roundabouts with v/c ratio < 1.00		
Level of Service	Average Control Delay (seconds per vehicle)	General Description
A	≤ 10	Free flow
B	10 – 15	Stable flow (slight delays)
C	15-25	Stable flow (acceptable delays)
D	25-35	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	35-50	Unstable flow (intolerable delay)
F	> 50	Forced flow (congested and queues fail to clear)


Since West Hants Municipality does not have its own published guidelines, we used the LOS criteria outlined in the NSPW Policy PO1018 (Traffic Impact Analysis) to identify level of service thresholds for the five-key intersections. For signalized and unsignalized intersections, all intersection approaches should have a LOS D or better, and a v/c ratio 0.90 or better. For roundabouts, we used the HCM7 and Kimber methods. The results are shown in Tables 3 and 4.

<sup>1</sup> Source: HCM7, Exhibit 20-2.

Table 3 - Existing AM Peak Hour LOS





Existing AM Peak Hour															
Intersection	LOS Criteria	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Intersection
Wentworth at Payzant	Vehicle Count		68	1	161	2	0	4	0	485	74	78	496	1	45.7
	v/c		0.44	0.01	0.29	0.02	0.00	0.01	0.00	0.00	0.00	0.08	0.00	0.00	
	Delay (s)		46	28	14	43	27	12	8	0	0	9	0	0	
	LOS		E	D	B	E	D	B	A	A	A	A	A	A	
	95th% Queue (m)		15	9	9	1	1	1	0	0	0	2	0	0	
Wentworth at Centennial	Vehicle Count					1		4	53	444			548	25	22
	v/c					0.00		0.01	0.05	0.00			0.01	0.00	
	Delay (s)					22		12	9	0			0	0	
	LOS					C		B	A	A			A	A	
	95th% Queue (m)					0		0	1	0			0	0	
Wentworth at Cole Dr	Vehicle Count		165	0	71	0	0	0	0	238	154	136	464	2	26
	v/c		0.17		0.07	0.00	0.00	0.00		0.40	0.32	0.54	0.83		
	Delay (s)		8		7	0	0	0		26	25	37	33		
	LOS		A		A	A	A	A		C	C	D	C		
	95th% Queue (m)		19		7	0	0	0		55	35	40	111		
Wentworth at SB Ramps	Vehicle Count					81	10	127	5	292	135	63	462	25	38
	v/c					0.37	0.05	0.22	0.00	0.00	0.00	0.06	0.00	0.00	
	Delay (s)					38	38	27	8	0	0	8	0	0	
	LOS					E	E	D	A	A	A	A	A	A	
	95th% Queue (m)					31	31	31	0	0	0	1	0	0	


Existing AM Peak Hour - HCM7 Method											
Intersection	LOS Criteria	Intersection Control	Northbound		Eastbound		Westbound		Northwestbound		Intersection
Wentworth at Roundabout	Vehicle Count			356		-319		333		70	7
	v/c			0.4		0.25		0.35		0.09	
	Delay (s)			9		5		7		5	
	LOS			A		A		A		A	
	95th% Queue (m)			15		8		12		2	


Existing AM Peak Hour - Kimber Method											
Intersection	LOS Criteria	Intersection Control	Northbound		Eastbound		Westbound		Northwestbound		Intersection
Wentworth at Roundabout	Approach Volume			356		319		333		70	3.22
	Approach Capacity			1364		1540		1400		1295	
	v/c			0.26		0.21		0.24		0.05	
	Delay (s)			3		3		3		3	
	LOS			A		A		A		A	
	Avg Queue (veh)			0		0		0		0	

The LOS analysis indicates that for the AM peak hour, all five-study intersections operate well within the study guidelines.

Table 4 - Existing PM Peak Hour LOS

Existing PM Peak Hour															
Intersection	LOS Criteria	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Intersection
Wentworth at Payzant	Vehicle Count		72	0	105	3	4	6	0	485	74	78	496	1	49.7
	v/c		0.48	0.00	0.19	0.03	0.02	0.01	0.00	0.00	0.00	0.08	0.00	0.00	
	Delay (s)		50	27	13	37	27	12	8	0	0	9	0	0	
	LOS		E	D	B	E	D	B	A	A	A	A	A	A	
	95th% Queue (m)		17	5	5	1	1	1	0	0	0	2	0	0	
Wentworth at Centennial	Vehicle Count					24	68		35	563		501		17	25
	v/c					0.11	0.12		0.03	0.01		0.01		0.00	
	Delay (s)					25	14		9	0		0		0	
	LOS					C	B		A	A		A		A	
	95th% Queue (m)					7	7		1	0		0		0	
Wentworth at Cole Dr	Vehicle Count		206	0	170	0	0	0	0	343	179	197	300	1	11.6
	v/c		0.35		0.34	0.00	0.00	0.00		0.32	0.20	0.41	0.29		
	Delay (s)		18		18	0	0	0		8	7	16	8		
	LOS		B		B	A	A	A		A	A	B	A		
	95th% Queue (m)		31		26	0	0	0		29	14	28	25		
Wentworth at SB Ramps	Vehicle Count					81	19	133	9	405	265	116	467	19	125.9
	v/c					0.64	0.16	0.23	0.01	0.00	0.00	0.13	0.00	0.00	
	Delay (s)					125	126	102	8	0	0	9	0	0	
	LOS					F	F	F	A	A	A	A	A	A	
	95th% Queue (m)					74	74	74	0	0	0	3	0	0	

Existing PM Peak Hour - HCM7 Method											
Intersection	LOS Criteria	Intersection Control	Northbound		Eastbound		Westbound		Northwestbound		Intersection
Wentworth at Roundabout	Vehicle Count			284		401		216		255	7.3
	v/c			0.34		0.3		0.27		0.35	
	Delay (s)			8		10		8		12	
	LOS			A		A		A		A	
	95th% Queue (m)			11		10		8		12	

Existing PM Peak Hour - Kimber Method											
Intersection	LOS Criteria	Intersection Control	Northbound		Eastbound		Westbound		Northwestbound		Intersection
Wentworth at Roundabout	Approach Volume			291		401		215		255	3.26
	Approach Capacity			1346		1567		1306		1248	
	v/c			0.22		0.26		0.16		0.20	
	Delay (s)			3		3		3		4	
	LOS			A		A		A		A	
	Avg Queue (veh)			0		0		0		0	

For the existing PM peak hour period, the stop-controlled intersection at Industrial Drive operates at a LOS F. Even though the v/c ratio is less than 1.00, the southbound approach delay exceeds 50 seconds.

## 3.0 BACKGROUND TRAFFIC GROWTH

Background traffic growth is the general annual traffic growth in the study area that is estimated to occur with or without the development. It includes all movements through the study area and is influenced by residential development. For this study, the objective was to estimate a growth rate that could be applied to the existing traffic count data.

To estimate background growth, we consulted the West Hants Traffic Impact and Connectivity Study<sup>2</sup>, West Hants Municipality building permit data, and the Statistics Canada Census data.

### 3.1 West Hants Traffic Impact and Connectivity Study

The main objectives of the West Hants Traffic Impact and Connectivity Study were to develop 2040 peak hour volumes at key intersections within the study area, and to evaluate the traffic impact of residential growth in the area. The Payzant Drive, Centennial Drive, and Cole Drive intersections were included in this study.

Ten development areas, totaling approximately 2100 residential units, were evaluated. The study estimated that future development would generate approximately 945 and 1100 two-way vehicle trips for the AM and PM peak hour periods respectively.

The study estimated that over the 16-year study period, peak hour traffic volumes on Wentworth Road would increase by 2.8 to 3.6 percent per year. Included in this analysis was a background traffic growth rate assumption of 1.0% per year. This seems high when compared to historical traffic volume growth rates on Highway 101.<sup>3</sup>

### 3.2 Building Permit and Census Data

West Hants building permit data was reviewed to gauge housing demand in the study area<sup>4</sup>. Over the past five years, there were building permits issued for 700 residential units.<sup>5</sup> This is an average of 140 units per year.

In 2021, the population of West Hants Municipality was 19,506<sup>6</sup>. The average annual population growth rate for the period 2016 – 2021 was 0.5% per year. The average household size in 2021 was 2.32 persons per household. If we assume a future household size of 2.0 persons per household<sup>7</sup>, and a population growth rate of 0.5 % per year, total housing demand, for the period 2025 to 2040, would be 769 units or roughly 50 units per year.

To average 140 units per year, population growth would need to increase by 1.26% per year.

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<sup>2</sup> WSP 2024

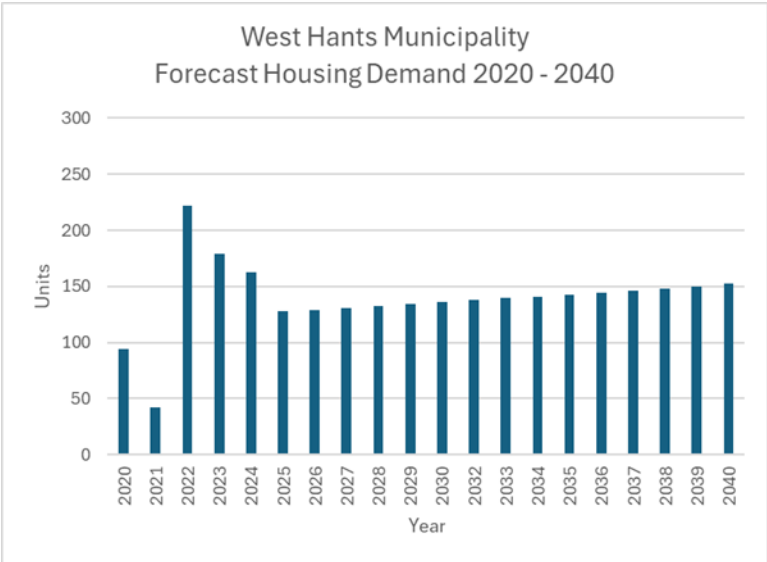
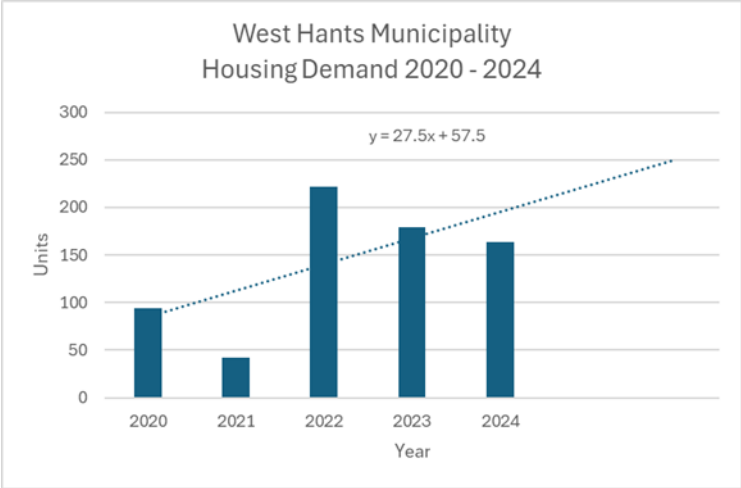
<sup>3</sup> Traffic data for Highway 101 Section 60 has been experiencing an annual growth rate of 1.76% Source: Hants County Exhibition TIS WSP 2021

<sup>4</sup> <https://www.westhants.ca/municipal-departments/planning/planning-documents-2.html>

<sup>5</sup> Building permit estimates for 2024 was obtained by prorating the data from September to the end of the year

<sup>6</sup> Stats Canada

<sup>7</sup> Average household sizes have been decreasing. Given that approximately 25% of residents are over the age of 65, this is a reasonable assumption



*Conclusion*

It is highly unlikely that traffic volumes on Wentworth Road will exceed 2.6% per year. for the next 16 years. It is possible that population growth in West Hants will exceed historical rates. The Municipality is currently averaging 140 residential units per year. To maintain this rate, the population would need to grow by 1.26% per year.

Given that travel demand is directly related to population growth, we have used a background growth rate of **1.5 % per year**. This equates to a growth factor of 1.11 over the study period.. The estimated background traffic volumes are presented in Figures 6 and 7.

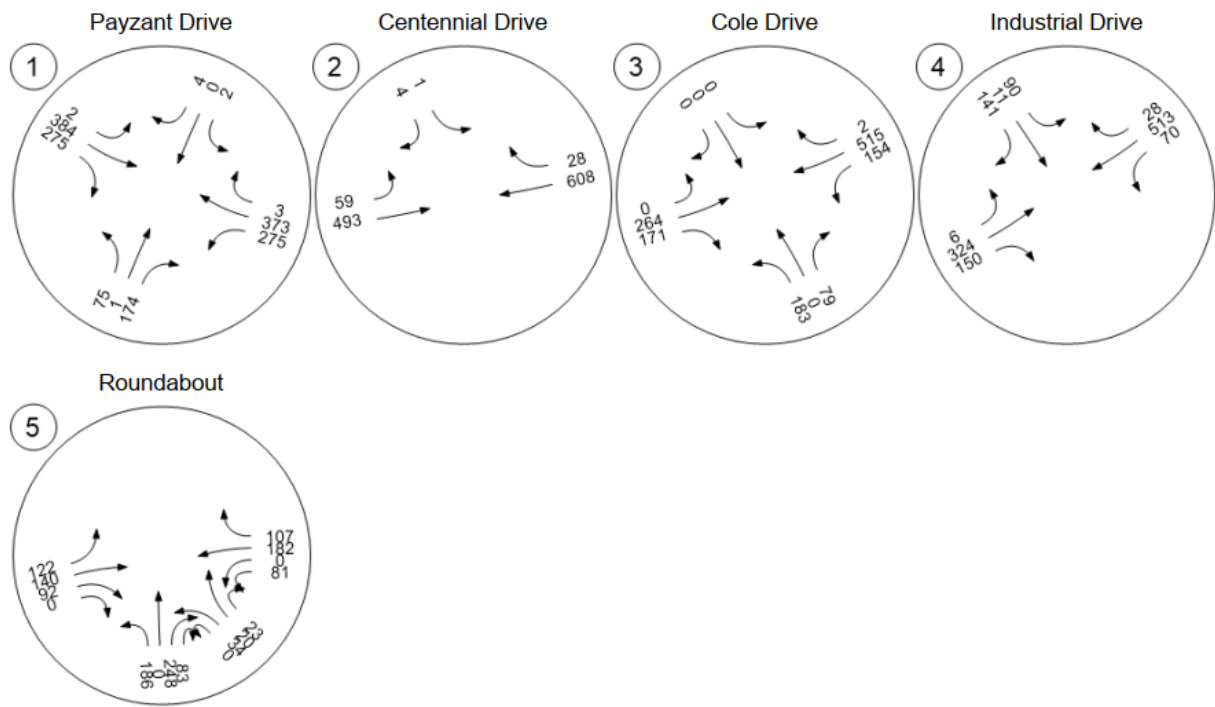


Figure 6 - Background AM Peak Traffic Volumes

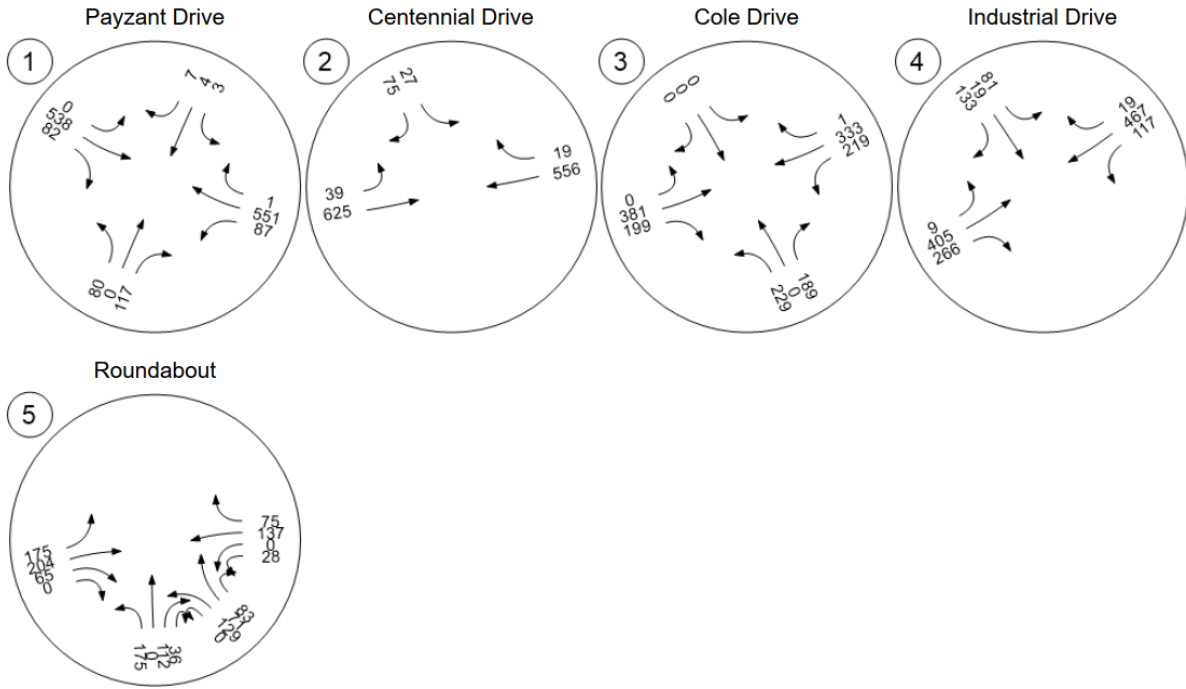




Figure 7 - Background PM Peak Hour Traffic Volumes

The LOS results for the Background AM and PM peak hour periods are presented in Tables 5 and 6.

Background AM Peak Hour																
Intersection	LOS Criteria	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Intersection	
Wentworth at Payzant	Vehicle Count		75	1	174	2	0	4	2	384	275	275	373	3	10.4	
	v/c		0.55		0.74	0.03				0.42	0.36	0.41	0.32			
	Delay (s)		27		28	21				11	10	9	5	4		
	LOS		C	C	C	C	C	C	B	A	A	A	A			
95th% Queue (m)		15		34	1			0	37	26	11	17		B		
Wentworth at Centennial	Vehicle Count					1		4	59	493			608	28	25	
	v/c					0.01		0.01	0.06	0.00			0.01	0.00		
	Delay (s)					25		13	9	0			0	0		
	LOS					C		B	A	A			A	A		
95th% Queue (m)				0		0	2	0			0	0		C		
Wentworth at Cole Dr	Vehicle Count		183		79	0	0	0	0	264	171	154	515	2	14.2	
	v/c		0.42	0.21		0.00		0.00	0.32	0.26		0.18	0.00	0.42		
	Delay (s)		29	26		0		0	17	16		6	7			
	LOS		C	C		A		A	B	B	B	A	A	A		
95th% Queue (m)		45	18		0		0	46	29		12		50	B		
Wentworth at SB Ramps	Vehicle Count					90	11	141	6	324	150	70	513	28	60.9	
	v/c					0.49	0.06	0.26	0.01	0.00	0.00	0.06	0.01	0.00		
	Delay (s)					61	61	48	9	0	0	9	0	0		
	LOS					F	F	E	A	A	A	A	A	A		
95th% Queue (m)				50	50	50	0	0	0	2	0	0		F		





Table 5 Background AM Peak Hour LOS


Background AM Peak Hour - HCM7 Method														
Intersection	LOS Criteria	Intersection Control	Northbound			Eastbound			Westbound		Northwestbound		Intersection	
Wentworth at Roundabout	Vehicle Count		517			354			370			77		9.44
	v/c		0.6			0.28			0.4			0.12		
	Delay (s)		13			5			8			7		
	LOS		B			A			A			A		
	95th% Queue (m)		31			9			15			3		


Background AM Peak Hour - Kimber Method														
Intersection	LOS Criteria	Intersection Control	Northbound			Eastbound			Westbound		Northwestbound		Intersection	
Wentworth at Roundabout	Approach Volume		517			364			370			72		3.63
	Approach Capacity		1346			1567			1306			1248		
	v/c		0.38			0.23			0.28			0.06		
	Delay (s)		4			3			3			4		
	LOS		A			A			A			A		
	Avg Queue (veh)		1			0			0			0		

For the Background study periods, it was assumed that the Payzant Drive intersection would be upgraded with signals and an eastbound right-turn-lane. The LOS analysis indicates that for the AM background peak hour, the Payzant, Centennial, Cole, and the Roundabout intersections operate within the study guidelines. For the Industrial Drive intersection, the southbound approach fails

Table 6 Background PM Peak Hour LOS

Background PM Peak Hour															
Intersection	LOS Criteria	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Intersection
Wentworth at Payzant	Vehicle Count		80	0	117	3	4	7	0	538	82	87	551	1	10.2
	v/c		0.62		0.00	0.04				0.56	0.10	0.14	0.47		
	Delay (s)		26		0	21				0	11	6	5	5	
	LOS		C	C	C	C	C	C	A	B	A	A	A		
	95th% Queue (m)		37		0	2				0	55	6	3	29	
Wentworth at Centennial	Vehicle Count					27		75	39	625			556	19	30
	v/c					0.15		0.14	0.04	0.01			0.01	0.00	
	Delay (s)					30		16	9	0			0	0	
	LOS					D		C	A	A			A	A	
	95th% Queue (m)					9		9	1	1			0	0	
Wentworth at Cole Dr	Vehicle Count		229		189	0	0	0	0	381	199	219	333	1	16.8
	v/c		0.41	0.36		0.00		0.00	0.41	0.26		0.39	0.00	0.31	
	Delay (s)		26	25		0		0	17	15		12	11		
	LOS		C	C		A		A	B	B	B	B	B	B	
	95th% Queue (m)		56	44		0		0	68	34		30		46	
Wentworth at SB Ramps	Vehicle Count					81	19	133	9	405	266	117	467	19	127.4
	v/c					0.65	0.16	0.23	0.01	0.00	0.00	0.13	0.00	0.00	
	Delay (s)					126	127	104	8	0	0	9	0	0	
	LOS					F	F	F	A	A	A	A	A	A	
	95th% Queue (m)					74	74	74	0	0	0	3	0	0	

Background PM Peak Hour - HCM7 Method															
Intersection	LOS Criteria	Intersection Control	Northbound			Eastbound			Westbound			Northwestbound			Intersection
Wentworth at Roundabout	Vehicle Count		323			444			240			283			8.29 A
	v/c		0.39			0.34			0.31			0.42			
	Delay (s)		9			6			8			11			
	LOS		A			A			A			B			
	95th% Queue (m)		14			12			10			16			

Background PM Peak Hour - Kimber Method															
Intersection	LOS Criteria	Intersection Control	Northbound			Eastbound			Westbound			Northwestbound			Intersection
Wentworth at Roundabout	Approach Volume		323			444			240			283			3.4 A
	Approach Capacity		1346			1567			1306			1248			
	v/c		0.24			0.28			0.18			0.23			
	Delay (s)		4			3			3			4			
	LOS		A			A			A			A			
	Avg Queue (veh)		1			0			0			0			

For the existing PM peak hour period, the stop-controlled intersection at Industrial Drive operates at a LOS F. Even though the v/c ratio is less than 1.00, the southbound approach delay exceeds 50 seconds per vehicle.

## 4.0 DEVELOPMENT TRAFFIC

### 4.1 Access Review

The proposed site has four-access points, two driveways off Wentworth Road, and two driveways off Cole Drive. The driveways are labelled on the sketch below. It was assumed that Driveway #6 would be limited to truck deliveries. Driveway #7 would be a full access driveway with a westbound left turn lane on Wentworth Road. Driveways #8 and #9 would also be full access driveways.

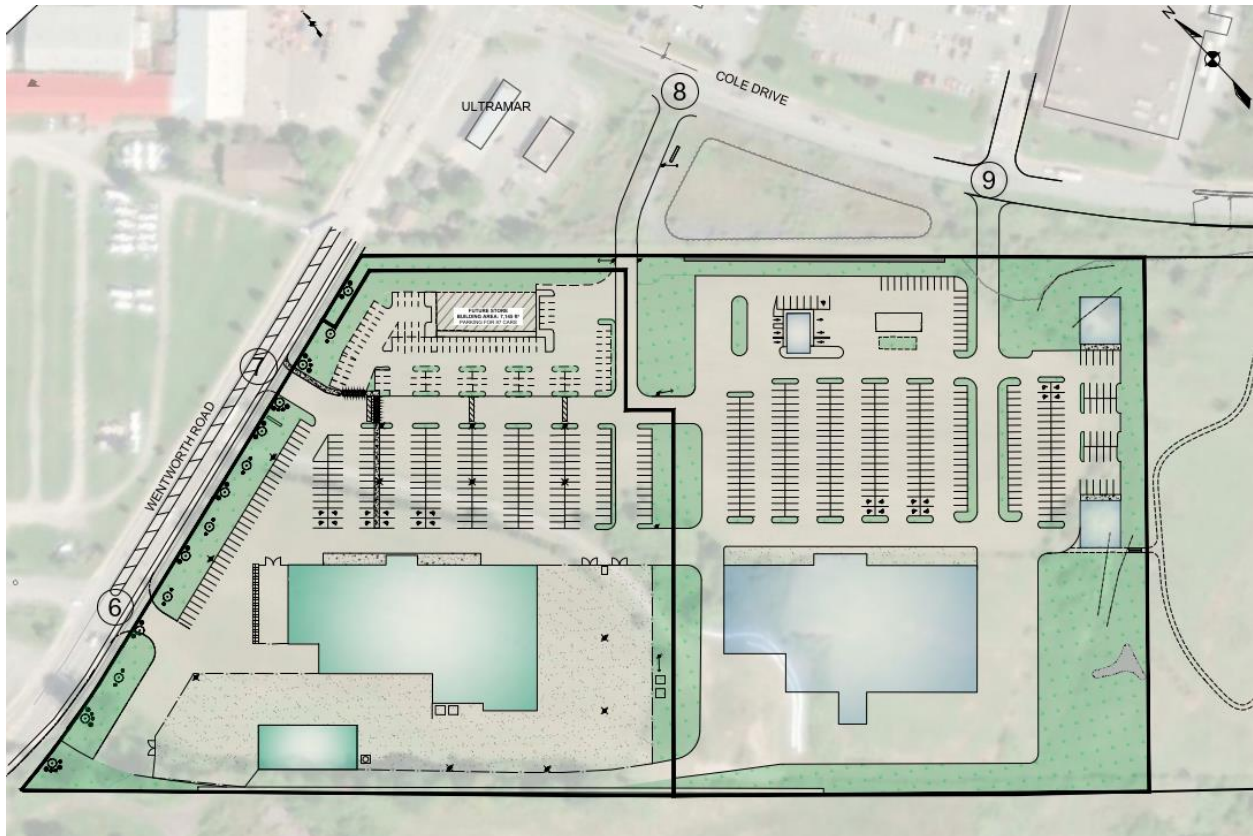


Figure 8 - Site Plan Concept

A field visit was carried out on December 9<sup>th</sup>, 2024 to review the proposed access points and measure available sight distance.

Stopping sight distance (SSD) is the minimum requirement for sight distances at driveways and intersections. SSD is the distance a vehicle takes to avoid encountering an obstacle at a relative speed. It is the combination of the distance traveled during the perception and reaction time, the time it takes a driver to determine the need to stop, and the braking distance, which is the distance traveled once the brakes are applied to when the vehicle comes to a stop.

The Transportation Association of Canada Geometric Design Guide for Canadian Roads provides a minimum SSD of 65 meters for a design speed of 50 km/h. Intersection sight distance (ISD) is based on the time gap the design vehicle needs to enter traffic safely; TAC provides a minimum intersection sight distance of 105 metres for left turn movements with a design speed 50 km/h, and 130 metres for left turn movements with a design speed of 60 km/h

For this study, it was assumed that the design speed for Wentworth Road was 60 km/h and the design speed for Cole Drive was 50 km/h. The sight distance estimates are shown in Figures 9 – 12.

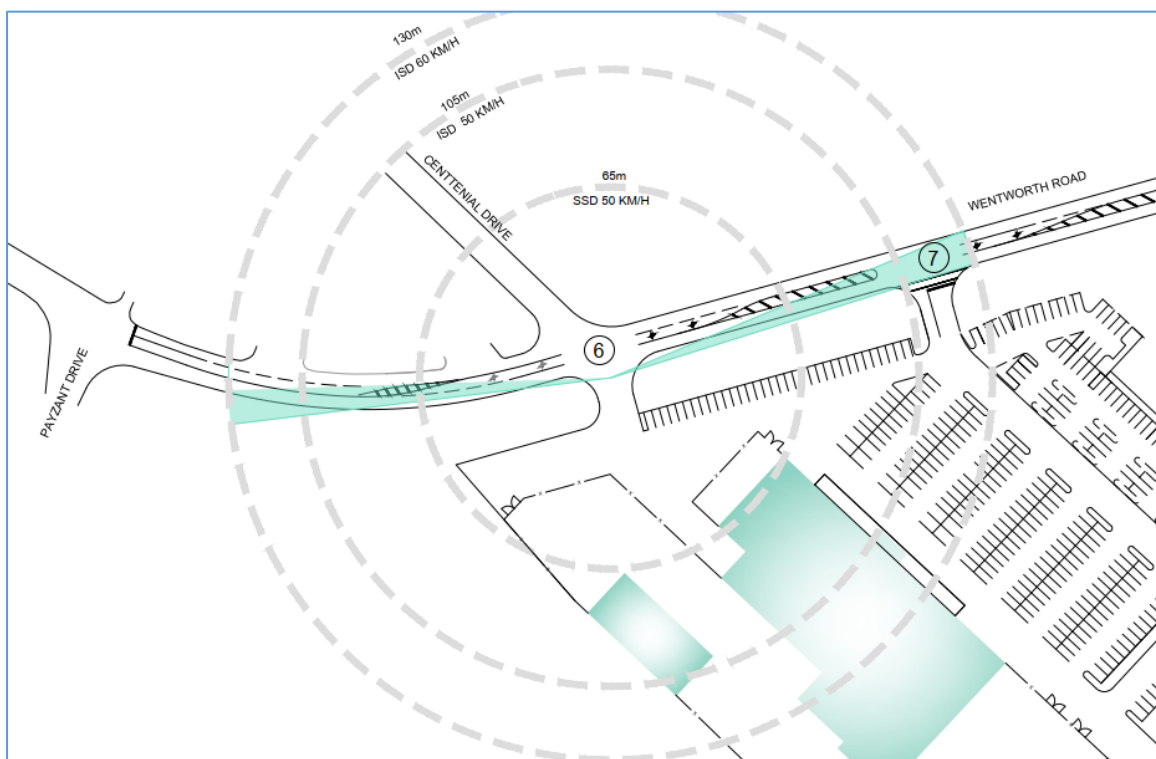


Figure 9 - Sight Distance for Driveway #6

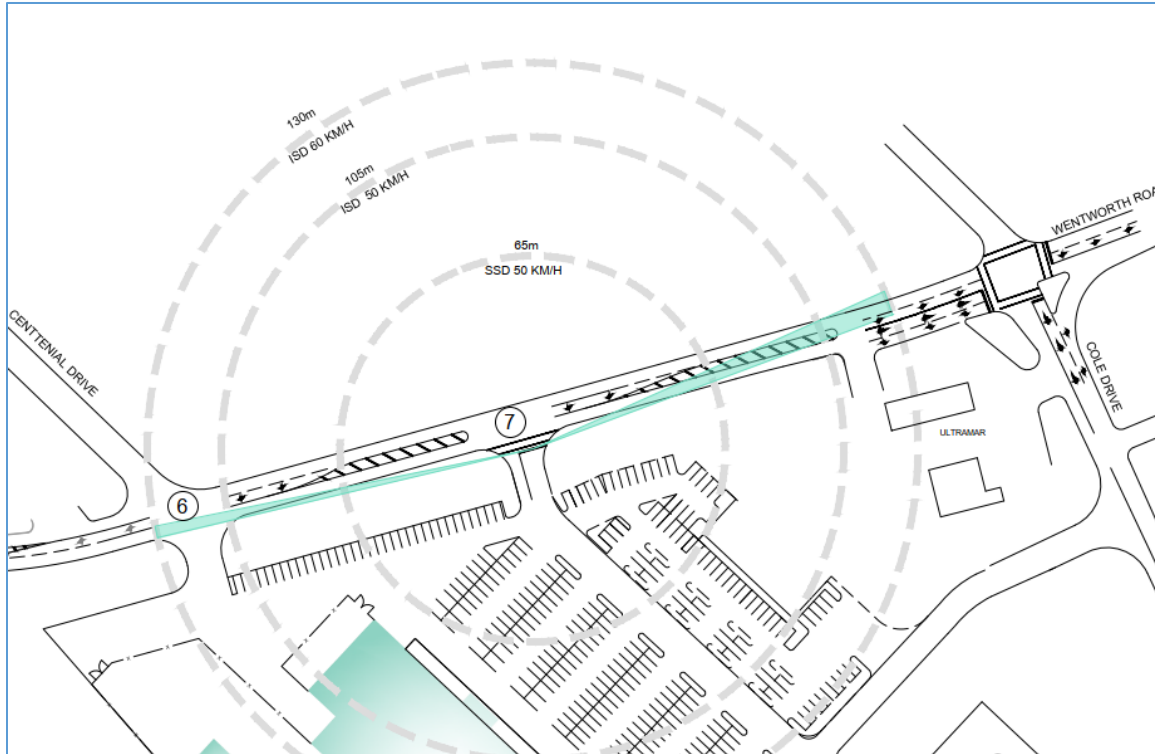


Figure 10 Sight Distance for Driveway #7

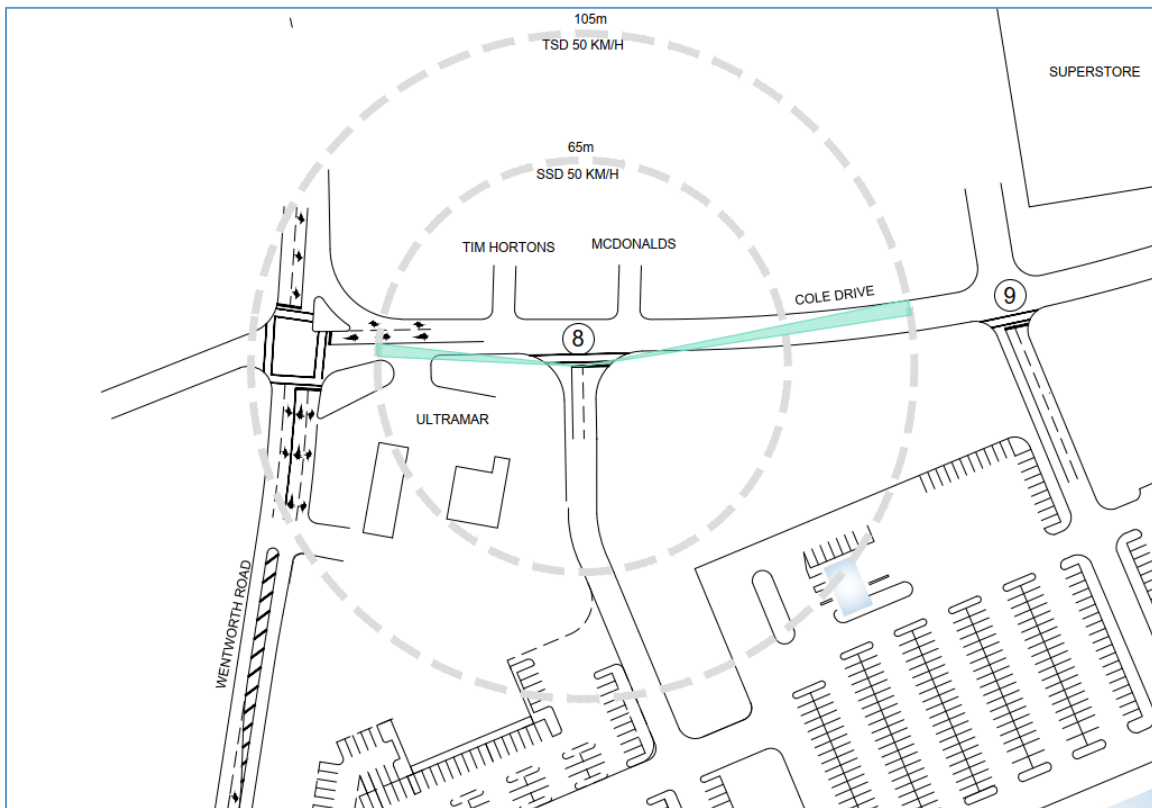


Figure 11 - Sight Distance for Driveway #8



Figure 12 - Sight Distance for Driveway #9

The SSD and ISD (TSD) requirements were checked in the field and all requirements were met

## 4.2 Site Generated Traffic

Site-generated traffic volumes for the proposed development have been determined using rates from the ITE Trip Generation Manual (TGM), 11th Edition. For this study, we have used Land Use Codes 812-Building Materials and Lumber Store, 823-Strip Mall Retail, 850-Supermarket, and 945-Convenience Store/Gas Station. For these land use codes, the TGM uses the number of dwelling units and sq. ft GFA as its independent variable.

Table 7: Trip Generation

Land Use	Code	Units	Variable	Trip Generation Rates <sup>1</sup>						Trips Generated			
				AM Peak			PM Peak			AM Peak		PM Peak	
				Rate	In	Out	Rate	In	Out	In	Out	In	Out
Building Materials and Lumber store	812	50.0	1000 Sq.Ft.GFA	1.59	62%	38%	2.25	46%	54%	49	30	52	61
Strip Mall Retail	822	22.5	1000 Sq.Ft.GFA	2.36	60%	40%	6.59	50%	50%	32	21	74	74
Supermarket	850	57.0	1000 Sq.Ft.GFA	2.86	59%	41%	8.95	50%	50%	96	67	255	255
Convenience Store / Gas Station	945	1.7	1000 Sq.Ft.GFA	16.00	50%	50%	18.40	50%	50%	14	14	16	16
<b>Estimated Site Generated Trips</b>										<b>191</b>	<b>132</b>	<b>397</b>	<b>406</b>
24% Pass-by Trip Reduction <sup>2</sup>												61	61
5% Internal Trip Capture <sup>3</sup>										10	7	13	13
<b>Total Estimated Site Generated Trips</b>										<b>181</b>	<b>125</b>	<b>323</b>	<b>332</b>
Notes:													
1. Trip generation rates from ITE <i>Trip Generation Manual</i> , 11th Edition													
2 A 24% pass-by trip reduction has been applied to the Supermarket land use													
3 A 5% internal trip capture has been applied to all land uses													
4													
5													

### 4.2.1 Pass by Trips

Pass-by trips are trips by vehicles already travelling along the route and will enter/exit the site and continue along the route. ITE provides a 24% pass-by trip for Supermarket trips during the PM peak hour. This has been applied in the trip generation trip calculations.

### 4.2.2 Internal Trips

To account for trips to and from existing land uses (McDonalds, Tim Hortons, Superstore), a 5% internal trip capture was applied to the Supermarket trip generation estimates.

### 4.2.3 Diverted Trips

The proposed Kent Building Supplies store will replace the store located at the Fort Edward Mall. To avoid double counting, trips were removed the roadway network. For example, a shopper travelling west on Wentworth Road just east of Highway 101, now would travel through the Cole Drive intersection to get to the Kent Store at the Fort Edward Mall. These trips would be replaced by the westbound left turn movement at the Cole Drive intersection.

### 4.3 Trip Distribution

The distribution of trips to the commercial properties was based on population distribution of the polling districts in the recent municipal election.

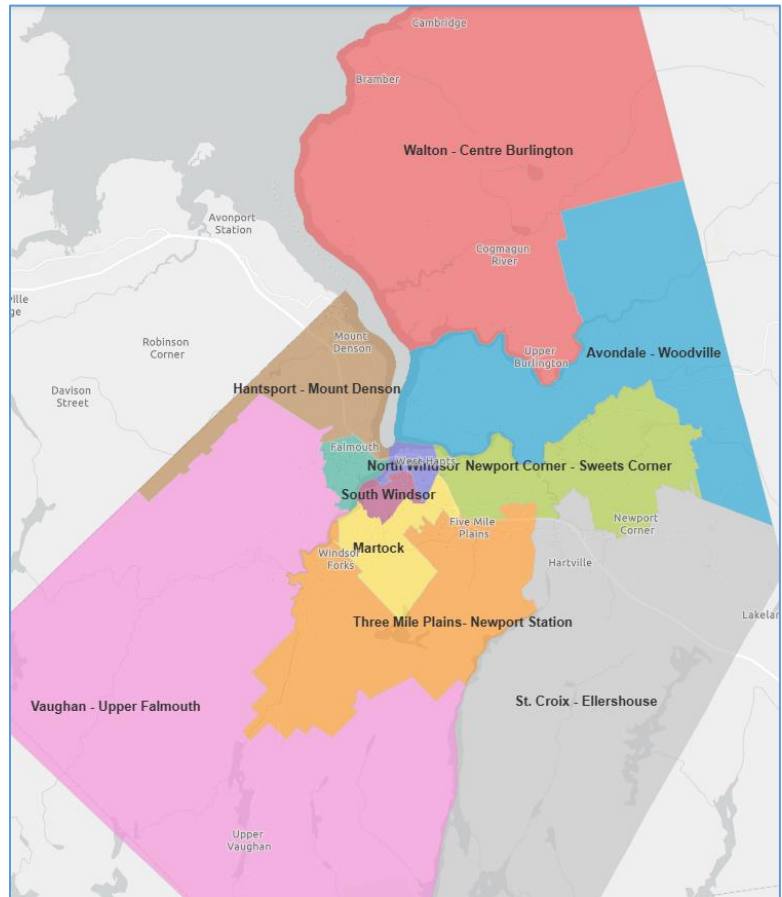
For each district, the most logical trip to and from the site was selected .

For example, residents from Walton-Centre Burlington were assumed to use Wentworth Road to access the site.

A resident from Hantsport was assumed to take Highway 101 to access the site.

The most logical route for a resident from Electoral District #5 would depend on where he/she lived. If you lived in Windsor Forks, you would most likely drive through Town. If you lived in Three Mile Plains, it was assumed that you would take the new Payzant Drive connection from King Street to Wentworth Road

The trip percentages were then added to the VISTRO traffic model. A summary of the trip distribution is shown below



Estimated Trip Distribution	
Wentworth Road West	22%
Payzant Drive	10%
Cole Drive	5%
Highway 101 S	13%
Wentworth Road East	20%
Highway 101 N	30%

# 5.0 FUTURE CONDITIONS

## 5.1 2031 Total Traffic Volumes

The 2031 total traffic volumes are the result of 2031 background volumes plus the site-generated traffic added by the completed development. Total traffic volumes for the intersections are provided in Figures 13 and 14.

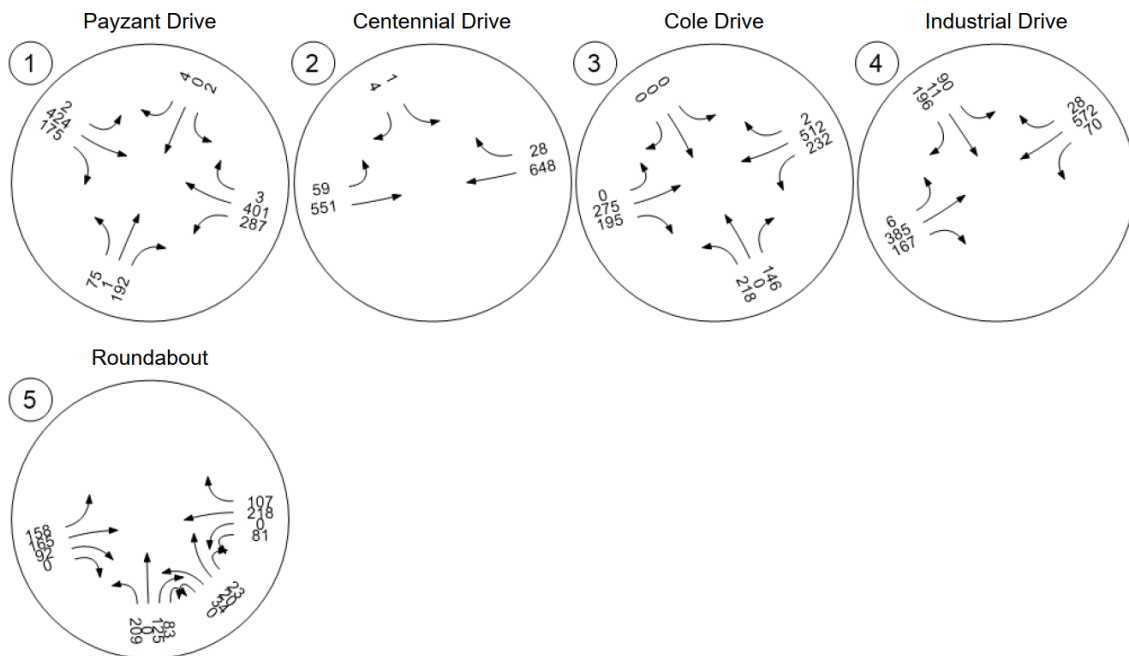


Figure 13 - 2031 Total AM Peak Hour Volumes

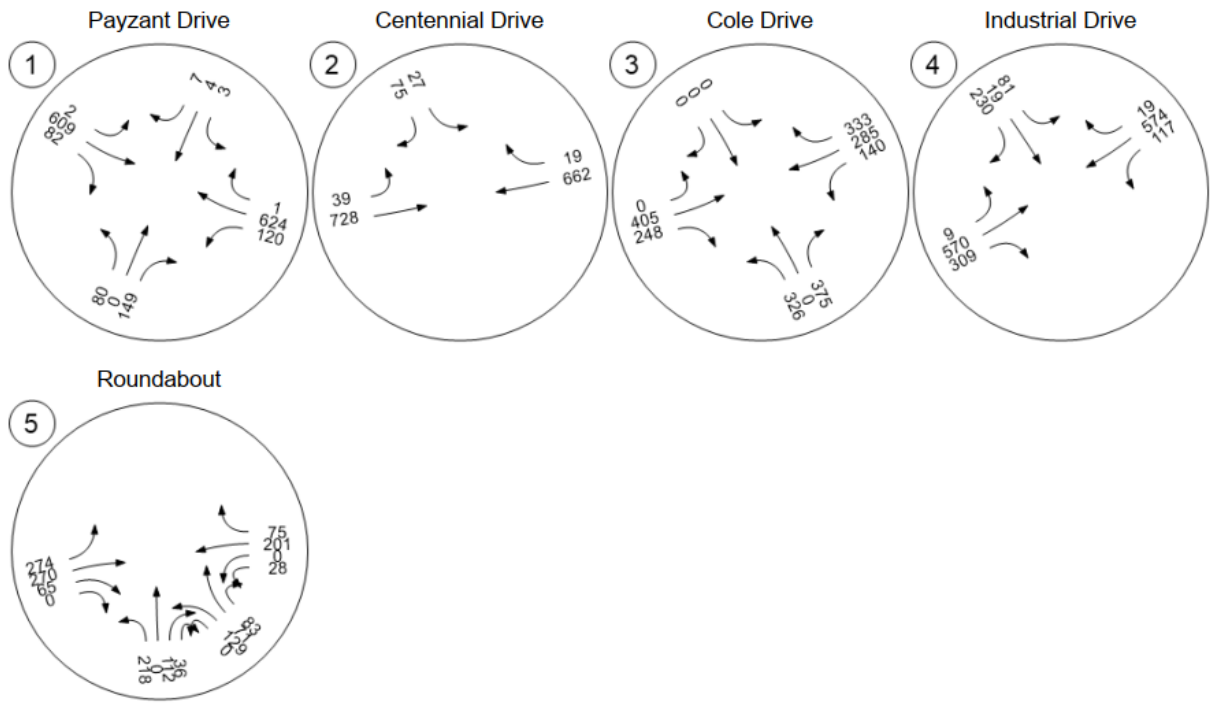


Figure 14 - 2031 Total PM Peak Hour Volumes

The LOS results for the Total AM and PM peak hour periods are presented in Tables 8 and 9.





Table 8 - Total AM Peak Hour LOS


Total AM Peak Hour															
Intersection	LOS Criteria	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Intersection
Wentworth at Payzant	Vehicle Count		75	1	192	2	0	4	2	424	175	287	401	3	10.9 B
	v/c		0.48		0.78	0.03				0.48	0.23	0.43	0.35		
	Delay (s)		25		29	21			11	11	8	6	5		
	LOS		C	C	C	C	C	C	B	B	A	A	A		
	95th% Queue (m)		14		38	1			0	45	16	12	19		
Wentworth at Centennial	Vehicle Count					1		4	59	551			648	28	28 D
	v/c					0.01		0.01	0.06	0.01			0.01	0.00	
	Delay (s)					28		13	9	0			0	0	
	LOS					D		B	A	A			A	A	
	95th% Queue (m)					0		0	2	0			0	0	
Wentworth at Cole Dr	Vehicle Count		218		146	0	0	0	0	275	195	232	512	2	18.5 B
	v/c		0.40	0.29		0.00		0.00	0.40	0.36		0.31	0.00	0.47	
	Delay (s)		26	24		0		0	24	24		11	12		
	LOS		C	C		A		A	C	C	C	B	B	B	
	95th% Queue (m)		54	34		0		0	63	45		30		73	
Wentworth at SB Ramps	Vehicle Count					90	11	196	6	385	167	70	572	28	124.2 F
	v/c					0.61	0.07	0.38	0.01	0.00	0.00	0.07	0.01	0.00	
	Delay (s)					124	124	107	9	0	0	9	0	0	
	LOS					F	F	F	A	A	A	A	A	A	
	95th% Queue (m)					90	90	90	0	0	0	2	0	0	


Total AM Peak Hour - HCM7 Method											
Intersection	LOS Criteria	Intersection Control	Northbound		Eastbound		Westbound		Northwestbound		Intersection
Wentworth at Roundabout	Vehicle Count			540		415		406		77	11.08 B
	v/c			0.67		0.33		0.47		0.13	
	Delay (s)			16		6		10		8	
	LOS			C		A		A		A	
	95th% Queue (m)			40		11		19		3	

Total AM Peak Hour - Kimber Method											
Intersection	LOS Criteria	Intersection Control	Northbound		Eastbound		Westbound		Northwestbound		Intersection
Wentworth at Roundabout	Approach Volume			540		415		406		77	3.84 A
	Approach Capacity			1346		1567		1306		1248	
	v/c			0.40		0.26		0.31		0.06	
	Delay (s)			4		3		3		4	
	LOS			A		A		A		A	
	Avg Queue (veh)			1		0		0		0	

For the Total study periods, it was assumed that the Payzant Drive intersection would be upgraded with signals and an eastbound right-turn-lane. The LOS analysis indicates that for the AM Total peak hour, only the Wentworth Road at Industrial Drive intersection fails.

Total PM Peak Hour															
Intersection	LOS Criteria	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Intersection
Wentworth at Payzant	Vehicle Count		80	0	149	3	4	7	2	609	82	120	624	1	13.1 B
	v/c		0.66		0.56	0.06				0.58	0.09	0.22	0.51		
	Delay (s)		42		35	30			14	12	7	6	7		
	LOS		D	D	D	C	C	C	B	B	A	A	A		
95th% Queue (m)			26		42	3			0	84	8	7	60		
Wentworth at Centennial	Vehicle Count					27		75	39	728			662	19	40 E
	v/c					0.20		0.16	0.04	0.01			0.01	0.00	
	Delay (s)					39		20	9	0	0		0	0	
	LOS					E		C	A	A			A	A	
95th% Queue (m)				12		12	1	0				0	0		
Wentworth at Cole Dr	Vehicle Count		326		375	0	0	0	0	405	248	140	285	333	21.3 C
	v/c		0.54	0.64		0.00		0.00	0.46	0.35		0.28	0.00	0.66	
	Delay (s)		26	29		0		0	20	18		13	18		
	LOS		C	C		A		A	B	B	B	B	B	B	
95th% Queue (m)				76	88		0	77	48		20		108		
Wentworth at SB Ramps	Vehicle Count					81	19	230	9	570	309	117	574	19	440 F
	v/c					1.07	0.25	0.45	0.01	0.01	0.00	0.15	0.01	0.00	
	Delay (s)					439	440	399	9	0	0	11	0	0	
	LOS					F	F	F	A	A	A	B	A	A	
95th% Queue (m)				177	177	177	0	0	0	4	0	0			

Total PM Peak Hour - HCM7 Method															
Intersection	LOS Criteria	Intersection Control	Northbound		Eastbound		Westbound		Northwestbound		Intersection				
Wentworth at Roundabout	Vehicle Count			366			609			304			283		11.34 B
	v/c			0.52			0.46			0.46			0.52		
	Delay (s)			13			7			12			16		
	LOS			B			A			B			C		
95th% Queue (m)				24			19			19			23		

Total PM Peak Hour - Kimber Method															
Intersection	LOS Criteria	Intersection Control	Northbound		Eastbound		Westbound		Northwestbound		Intersection				
Wentworth at Roundabout	Approach Volume			366			609			304			283		3.9 A
	Approach Capacity			1346			1567			1306			1248		
	v/c			0.27			0.39			0.23			0.23		
	Delay (s)			4			3			3			4		
	LOS			A			A			A			A		
Avg Queue (veh)				1			1			0			0		

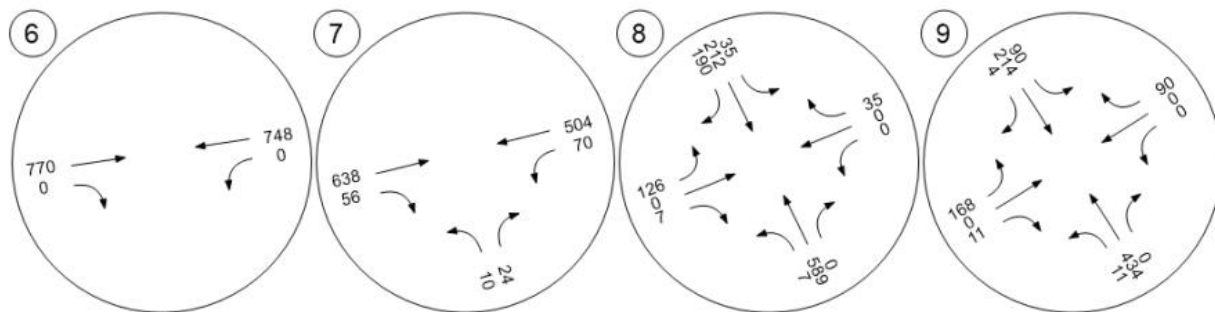
The LOS analysis indicates that for the PM Total peak hour, only the Wentworth Road at Industrial Drive intersection fails.

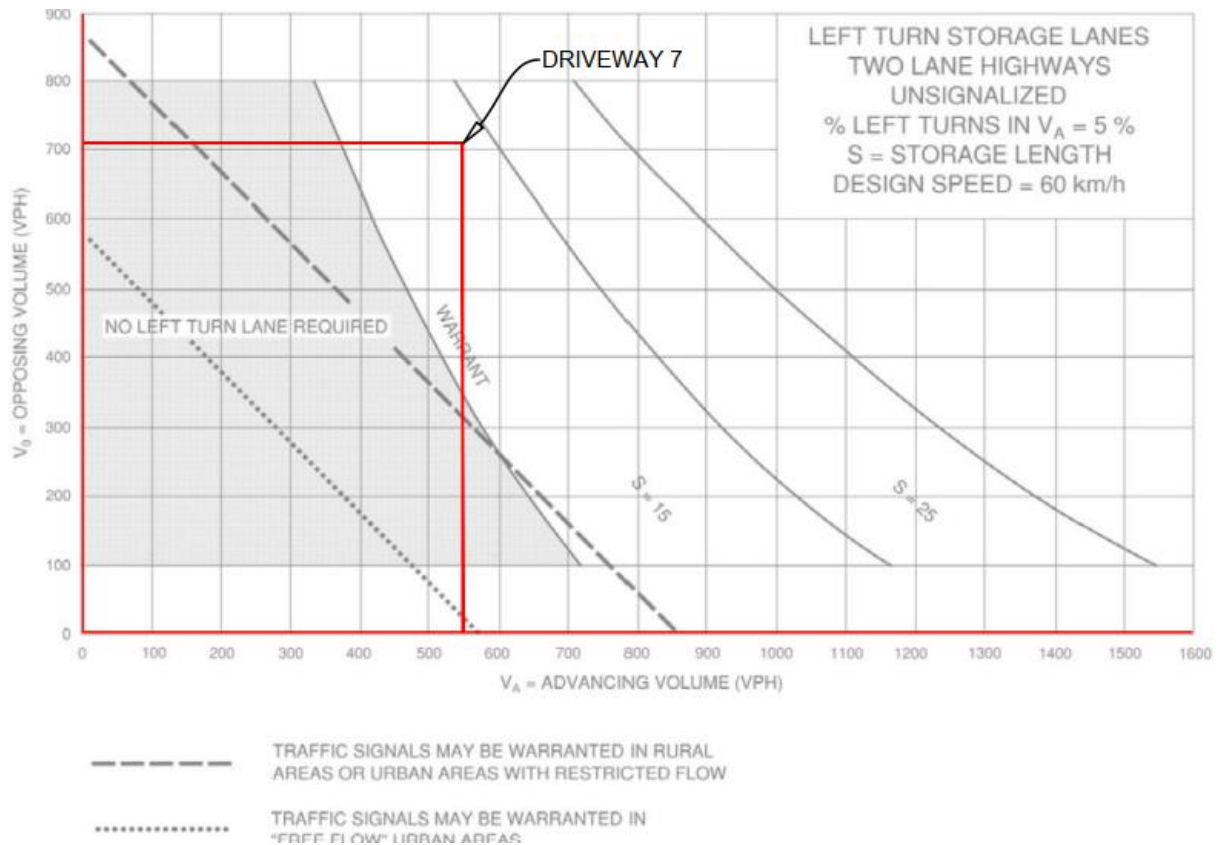
## 5.2 Auxiliary Lane Warrants

### Left Turn Lane Warrants

The Ontario Ministry of Transportation (MTO) method was used to evaluate the need for left turn lanes for the four driveways. For the purposes of this assessment, PM peak hour volumes were used as the highest volume scenario to determine the warrant.

Left turn warrants were carried out for four-driveway intersections. Based on this analysis, only Driveway #7 warranted a left turn lane. While a left turn lane was not warranted for Driveway #6, one is recommended for safety reasons given the percentage of truck traffic.





### Right Turn Lane Warrants

In Nova Scotia, the most common method used to determine if a right turn lane is warranted is the method used by the Ohio Department of Transportation. Using this method, a southbound right turn lane at Intersection #8 is warranted

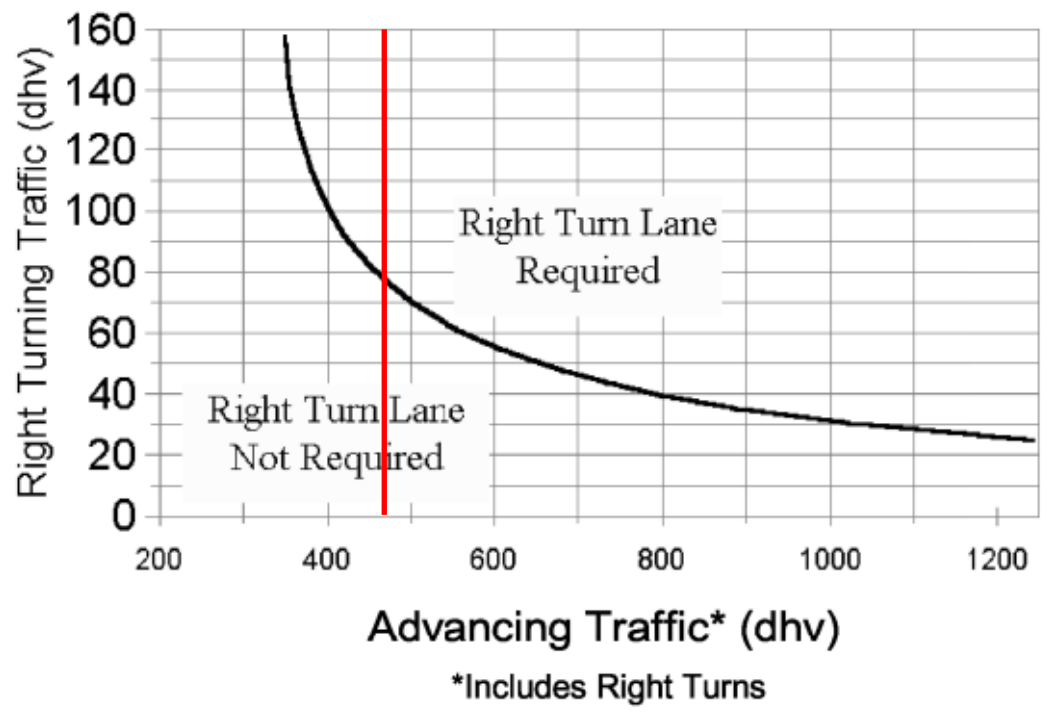


Figure 15 - Ohio DOT Right Turn Lane Warrant

### 5.3 Cole Drive Roundabout

For the Total 2031 Traffic Volume scenario, only the Wentworth Road at Industrial Drive intersection exceeds the level of service (LOS) threshold. One option that has been considered by NSPW is to upgrade the Cole Drive intersection to a roundabout, and to convert the Industrial Drive approach to an exit ramp only. This option is illustrated below:



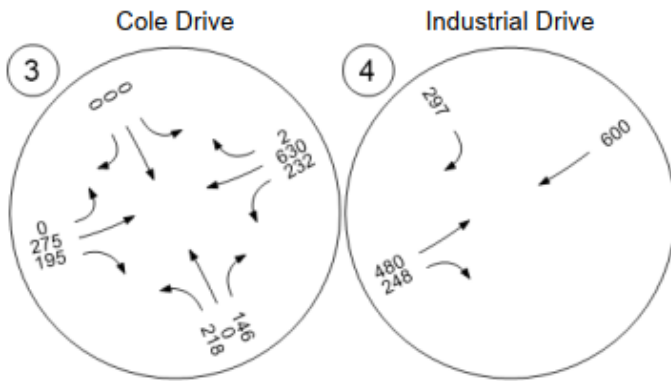


Figure 16 - Cole Drive Roundabout - Total AM Peak Hour Volumes

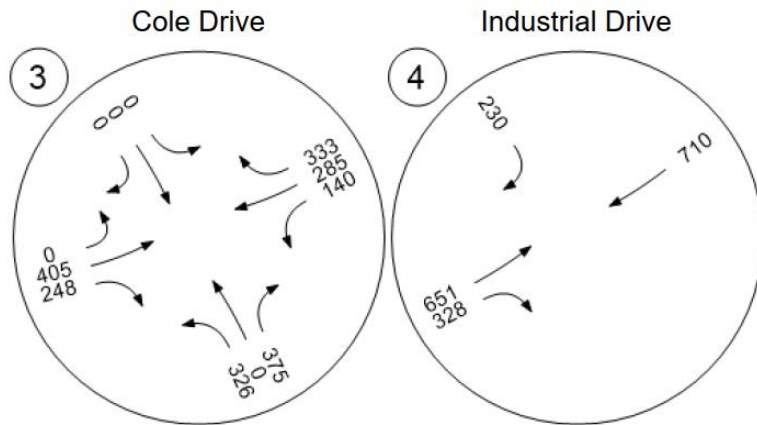







Figure 17 - Cole Drive Roundabout - Total PM Peak Hour Volumes


Table 9 - Total 2031 AM Peak with Cole Roundabout

Total 2031 AM Peak Hour - HCM 7 - Cole Roundabout															
Intersection	LOS Criteria	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Intersection
Wentworth at Cole Dr	Vehicle Count			364			0			470			864		13.36 B
	v/c			N/A			N/A			N/A			N/A		
	Delay (s)			7			8			8			19		
	LOS			A			A			A			C		
95th% Queue (m)		0			0			1			2				
Wentworth at SB Ramps	Vehicle Count							297		N/A			N/A		4.04 C
	v/c						0.59		N/A			N/A			
	Delay (s)						22			N/A			N/A		
	LOS						C			N/A			N/A		
	95th% Queue (m)						29			0			0		

Total 2031 AM Peak Hour - Kimber Method - Cole Roundabout															
Intersection	LOS Criteria	Intersection Control	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Intersection
Wentworth at Cole Dr	Approach Volume			364			0			470			864		5.9 A
	Capacity			1260			773			1287			1295		
	v/c			0.29			0.00			0.37			0.67		
	LOS			A			A			A			A		
	Avg Queue (m)			0			0			1			2		

The results indicate that with the Cole Drive roundabout and the turn restrictions at Industrial Drive, the AM Peak LOS threshold is met.

Total 2031 PM Peak Hour - HCM 7 - Cole Roundabout															
Intersection	LOS Criteria	Intersection Control	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Intersection
Wentworth at Cole Dr	Vehicle Count			701						653			758		17.21 C
	v/c			0.79			0.00			0.56			0.79		
	Delay (s)			21			6			10			20		
	LOS			C			A			A			C		
	95th% Queue (m)			63			0			27			64		
Wentworth at SB Ramps	Vehicle Count							230		N/A			N/A		4.04 C
	v/c						0.53		N/A			N/A			
	Delay (s)						22			N/A			N/A		
	LOS						C			N/A			N/A		
	95th% Queue (m)						23			0			0		

Total 2031 PM Peak Hour - Kimber Method - Cole Roundabout															
Intersection	LOS Criteria	Intersection Control	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Intersection
Wentworth at Cole Dr	Approach Volume			701			0			653			758		6.39 A
	Capacity			1182			972			1342			1230		
	v/c			0.59			0.00			0.49			0.62		
	LOS			A			A			A			A		
	Avg Queue (m)			1			0			1			1		

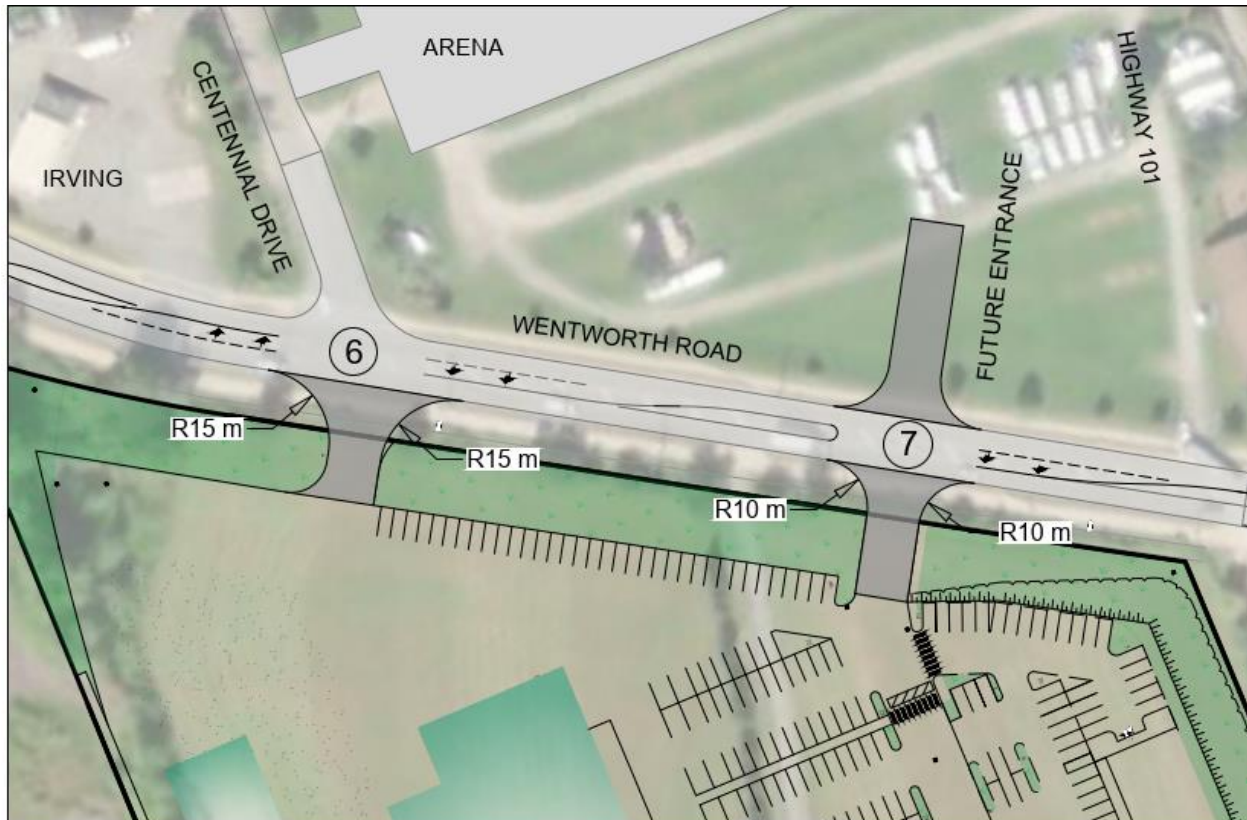
The results indicate that with the Cole Drive roundabout and the turn restrictions at Industrial Drive, the PM Peak LOS threshold is met.

## 6.0 SUMMARY

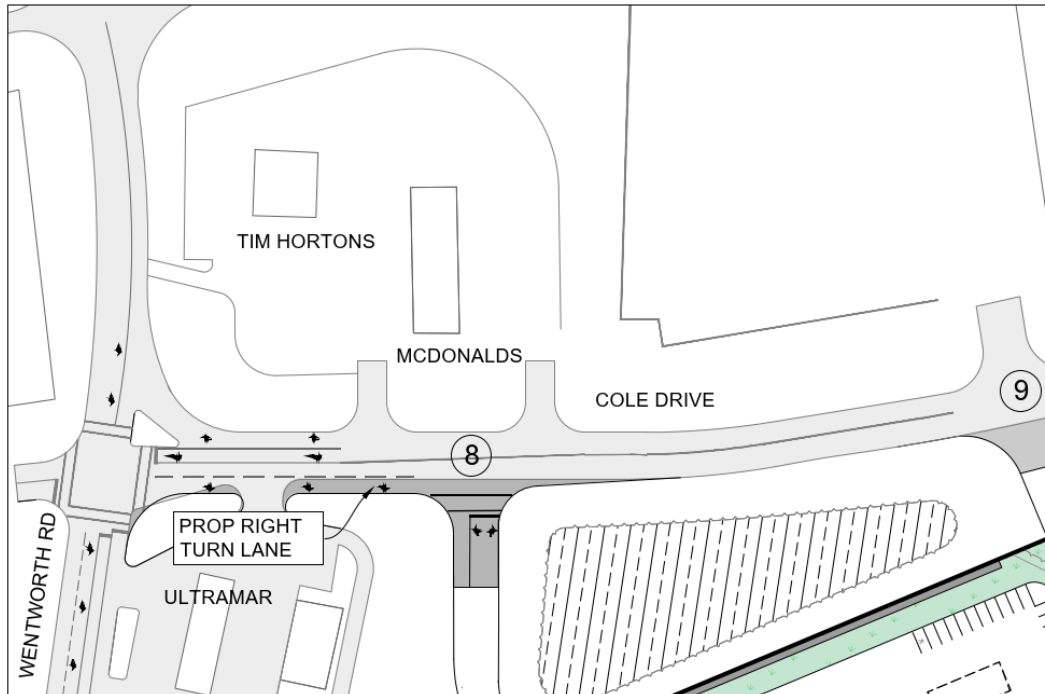
- Kent Building Supplies is planning to replace its Fort Edward Mall store with a new store at the corner of Wentworth Road and Cole Drive in Windsor. In addition to the Kent Building Supplies store, the new development will include six new commercial buildings.
- Peak hour traffic counts were obtained along the Wentworth Road corridor during the last two weeks of November 2024 at five key intersections: Payzant Drive, Centennial Drive, Cole Drive, Industrial Drive, and the Highway 101 roundabout. These counts were adjusted using the Nova Scotia Department of Public Works count group factors.
- The new store is expected to be completed by 2026, and the horizon year selected for the study was 2031. The 2031 Background traffic volumes were estimated by applying a traffic growth factor of 1.11 to the five key intersections. This equates to an annual background growth rate of approximately 1.5% per year.
- A level of service analysis for the existing traffic conditions indicates that the Payzant Drive intersection fails during both the AM and PM weekday peak hour periods. This will be mitigated when the Municipality upgrades this intersection either with signals or a roundabout.
- A LOS service analysis for existing traffic conditions indicates that the Industrial Drive intersection fails during both the AM and PM weekday peak hour periods. This intersection also fails during the background peak hour periods.
- The new site is expected to generate 306 and 655 weekday AM and PM peak hour trips respectively. When added to the background traffic volumes, only the Industrial Drive intersection fails.
- The proposed site will have four-driveways, two off Wentworth Road, and two off Cole Drive. A warrant analysis indicates that westbound left turn lanes are needed for the two Wentworth Road driveways. While left turn lanes are not needed on Cole Drive, the two driveways could experience long delays during the PM peak hour period. This will depend on through traffic on Cole Drive and how many shoppers will use the Wentworth Road driveways.
- The proximity of the Industrial Drive intersection to the roundabout (roughly 140 metres) and to the signals at Cole Drive (roughly 100 metres) makes it difficult to upgrade the intersection. One option is to upgrade the Cole Drive intersection to a roundabout and convert the Industrial Drive intersection to a Highway 101 southbound off ramp.

## 7.0 RECCOMENDATIONS

1. The Municipality should proceed with upgrading the Payzant Drive intersection. This could take the form of signals with an eastbound right turn lane or a roundabout.
2. The developer should install westbound left turn lanes at the two driveway locations located on Wentworth Road. A concept is shown below.



3. The developer should install a southbound right turn lane at Intersection No. 8. A concept is shown below.



4. If possible, Driveway 7 should align with the proposed entrance into the Exhibition Grounds
5. The Municipality and NSPW should explore the feasibility of upgrading the Cole Drive intersection to a roundabout and the Industrial Drive intersection to a southbound off ramp.

**Windsor Roundabout - TMC**

Tue Nov 26, 2024

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1252530, Location: 44.99146, -64.112593



engineering • surveying • solutions

Provided by: DesignPoint Engineering & Surveying Ltd.

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

Leg Direction	Wentworth Road Southbound					Morison Dr Southwestbound					Hwy 101 off-ramp Westbound							
Time	R	T	BL	App	Ped*	HR	BR	BL	L	App	Ped*	HR	R	T	L	HL	App	Ped*
2024-11-26 7:00AM	107	146	20	273	0	9	5	24	0	38	0	38	85	0	148	0	271	0
8:00AM	82	215	24	321	0	14	17	37	0	68	0	41	114	17	172	2	346	0
4:00PM	66	134	7	207	0	27	70	150	1	248	0	28	75	3	179	0	285	0
5:00PM	64	127	15	206	0	24	23	70	0	117	0	25	51	5	154	0	235	0
<b>Total</b>	319	622	66	1007	0	74	115	281	1	471	0	132	325	25	653	2	1137	0
<b>% Approach</b>	31.7%	61.8%	6.6%	-	-	15.7%	24.4%	59.7%	0.2%	-	-	11.6%	28.6%	2.2%	57.4%	0.2%	-	-
<b>% Total</b>	6.1%	11.8%	1.3%	19.2%	-	1.4%	2.2%	5.4%	0%	9.0%	-	2.5%	6.2%	0.5%	12.4%	0%	21.6%	-
<b>Lights</b>	302	607	64	973	-	73	114	268	1	456	-	127	309	25	608	2	1071	-
<b>% Lights</b>	94.7%	97.6%	97.0%	96.6%	-	98.6%	99.1%	95.4%	100%	96.8%	-	96.2%	95.1%	100%	93.1%	100%	94.2%	-
<b>Single-Unit Trucks</b>	14	12	0	26	-	1	1	8	0	10	-	3	10	0	23	0	36	-
<b>% Single-Unit Trucks</b>	4.4%	1.9%	0%	2.6%	-	1.4%	0.9%	2.8%	0%	2.1%	-	2.3%	3.1%	0%	3.5%	0%	3.2%	-
<b>Articulated Trucks</b>	3	1	0	4	-	0	0	0	0	0	-	0	4	0	12	0	16	-
<b>% Articulated Trucks</b>	0.9%	0.2%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0%	1.2%	0%	1.8%	0%	1.4%	-
<b>Buses</b>	0	2	2	4	-	0	0	5	0	5	-	2	2	0	10	0	14	-
<b>% Buses</b>	0%	0.3%	3.0%	0.4%	-	0%	0%	1.8%	0%	1.1%	-	1.5%	0.6%	0%	1.5%	0%	1.2%	-
<b>Pedestrians</b>	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

**Windsor Roundabout - TMC**

Tue Nov 26, 2024

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1252530, Location: 44.99146, -64.112593



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

Leg Direction	Southeast Northwestbound							Wentworth Road Northbound			Hwy 101 on-ramp Eastbound		Int
	R	BR	BL	HL	U	App	Ped*	HR	App	Ped*	App	Ped*	
Time													
2024-11-26 7:00AM	124	82	58	11	0	275	-	240	240	0	0	1	1097
8:00AM	111	111	84	6	0	312	-	317	317	0	0	1	1364
4:00PM	70	216	124	14	0	424	-	393	393	1	0	2	1557
5:00PM	75	167	98	10	0	350	-	326	326	0	0	0	1234
<b>Total</b>	380	576	364	41	0	1361	-	1276	1276	1	0	4	5252
<b>% Approach</b>	27.9%	42.3%	26.7%	3.0%	0%	-	-	100%	-	-	-	-	-
<b>% Total</b>	7.2%	11.0%	6.9%	0.8%	0%	25.9%	-	24.3%	24.3%	-	0%	-	-
<b>Lights</b>	371	559	345	41	0	1316	-	1233	1233	-	0	-	5049
<b>% Lights</b>	97.6%	97.0%	94.8%	100%	0%	96.7%	-	96.6%	96.6%	-	-	-	96.1%
<b>Single-Unit Trucks</b>	6	9	9	0	0	24	-	24	24	-	0	-	120
<b>% Single-Unit Trucks</b>	1.6%	1.6%	2.5%	0%	0%	1.8%	-	1.9%	1.9%	-	-	-	2.3%
<b>Articulated Trucks</b>	0	1	9	0	0	10	-	9	9	-	0	-	39
<b>% Articulated Trucks</b>	0%	0.2%	2.5%	0%	0%	0.7%	-	0.7%	0.7%	-	-	-	0.7%
<b>Buses</b>	3	7	1	0	0	11	-	10	10	-	0	-	44
<b>% Buses</b>	0.8%	1.2%	0.3%	0%	0%	0.8%	-	0.8%	0.8%	-	-	-	0.8%
<b>Pedestrians</b>	-	-	-	-	-	-	0	-	-	1	-	4	-
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	100%	-	100%	-

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

**Windsor Roundabout - TMC**

Tue Nov 26, 2024

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

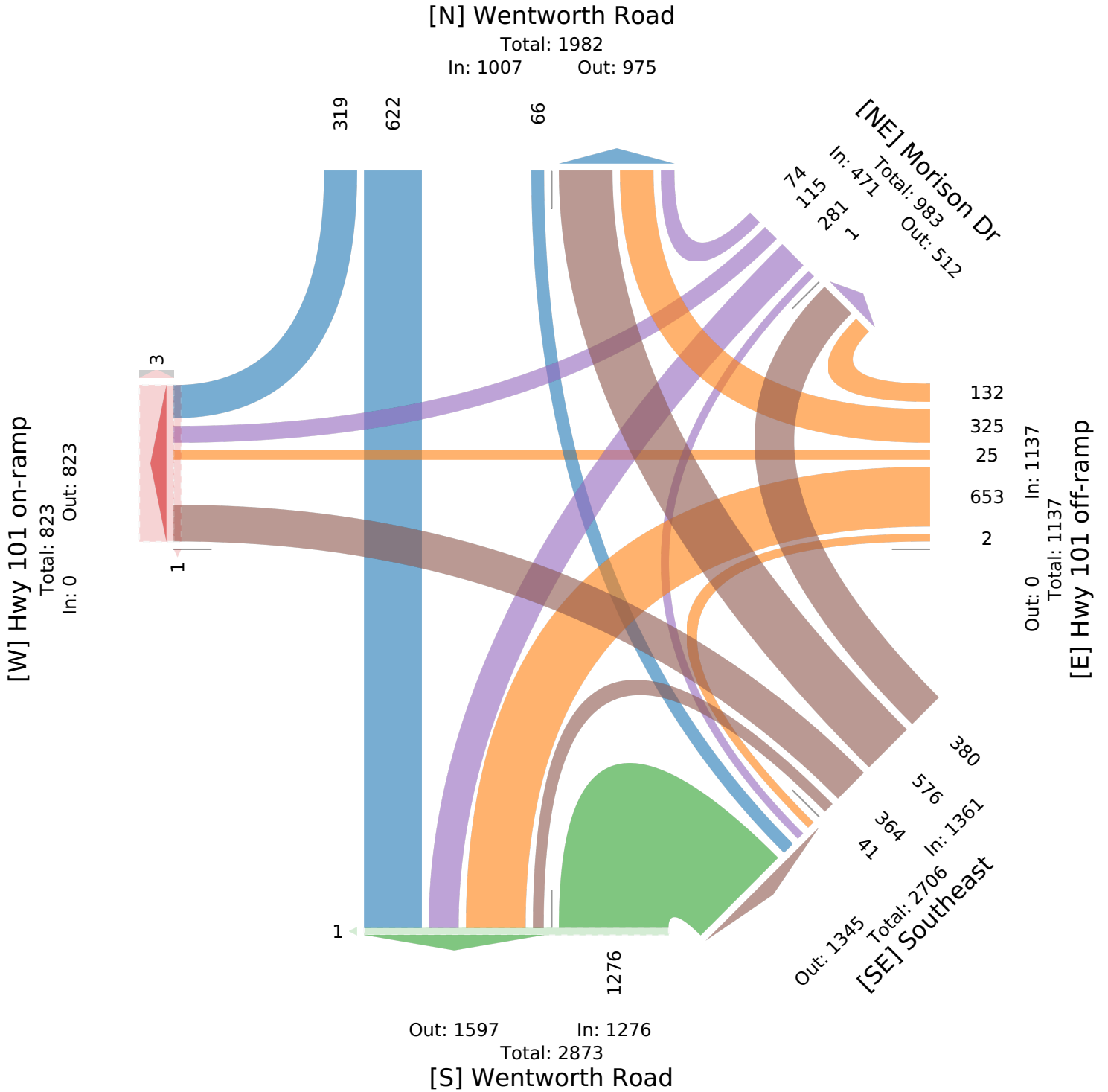
ID: 1252530, Location: 44.99146, -64.112593



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



# Windsor Roundabout - TMC

Tue Nov 26, 2024

AM Peak (8 AM - 9 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1252530, Location: 44.99146, -64.112593



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Provided by: DesignPoint Engineering & Surveying Ltd.

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

Leg Direction	Wentworth Road Southbound					Morison Dr Southwestbound					Hwy 101 off-ramp Westbound							
Time	R	T	BL	App	Ped*	HR	BR	BL	L	App	Ped*	HR	R	T	L	HL	App	Ped*
2024-11-26 8:00AM	14	42	5	<b>61</b>	0	3	5	6	0	<b>14</b>	0	20	27	6	46	2	<b>101</b>	0
8:15AM	24	57	5	<b>86</b>	0	3	5	8	0	<b>16</b>	0	8	28	4	37	0	<b>77</b>	0
8:30AM	23	60	7	<b>90</b>	0	4	2	11	0	<b>17</b>	0	6	34	4	41	0	<b>85</b>	0
8:45AM	21	56	7	<b>84</b>	0	4	5	12	0	<b>21</b>	0	7	25	3	48	0	<b>83</b>	0
<b>Total</b>	82	215	24	<b>321</b>	0	14	17	37	0	<b>68</b>	0	41	114	17	172	2	<b>346</b>	0
<b>% Approach</b>	25.5%	67.0%	7.5%	-	-	20.6%	25.0%	54.4%	0%	-	-	11.8%	32.9%	4.9%	49.7%	0.6%	-	-
<b>% Total</b>	6.0%	15.8%	1.8%	<b>23.5%</b>	-	1.0%	1.2%	2.7%	0%	<b>5.0%</b>	-	3.0%	8.4%	1.2%	12.6%	0.1%	<b>25.4%</b>	-
<b>PHF</b>	0.854	0.896	0.857	<b>0.892</b>	-	0.875	0.850	0.771	-	<b>0.810</b>	-	0.513	0.838	0.708	0.896	0.250	<b>0.856</b>	-
<b>Lights</b>	76	208	23	<b>307</b>	-	13	16	34	0	<b>63</b>	-	39	110	17	153	2	<b>321</b>	-
<b>% Lights</b>	92.7%	96.7%	95.8%	<b>95.6%</b>	-	92.9%	94.1%	91.9%	0%	<b>92.6%</b>	-	95.1%	96.5%	100%	89.0%	100%	<b>92.8%</b>	-
<b>Single-Unit Trucks</b>	5	4	0	<b>9</b>	-	1	1	3	0	<b>5</b>	-	2	2	0	6	0	<b>10</b>	-
<b>% Single-Unit Trucks</b>	6.1%	1.9%	0%	<b>2.8%</b>	-	7.1%	5.9%	8.1%	0%	<b>7.4%</b>	-	4.9%	1.8%	0%	3.5%	0%	<b>2.9%</b>	-
<b>Articulated Trucks</b>	1	1	0	<b>2</b>	-	0	0	0	0	<b>0</b>	-	0	0	0	4	0	<b>4</b>	-
<b>% Articulated Trucks</b>	1.2%	0.5%	0%	<b>0.6%</b>	-	0%	0%	0%	0%	<b>0%</b>	-	0%	0%	0%	2.3%	0%	<b>1.2%</b>	-
<b>Buses</b>	0	2	1	<b>3</b>	-	0	0	0	0	<b>0</b>	-	0	2	0	9	0	<b>11</b>	-
<b>% Buses</b>	0%	0.9%	4.2%	<b>0.9%</b>	-	0%	0%	0%	0%	<b>0%</b>	-	0%	1.8%	0%	5.2%	0%	<b>3.2%</b>	-
<b>Pedestrians</b>	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

**Windsor Roundabout - TMC**

Tue Nov 26, 2024

AM Peak (8 AM - 9 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1252530, Location: 44.99146, -64.112593



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Provided by: DesignPoint Engineering & Surveying Ltd.

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

Leg Direction	Southeast Northwestbound							Wentworth Road Northbound			Hwy 101 on-ramp Eastbound		
Time	R	BR	BL	HL	U	App	Ped*	HR	App	Ped*	App	Ped*	Int
2024-11-26 8:00AM	26	20	16	1	0	63	-	69	69	0	0	0	308
8:15AM	33	27	18	2	0	80	-	75	75	0	0	0	334
8:30AM	25	34	21	1	0	81	-	82	82	0	0	1	355
8:45AM	27	30	29	2	0	88	-	91	91	0	0	0	367
<b>Total</b>	111	111	84	6	0	312	-	317	317	0	0	1	1364
<b>% Approach</b>	35.6%	35.6%	26.9%	1.9%	0%	-	-	100%	-	-	-	-	-
<b>% Total</b>	8.1%	8.1%	6.2%	0.4%	0%	22.9%	-	23.2%	23.2%	-	0%	-	-
<b>PHF</b>	0.841	0.816	0.724	0.750	-	0.886	-	0.871	0.871	-	-	-	0.929
<b>Lights</b>	105	103	73	6	0	287	-	293	293	-	0	-	1271
<b>% Lights</b>	94.6%	92.8%	86.9%	100%	0%	92.0%	-	92.4%	92.4%	-	-	-	93.2%
<b>Single-Unit Trucks</b>	4	3	2	0	0	9	-	8	8	-	0	-	41
<b>% Single-Unit Trucks</b>	3.6%	2.7%	2.4%	0%	0%	2.9%	-	2.5%	2.5%	-	-	-	3.0%
<b>Articulated Trucks</b>	0	0	8	0	0	8	-	8	8	-	0	-	22
<b>% Articulated Trucks</b>	0%	0%	9.5%	0%	0%	2.6%	-	2.5%	2.5%	-	-	-	1.6%
<b>Buses</b>	2	5	1	0	0	8	-	8	8	-	0	-	30
<b>% Buses</b>	1.8%	4.5%	1.2%	0%	0%	2.6%	-	2.5%	2.5%	-	-	-	2.2%
<b>Pedestrians</b>	-	-	-	-	-	-	0	-	-	0	-	1	-
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	100%	-

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

**Windsor Roundabout - TMC**

Tue Nov 26, 2024

AM Peak (8 AM - 9 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1252530, Location: 44.99146, -64.112593

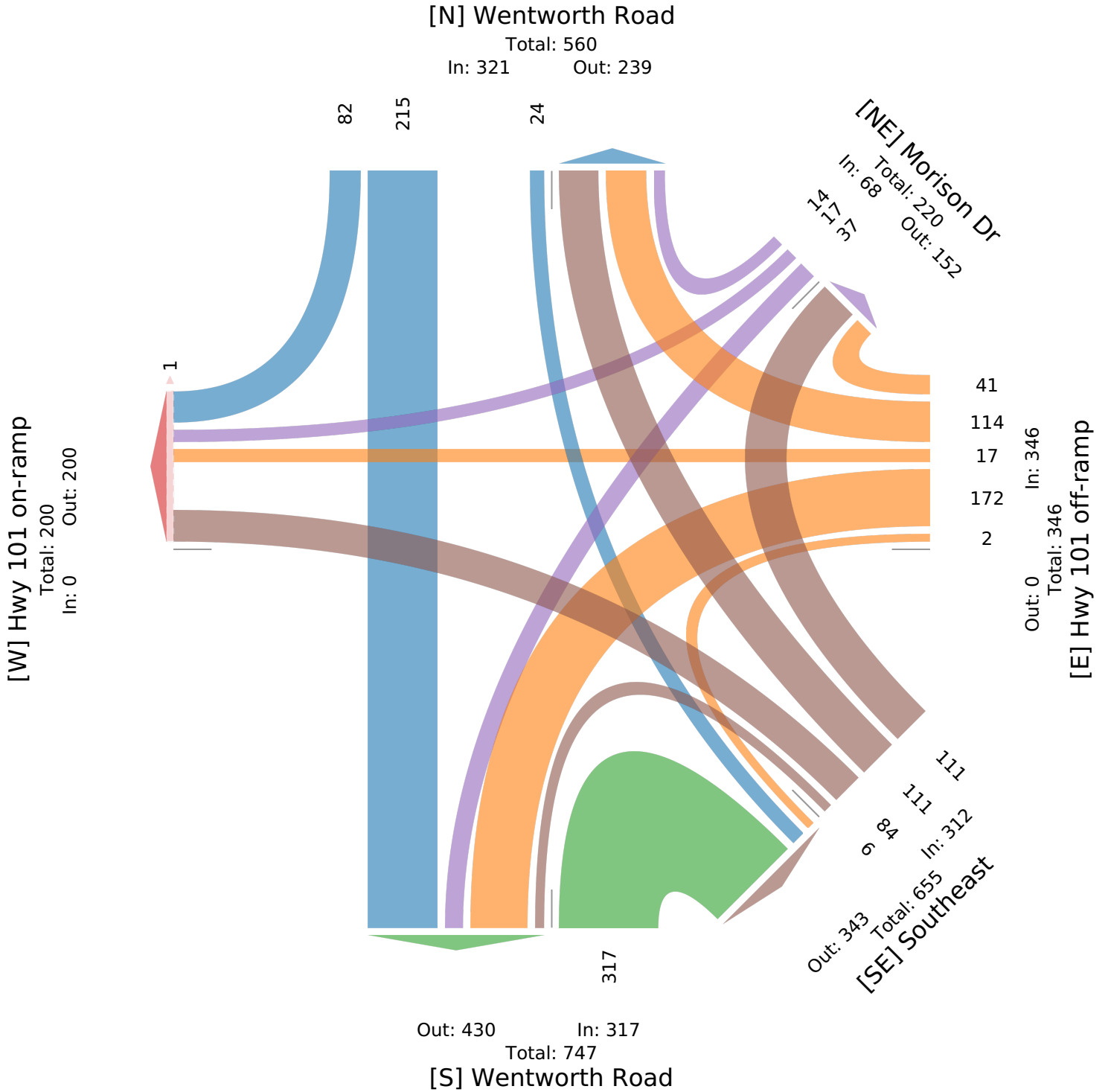


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**Windsor Roundabout - TMC**

Tue Nov 26, 2024

PM Peak (4 PM - 5 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1252530, Location: 44.99146, -64.112593



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

Leg Direction	Wentworth Road Southbound					Morison Dr Southwestbound					Hwy 101 off-ramp Westbound							
Time	R	T	BL	App	Ped*	HR	BR	BL	L	App	Ped*	HR	R	T	L	HL	App	Ped*
2024-11-26 4:00PM	11	35	2	<b>48</b>	0	7	16	31	0	<b>54</b>	0	7	16	2	39	0	<b>64</b>	0
4:15PM	16	26	2	<b>44</b>	0	3	14	20	0	<b>37</b>	0	7	23	1	46	0	<b>77</b>	0
4:30PM	18	35	1	<b>54</b>	0	8	32	63	1	<b>104</b>	0	8	21	0	44	0	<b>73</b>	0
4:45PM	21	38	2	<b>61</b>	0	9	8	36	0	<b>53</b>	0	6	15	0	50	0	<b>71</b>	0
<b>Total</b>	66	134	7	<b>207</b>	0	27	70	150	1	<b>248</b>	0	28	75	3	179	0	<b>285</b>	0
<b>% Approach</b>	31.9%	64.7%	3.4%	-	-	10.9%	28.2%	60.5%	0.4%	-	-	9.8%	26.3%	1.1%	62.8%	0%	-	-
<b>% Total</b>	4.2%	8.6%	0.4%	<b>13.3%</b>	-	1.7%	4.5%	9.6%	0.1%	<b>15.9%</b>	-	1.8%	4.8%	0.2%	11.5%	0%	<b>18.3%</b>	-
<b>PHF</b>	0.786	0.882	0.875	<b>0.848</b>	-	0.750	0.547	0.595	0.250	<b>0.596</b>	-	0.875	0.815	0.375	0.895	-	<b>0.925</b>	-
<b>Lights</b>	64	133	7	<b>204</b>	-	27	70	146	1	<b>244</b>	-	25	72	3	168	0	<b>268</b>	-
<b>% Lights</b>	97.0%	99.3%	100%	<b>98.6%</b>	-	100%	100%	97.3%	100%	<b>98.4%</b>	-	89.3%	96.0%	100%	93.9%	0%	<b>94.0%</b>	-
<b>Single-Unit Trucks</b>	1	1	0	<b>2</b>	-	0	0	4	0	<b>4</b>	-	1	1	0	8	0	<b>10</b>	-
<b>% Single-Unit Trucks</b>	1.5%	0.7%	0%	<b>1.0%</b>	-	0%	0%	2.7%	0%	<b>1.6%</b>	-	3.6%	1.3%	0%	4.5%	0%	<b>3.5%</b>	-
<b>Articulated Trucks</b>	1	0	0	<b>1</b>	-	0	0	0	0	<b>0</b>	-	0	2	0	2	0	<b>4</b>	-
<b>% Articulated Trucks</b>	1.5%	0%	0%	<b>0.5%</b>	-	0%	0%	0%	0%	<b>0%</b>	-	0%	2.7%	0%	1.1%	0%	<b>1.4%</b>	-
<b>Buses</b>	0	0	0	<b>0</b>	-	0	0	0	0	<b>0</b>	-	2	0	0	1	0	<b>3</b>	-
<b>% Buses</b>	0%	0%	0%	<b>0%</b>	-	0%	0%	0%	0%	<b>0%</b>	-	7.1%	0%	0%	0.6%	0%	<b>1.1%</b>	-
<b>Pedestrians</b>	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

**Windsor Roundabout - TMC**

Tue Nov 26, 2024

PM Peak (4 PM - 5 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1252530, Location: 44.99146, -64.112593



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90 Western Parkway, Suite 500,  
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Leg Direction	Southeast Northwestbound							Wentworth Road Northbound			Hwy 101 on-ramp Eastbound		Int
	R	BR	BL	HL	U	App	Ped*	HR	App	Ped*	App	Ped*	
Time													
2024-11-26 4:00PM	10	67	39	0	0	<b>116</b>	-	111	<b>111</b>	1	<b>0</b>	1	<b>393</b>
4:15PM	12	50	32	3	0	<b>97</b>	-	94	<b>94</b>	0	<b>0</b>	0	<b>349</b>
4:30PM	18	54	22	5	0	<b>99</b>	-	89	<b>89</b>	0	<b>0</b>	1	<b>419</b>
4:45PM	30	45	31	6	0	<b>112</b>	-	99	<b>99</b>	0	<b>0</b>	0	<b>396</b>
<b>Total</b>	70	216	124	14	0	<b>424</b>	-	393	<b>393</b>	1	<b>0</b>	2	<b>1557</b>
<b>% Approach</b>	16.5%	50.9%	29.2%	3.3%	0%	-	-	100%	-	-	-	-	-
<b>% Total</b>	4.5%	13.9%	8.0%	0.9%	0%	<b>27.2%</b>	-	25.2%	<b>25.2%</b>	-	<b>0%</b>	-	-
<b>PHF</b>	0.583	0.806	0.795	0.583	-	<b>0.914</b>	-	0.885	<b>0.885</b>	-	-	-	0.929
<b>Lights</b>	69	216	122	14	0	<b>421</b>	-	390	<b>390</b>	-	<b>0</b>	-	1527
<b>% Lights</b>	98.6%	100%	98.4%	100%	0%	<b>99.3%</b>	-	99.2%	<b>99.2%</b>	-	-	-	98.1%
<b>Single-Unit Trucks</b>	1	0	2	0	0	<b>3</b>	-	3	<b>3</b>	-	<b>0</b>	-	22
<b>% Single-Unit Trucks</b>	1.4%	0%	1.6%	0%	0%	<b>0.7%</b>	-	0.8%	<b>0.8%</b>	-	-	-	1.4%
<b>Articulated Trucks</b>	0	0	0	0	0	<b>0</b>	-	0	<b>0</b>	-	<b>0</b>	-	5
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	<b>0%</b>	-	0%	<b>0%</b>	-	-	-	0.3%
<b>Buses</b>	0	0	0	0	0	<b>0</b>	-	0	<b>0</b>	-	<b>0</b>	-	3
<b>% Buses</b>	0%	0%	0%	0%	0%	<b>0%</b>	-	0%	<b>0%</b>	-	-	-	0.2%
Pedestrians	-	-	-	-	-	-	0	-	-	1	-	2	-
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	100%	-	100%	-

\*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

**Windsor Roundabout - TMC**

Tue Nov 26, 2024

PM Peak (4 PM - 5 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1252530, Location: 44.99146, -64.112593

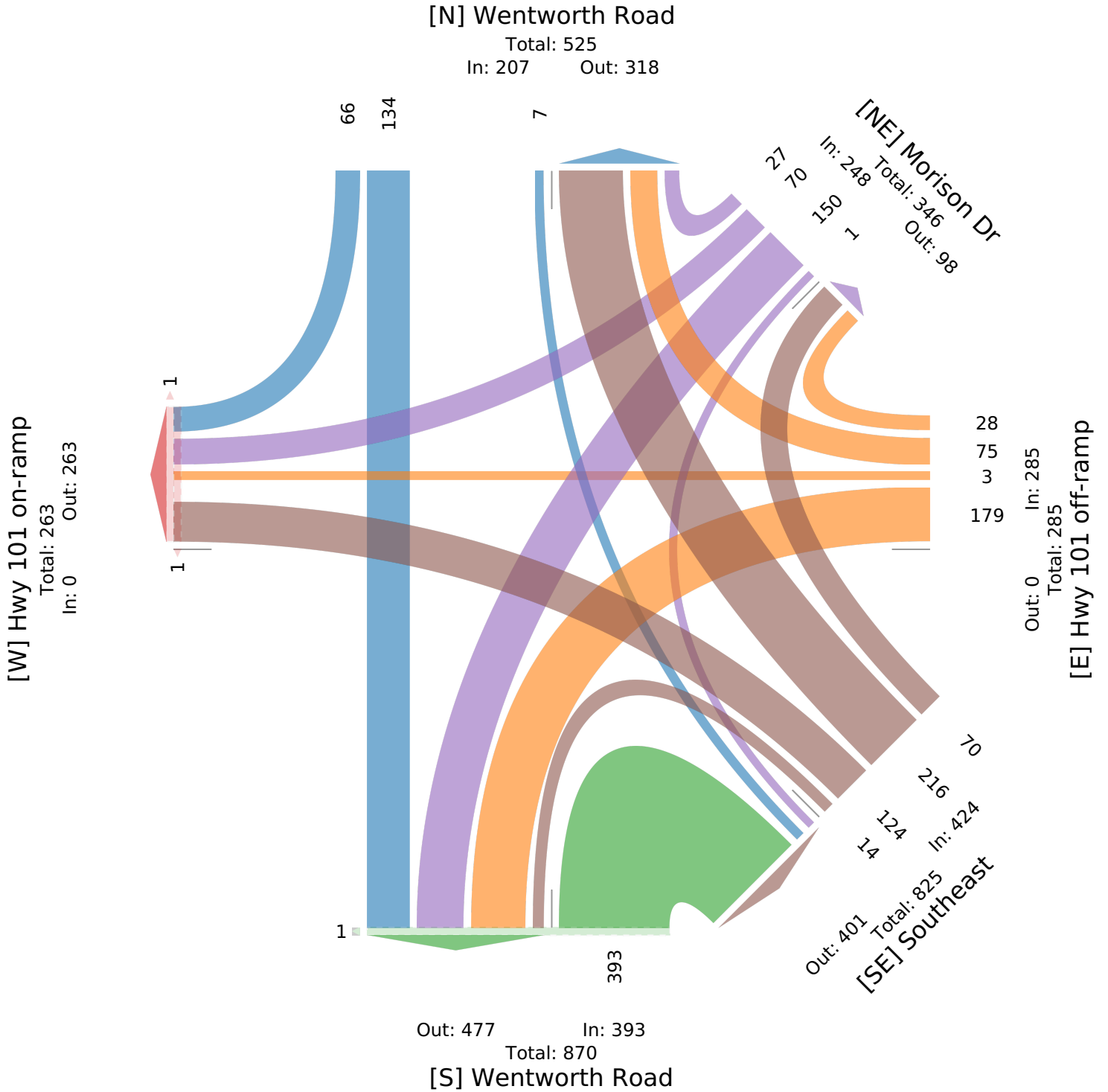


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**Wentworth / Industrial - TMC**

Thu Nov 21, 2024

Full Length (7 AM-9 AM, 11 AM-1 PM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250982, Location: 44.990955, -64.113989



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

Leg Direction	Industrial Drive Southbound						Wentworth Road Westbound						Exit 5A ramp Northbound						Wentworth Road Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2024-11-21 7:00AM	84	3	78	0	165	3	11	259	50	0	320	0	0	0	0	0	0	0	114	177	12	0	303	0	788
8:00AM	122	10	78	0	210	2	24	444	61	0	529	0	0	0	0	0	0	0	130	281	5	0	416	0	1155
11:00AM	77	8	56	0	141	8	17	299	43	0	359	0	0	0	0	0	0	0	144	261	6	0	411	0	911
12:00PM	111	20	68	0	199	1	30	334	59	0	423	0	0	0	0	0	0	0	158	288	17	0	463	0	1085
4:00PM	115	16	70	0	201	1	16	405	101	0	522	0	0	0	0	0	0	1	231	351	8	0	590	0	1313
5:00PM	108	18	68	0	194	0	11	348	75	0	434	0	0	0	0	0	0	0	192	273	1	0	466	0	1094
<b>Total</b>	617	75	418	0	1110	15	109	2089	389	0	2587	0	0	0	0	0	0	1	969	1631	49	0	2649	0	6346
<b>% Approach</b>	55.6%	6.8%	37.7%	0%	-	-	4.2%	80.7%	15.0%	0%	-	-	0%	0%	0%	0%	-	-	36.6%	61.6%	1.8%	0%	-	-	-
<b>% Total</b>	9.7%	1.2%	6.6%	0%	17.5%	-	1.7%	32.9%	6.1%	0%	40.8%	-	0%	0%	0%	0%	0%	-	15.3%	25.7%	0.8%	0%	41.7%	-	-
<b>Lights</b>	601	58	390	0	1049	-	85	2042	358	0	2485	-	0	0	0	0	0	-	944	1590	49	0	2583	-	6117
<b>% Lights</b>	97.4%	77.3%	93.3%	0%	94.5%	-	78.0%	97.8%	92.0%	0%	96.1%	-	0%	0%	0%	0%	-	-	97.4%	97.5%	100%	0%	97.5%	-	96.4%
<b>Single-Unit Trucks</b>	12	13	18	0	43	-	20	20	20	0	60	-	0	0	0	0	0	-	13	25	0	0	38	-	141
<b>% Single-Unit Trucks</b>	1.9%	17.3%	4.3%	0%	3.9%	-	18.3%	1.0%	5.1%	0%	2.3%	-	0%	0%	0%	0%	-	-	1.3%	1.5%	0%	0%	1.4%	-	2.2%
<b>Articulated Trucks</b>	2	3	8	0	13	-	3	10	5	0	18	-	0	0	0	0	0	-	5	6	0	0	11	-	42
<b>% Articulated Trucks</b>	0.3%	4.0%	1.9%	0%	1.2%	-	2.8%	0.5%	1.3%	0%	0.7%	-	0%	0%	0%	0%	-	-	0.5%	0.4%	0%	0%	0.4%	-	0.7%
<b>Buses</b>	2	1	2	0	5	-	1	17	6	0	24	-	0	0	0	0	0	-	7	10	0	0	17	-	46
<b>% Buses</b>	0.3%	1.3%	0.5%	0%	0.5%	-	0.9%	0.8%	1.5%	0%	0.9%	-	0%	0%	0%	0%	-	-	0.7%	0.6%	0%	0%	0.6%	-	0.7%
<b>Pedestrians</b>	-	-	-	-	-	15	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	-	0	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Wentworth / Industrial - TMC

Thu Nov 21, 2024

Full Length (7 AM-9 AM, 11 AM-1 PM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250982, Location: 44.990955, -64.113989



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90 Western Parkway, Suite 500,

Bedford, NS, B4B 2J3, CA

[N] Industrial Drive

Total: 1268

In: 1110 Out: 158

617 75 418

9 6

[W] Wentworth Road  
Total: 5355  
In: 2649 Out: 2706

49  
1631  
969

109  
2089  
389  
Out: 2049 In: 2587  
Total: 4636  
[E] Wentworth Road

1

Out: 1433 In: 0  
Total: 1433  
[S] Exit 5A ramp

Wentworth / Industrial - TMC

Thu Nov 21, 2024

AM Peak (8 AM - 9 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250982, Location: 44.990955, -64.113989



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Provided by: DesignPoint Engineering & Surveying Ltd.

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

Leg Direction	Industrial Drive Southbound						Wentworth Road Westbound						Exit 5A ramp Northbound						Wentworth Road Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2024-11-21 8:00AM	29	4	22	0	55	1	6	84	19	0	109	0	0	0	0	0	0	0	33	52	0	0	85	0	249
8:15AM	38	1	20	0	59	1	4	93	10	0	107	0	0	0	0	0	0	0	35	62	3	0	100	0	266
8:30AM	24	0	21	0	45	0	7	120	12	0	139	0	0	0	0	0	0	0	35	88	1	0	124	0	308
8:45AM	31	5	15	0	51	0	7	147	20	0	174	0	0	0	0	0	0	0	27	79	1	0	107	0	332
<b>Total</b>	122	10	78	0	210	2	24	444	61	0	529	0	0	0	0	0	0	0	130	281	5	0	416	0	1155
<b>% Approach</b>	58.1%	4.8%	37.1%	0%	-	-	4.5%	83.9%	11.5%	0%	-	-	0%	0%	0%	0%	-	-	31.3%	67.5%	1.2%	0%	-	-	-
<b>% Total</b>	10.6%	0.9%	6.8%	0%	18.2%	-	2.1%	38.4%	5.3%	0%	45.8%	-	0%	0%	0%	0%	0%	-	11.3%	24.3%	0.4%	0%	36.0%	-	-
<b>PHF</b>	0.803	0.500	0.886	-	0.890	-	0.857	0.755	0.763	-	0.760	-	-	-	-	-	-	-	0.929	0.798	0.417	-	0.839	-	0.870
<b>Lights</b>	119	7	73	0	199	-	20	419	51	0	490	-	0	0	0	0	0	-	122	262	5	0	389	-	1078
<b>% Lights</b>	97.5%	70.0%	93.6%	0%	94.8%	-	83.3%	94.4%	83.6%	0%	92.6%	-	0%	0%	0%	0%	-	-	93.8%	93.2%	100%	0%	93.5%	-	93.3%
<b>Single-Unit Trucks</b>	1	2	3	0	6	-	4	9	8	0	21	-	0	0	0	0	0	-	1	9	0	0	10	-	37
<b>% Single-Unit Trucks</b>	0.8%	20.0%	3.8%	0%	2.9%	-	16.7%	2.0%	13.1%	0%	4.0%	-	0%	0%	0%	0%	-	-	0.8%	3.2%	0%	0%	2.4%	-	3.2%
<b>Articulated Trucks</b>	0	1	2	0	3	-	0	3	1	0	4	-	0	0	0	0	0	-	0	1	0	0	1	-	8
<b>% Articulated Trucks</b>	0%	10.0%	2.6%	0%	1.4%	-	0%	0.7%	1.6%	0%	0.8%	-	0%	0%	0%	0%	-	-	0%	0.4%	0%	0%	0.2%	-	0.7%
<b>Buses</b>	2	0	0	0	2	-	0	13	1	0	14	-	0	0	0	0	0	-	7	9	0	0	16	-	32
<b>% Buses</b>	1.6%	0%	0%	0%	1.0%	-	0%	2.9%	1.6%	0%	2.6%	-	0%	0%	0%	0%	-	-	5.4%	3.2%	0%	0%	3.8%	-	2.8%
<b>Pedestrians</b>	-	-	-	-	-	2	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Wentworth / Industrial - TMC

Thu Nov 21, 2024

AM Peak (8 AM - 9 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250982, Location: 44.990955, -64.113989



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Provided by: DesignPoint Engineering & Surveying Ltd.

90 Western Parkway, Suite 500,

Bedford, NS, B4B 2J3, CA

[N] Industrial Drive

Total: 239

In: 210 Out: 29

122  
10  
78

1 ← 1

[W] Wentworth Road  
Total: 982  
In: 416 Out: 566

5  
281  
130

24  
444  
61

[E] Wentworth Road  
Out: 359 In: 529  
Total: 888

Out: 201 In: 0  
Total: 201  
[S] Exit 5A ramp

**Wentworth / Industrial - TMC**

Thu Nov 21, 2024

Midday Peak (12 PM - 1 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250982, Location: 44.990955, -64.113989



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

Leg Direction	Industrial Drive Southbound						Wentworth Road Westbound						Exit 5A ramp Northbound						Wentworth Road Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2024-11-21 12:00PM	28	1	14	0	43	0	11	103	9	0	123	0	0	0	0	0	0	0	38	68	7	0	113	0	279
12:15PM	26	11	15	0	52	1	5	69	15	0	89	0	0	0	0	0	0	0	41	80	4	0	125	0	266
12:30PM	29	6	19	0	54	0	5	95	13	0	113	0	0	0	0	0	0	0	29	69	2	0	100	0	267
12:45PM	28	2	20	0	50	0	9	67	22	0	98	0	0	0	0	0	0	0	50	71	4	0	125	0	273
<b>Total</b>	111	20	68	0	199	1	30	334	59	0	423	0	0	0	0	0	0	0	158	288	17	0	463	0	1085
<b>% Approach</b>	55.8%	10.1%	34.2%	0%	-	-	7.1%	79.0%	13.9%	0%	-	-	0%	0%	0%	0%	-	-	34.1%	62.2%	3.7%	0%	-	-	-
<b>% Total</b>	10.2%	1.8%	6.3%	0%	18.3%	-	2.8%	30.8%	5.4%	0%	39.0%	-	0%	0%	0%	0%	0%	-	14.6%	26.5%	1.6%	0%	42.7%	-	-
<b>PHF</b>	0.957	0.455	0.850	-	0.921	-	0.682	0.811	0.670	-	0.860	-	-	-	-	-	-	-	0.790	0.900	0.607	-	0.926	-	0.972
<b>Lights</b>	109	12	66	0	187	-	22	331	57	0	410	-	0	0	0	0	0	-	154	286	17	0	457	-	1054
<b>% Lights</b>	98.2%	60.0%	97.1%	0%	94.0%	-	73.3%	99.1%	96.6%	0%	96.9%	-	0%	0%	0%	0%	-	-	97.5%	99.3%	100%	0%	98.7%	-	97.1%
<b>Single-Unit Trucks</b>	2	6	0	0	8	-	6	2	1	0	9	-	0	0	0	0	0	-	3	1	0	0	4	-	21
<b>% Single-Unit Trucks</b>	1.8%	30.0%	0%	0%	4.0%	-	20.0%	0.6%	1.7%	0%	2.1%	-	0%	0%	0%	0%	-	-	1.9%	0.3%	0%	0%	0.9%	-	1.9%
<b>Articulated Trucks</b>	0	1	2	0	3	-	2	0	1	0	3	-	0	0	0	0	0	-	1	1	0	0	2	-	8
<b>% Articulated Trucks</b>	0%	5.0%	2.9%	0%	1.5%	-	6.7%	0%	1.7%	0%	0.7%	-	0%	0%	0%	0%	-	-	0.6%	0.3%	0%	0%	0.4%	-	0.7%
<b>Buses</b>	0	1	0	0	1	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	2
<b>% Buses</b>	0%	5.0%	0%	0%	0.5%	-	0%	0.3%	0%	0%	0.2%	-	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0.2%
<b>Pedestrians</b>	-	-	-	-	-	1	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Wentworth / Industrial - TMC

Thu Nov 21, 2024

Midday Peak (12 PM - 1 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250982, Location: 44.990955, -64.113989



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Provided by: DesignPoint Engineering & Surveying Ltd.

90 Western Parkway, Suite 500,

Bedford, NS, B4B 2J3, CA

[N] Industrial Drive

Total: 246

In: 199 Out: 47

111 20 68

1

[W] Wentworth Road

Total: 908

Out: 445

In: 463

17

288

158

30

334

59

In: 423

Out: 356

Total: 779

[E] Wentworth Road

Out: 237 In: 0

Total: 237

[S] Exit 5A ramp

Wentworth / Industrial - TMC

Thu Nov 21, 2024

PM Peak (4 PM - 5 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250982, Location: 44.990955, -64.113989



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

Leg Direction	Industrial Drive Southbound						Wentworth Road Westbound						Exit 5A ramp Northbound						Wentworth Road Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2024-11-21 4:00PM	26	4	20	0	50	0	4	98	30	0	132	0	0	0	0	0	0	0	65	84	2	0	151	0	333
4:15PM	29	4	16	0	49	0	4	81	21	0	106	0	0	0	0	0	0	0	66	103	3	0	172	0	327
4:30PM	36	6	18	0	60	1	2	120	27	0	149	0	0	0	0	0	0	1	52	79	2	0	133	0	342
4:45PM	24	2	16	0	42	0	6	106	23	0	135	0	0	0	0	0	0	0	48	85	1	0	134	0	311
<b>Total</b>	115	16	70	0	201	1	16	405	101	0	522	0	0	0	0	0	0	1	231	351	8	0	590	0	1313
<b>% Approach</b>	57.2%	8.0%	34.8%	0%	-	-	3.1%	77.6%	19.3%	0%	-	-	0%	0%	0%	0%	-	-	39.2%	59.5%	1.4%	0%	-	-	-
<b>% Total</b>	8.8%	1.2%	5.3%	0%	15.3%	-	1.2%	30.8%	7.7%	0%	39.8%	-	0%	0%	0%	0%	0%	-	17.6%	26.7%	0.6%	0%	44.9%	-	-
<b>PHF</b>	0.799	0.667	0.875	-	0.838	-	0.667	0.844	0.842	-	0.876	-	-	-	-	-	-	-	0.875	0.852	0.667	-	0.858	-	0.960
<b>Lights</b>	113	16	66	0	195	-	11	402	96	0	509	-	0	0	0	0	0	-	228	346	8	0	582	-	1286
<b>% Lights</b>	98.3%	100%	94.3%	0%	97.0%	-	68.8%	99.3%	95.0%	0%	97.5%	-	0%	0%	0%	0%	-	-	98.7%	98.6%	100%	0%	98.6%	-	97.9%
<b>Single-Unit Trucks</b>	2	0	4	0	6	-	4	2	4	0	10	-	0	0	0	0	0	-	2	4	0	0	6	-	22
<b>% Single-Unit Trucks</b>	1.7%	0%	5.7%	0%	3.0%	-	25.0%	0.5%	4.0%	0%	1.9%	-	0%	0%	0%	0%	-	-	0.9%	1.1%	0%	0%	1.0%	-	1.7%
<b>Articulated Trucks</b>	0	0	0	0	0	-	1	1	0	0	2	-	0	0	0	0	0	-	1	1	0	0	2	-	4
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	6.3%	0.2%	0%	0%	0.4%	-	0%	0%	0%	0%	-	-	0.4%	0.3%	0%	0%	0.3%	-	0.3%
<b>Buses</b>	0	0	0	0	0	-	0	0	1	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	1
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0%	1.0%	0%	0.2%	-	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0.1%
<b>Pedestrians</b>	-	-	-	-	-	1	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**Wentworth / Industrial - TMC**

Thu Nov 21, 2024

PM Peak (4 PM - 5 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250982, Location: 44.990955, -64.113989

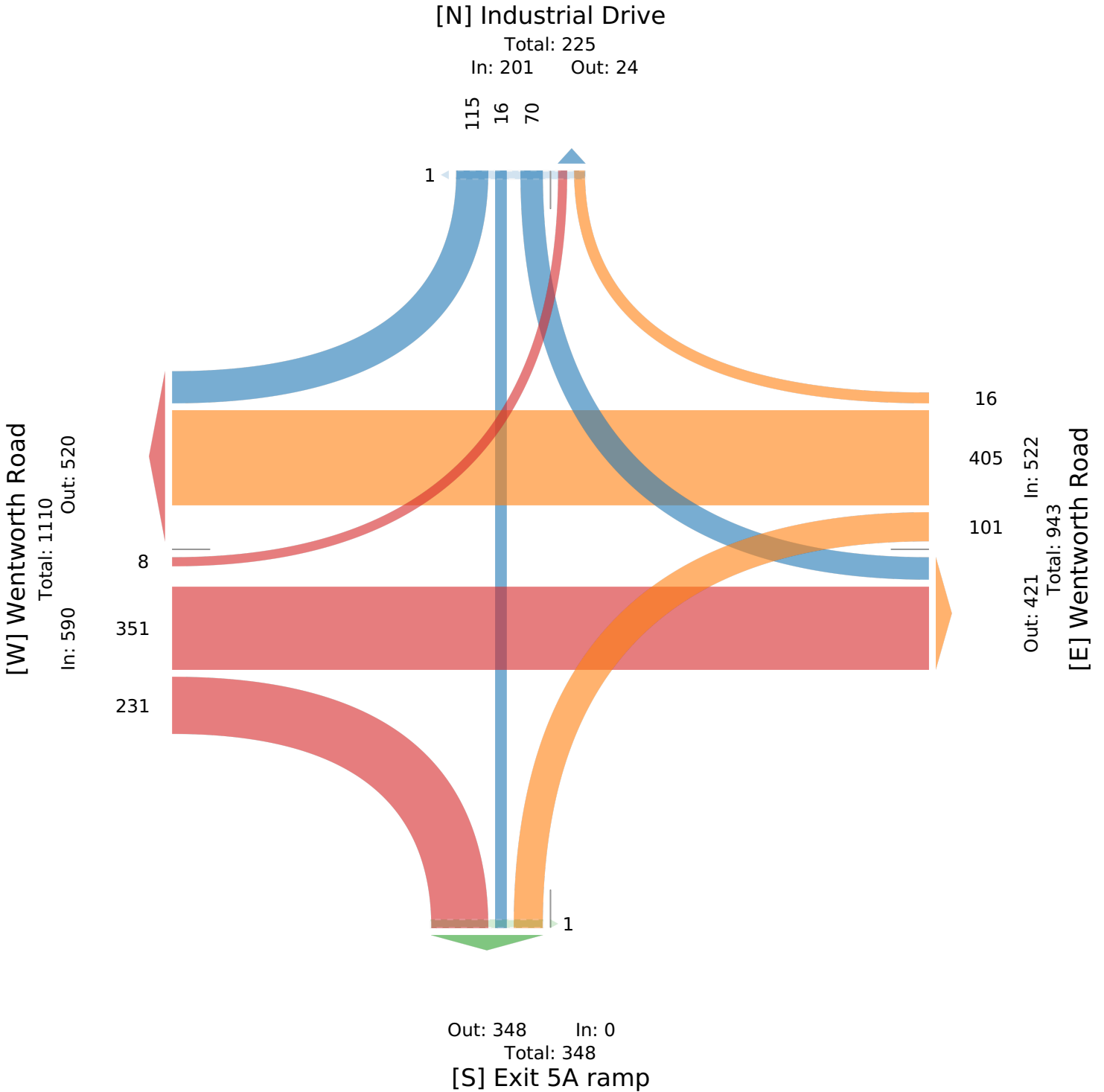


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90 Western Parkway, Suite 500,

Bedford, NS, B4B 2J3, CA



Wentworth / Cole - TMC

Tue Nov 19, 2024

Full Length (7 AM-9 AM, 11 AM-1 PM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250981, Location: 44.990511, -64.11524



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

Leg Direction	Private Driveway Southbound						Wentworth Road Westbound						Cole Drive Northbound						Wentworth Road Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2024-11-19																									
7:00AM	0	0	0	0	0	2	0	194	124	0	318	3	54	0	91	0	145	1	118	157	0	0	275	0	738
8:00AM	0	0	0	0	0	1	2	446	134	0	582	0	68	0	159	0	227	0	148	229	0	0	377	0	1186
11:00AM	0	1	3	0	4	2	4	236	133	0	373	4	111	0	146	0	257	2	195	227	2	0	424	0	1058
12:00PM	0	0	1	0	1	0	0	288	130	0	418	4	116	0	185	0	301	2	204	266	0	0	470	0	1190
4:00PM	0	0	1	0	1	4	1	288	189	0	478	2	163	0	198	0	361	1	172	330	0	0	502	0	1342
5:00PM	0	0	1	0	1	1	2	237	144	1	384	0	149	0	143	0	292	0	153	190	0	0	343	0	1020
<b>Total</b>	0	1	6	0	7	10	9	1689	854	1	2553	13	661	0	922	0	1583	6	990	1399	2	0	2391	0	6534
<b>% Approach</b>	0%	14.3%	85.7%	0%	0%	-	0.4%	66.2%	33.5%	0%	-	41.8%	0%	58.2%	0%	-	41.4%	58.5%	0.1%	0%	-	-	-		
<b>% Total</b>	0%	0%	0.1%	0%	0.1%	-	0.1%	25.8%	13.1%	0%	39.1%	-	10.1%	0%	14.1%	0%	24.2%	-	15.2%	21.4%	0%	0%	36.6%	-	-
<b>Lights</b>	0	1	6	0	7	-	8	1630	834	1	2473	-	643	0	914	0	1557	-	983	1346	2	0	2331	-	6368
<b>% Lights</b>	0%	100%	100%	0%	100%	-	88.9%	96.5%	97.7%	100%	96.9%	-	97.3%	0%	99.1%	0%	98.4%	-	99.3%	96.2%	100%	0%	97.5%	-	97.5%
<b>Single-Unit Trucks</b>	0	0	0	0	0	-	1	35	16	0	52	-	11	0	7	0	18	-	7	30	0	0	37	-	107
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	11.1%	2.1%	1.9%	0%	2.0%	-	1.7%	0%	0.8%	0%	1.1%	-	0.7%	2.1%	0%	0%	1.5%	-	1.6%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	6	3	0	9	-	6	0	1	0	7	-	0	4	0	0	4	-	20
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0.4%	0.4%	0%	0.4%	-	0.9%	0%	0.1%	0%	0.4%	-	0%	0.3%	0%	0%	0.2%	-	0.3%
<b>Buses</b>	0	0	0	0	0	-	0	18	1	0	19	-	1	0	0	0	1	-	0	19	0	0	19	-	39
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	1.1%	0.1%	0%	0.7%	-	0.2%	0%	0%	0%	0.1%	-	0%	1.4%	0%	0%	0.8%	-	0.6%
<b>Pedestrians</b>	-	-	-	-	-	10	-	-	-	-	-	13	-	-	-	-	-	6	-	-	-	-	-	0	
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Wentworth / Cole - TMC

Tue Nov 19, 2024

Full Length (7 AM-9 AM, 11 AM-1 PM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250981, Location: 44.990511, -64.11524



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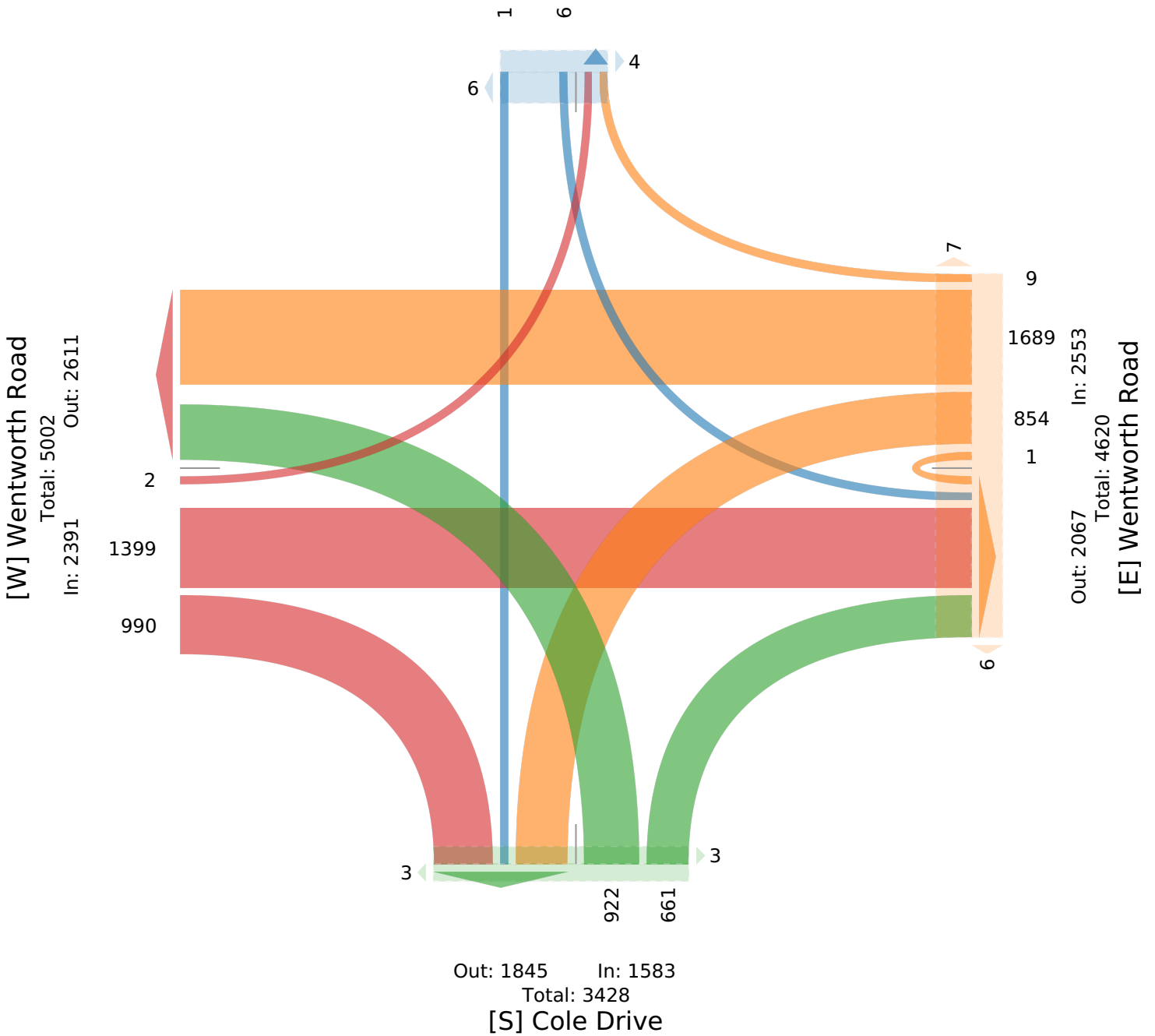
90 Western Parkway, Suite 500,

Bedford, NS, B4B 2J3, CA

[N] Private Driveway

Total: 18

In: 7 Out: 11



Wentworth / Cole - TMC

Tue Nov 19, 2024

AM Peak (8 AM - 9 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250981, Location: 44.990511, -64.11524



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

Leg Direction	Private Driveway Southbound						Wentworth Road Westbound						Cole Drive Northbound						Wentworth Road Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2024-11-19 8:00AM	0	0	0	0	0	0	0	101	33	0	134	0	15	0	27	0	42	0	34	37	0	0	71	0	247
8:15AM	0	0	0	0	0	0	2	89	39	0	130	0	20	0	37	0	57	0	40	54	0	0	94	0	281
8:30AM	0	0	0	0	0	0	0	125	32	0	157	0	19	0	51	0	70	0	37	65	0	0	102	0	329
8:45AM	0	0	0	0	0	1	0	131	30	0	161	0	14	0	44	0	58	0	37	73	0	0	110	0	329
<b>Total</b>	0	0	0	0	0	1	2	446	134	0	582	0	68	0	159	0	227	0	148	229	0	0	377	0	1186
<b>% Approach</b>	0%	0%	0%	0%	-	-	0.3%	76.6%	23.0%	0%	-	-	30.0%	0%	70.0%	0%	-	-	39.3%	60.7%	0%	0%	-	-	-
<b>% Total</b>	0%	0%	0%	0%	0%	-	0.2%	37.6%	11.3%	0%	49.1%	-	5.7%	0%	13.4%	0%	19.1%	-	12.5%	19.3%	0%	0%	31.8%	-	-
<b>PHF</b>	-	-	-	-	-	-	0.250	0.851	0.859	-	0.904	-	0.850	-	0.779	-	0.811	-	0.925	0.784	-	-	0.857	-	0.901
<b>Lights</b>	0	0	0	0	0	-	1	414	129	0	544	-	65	0	158	0	223	-	147	203	0	0	350	-	1117
<b>% Lights</b>	0%	0%	0%	0%	-	-	50.0%	92.8%	96.3%	0%	93.5%	-	95.6%	0%	99.4%	0%	98.2%	-	99.3%	88.6%	0%	0%	92.8%	-	94.2%
<b>Single-Unit Trucks</b>	0	0	0	0	0	-	1	15	4	0	20	-	3	0	0	0	3	-	1	7	0	0	8	-	31
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	-	-	50.0%	3.4%	3.0%	0%	3.4%	-	4.4%	0%	0%	0%	1.3%	-	0.7%	3.1%	0%	0%	2.1%	-	2.6%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	2	1	0	3	-	0	0	1	0	1	-	0	3	0	0	3	-	7
<b>% Articulated Trucks</b>	0%	0%	0%	0%	-	-	0%	0.4%	0.7%	0%	0.5%	-	0%	0%	0.6%	0%	0.4%	-	0%	1.3%	0%	0%	0.8%	-	0.6%
<b>Buses</b>	0	0	0	0	0	-	0	15	0	0	15	-	0	0	0	0	0	-	0	16	0	0	16	-	31
<b>% Buses</b>	0%	0%	0%	0%	-	-	0%	3.4%	0%	0%	2.6%	-	0%	0%	0%	0%	0%	-	0%	7.0%	0%	0%	4.2%	-	2.6%
<b>Pedestrians</b>	-	-	-	-	-	1	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	0
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**Wentworth / Cole - TMC**

Tue Nov 19, 2024

AM Peak (8 AM - 9 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250981, Location: 44.990511, -64.11524



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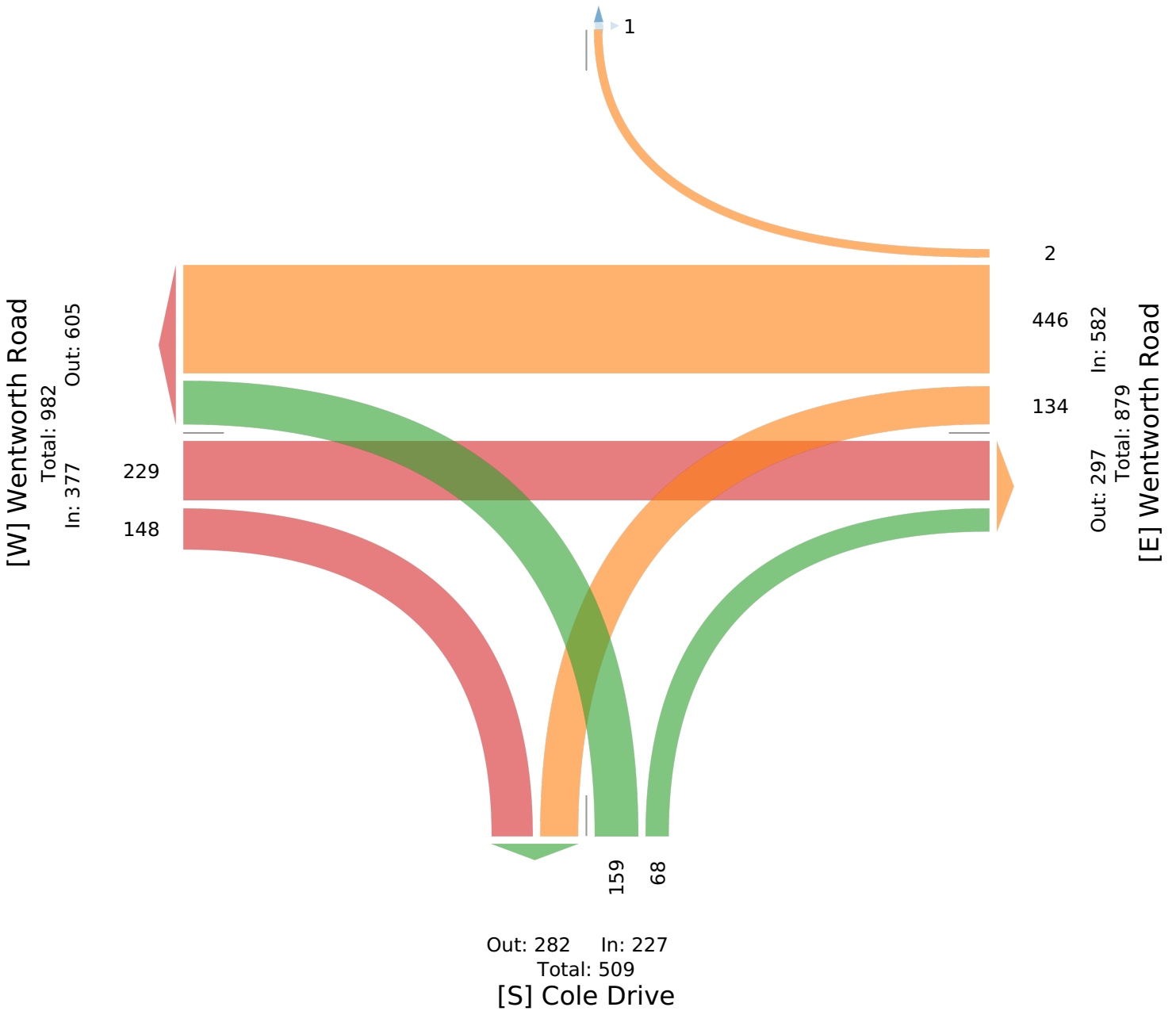
90 Western Parkway, Suite 500,

Bedford, NS, B4B 2J3, CA

**[N] Private Driveway**

Total: 2

In: 0 Out: 2



Wentworth / Cole - TMC

Tue Nov 19, 2024

Midday Peak (12 PM - 1 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250981, Location: 44.990511, -64.11524



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

Leg Direction	Private Driveway Southbound					Wentworth Road Westbound					Cole Drive Northbound					Wentworth Road Eastbound					Int				
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App					
2024-11-19 12:00PM	0	0	0	0	0	0	76	36	0	112	0	28	0	47	0	75	1	58	59	0	0	117	0	304	
12:15PM	0	0	0	0	0	0	76	24	0	100	2	28	0	46	0	74	1	45	73	0	0	118	0	292	
12:30PM	0	0	1	0	1	0	67	40	0	107	2	32	0	35	0	67	0	49	68	0	0	117	0	292	
12:45PM	0	0	0	0	0	0	69	30	0	99	0	28	0	57	0	85	0	52	66	0	0	118	0	302	
<b>Total</b>	0	0	1	0	1	0	288	130	0	418	4	116	0	185	0	301	2	204	266	0	0	470	0	1190	
<b>% Approach</b>	0%	0%	100%	0%	-	0%	68.9%	31.1%	0%	-	-	38.5%	0%	61.5%	0%	-	-	43.4%	56.6%	0%	0%	-	-	-	
<b>% Total</b>	0%	0%	0.1%	0%	0.1%	0%	24.2%	10.9%	0%	35.1%	-	9.7%	0%	15.5%	0%	25.3%	-	17.1%	22.4%	0%	0%	39.5%	-	-	
<b>PHF</b>	-	-	0.250	-	0.250	-	-	0.947	0.813	-	0.933	-	0.906	-	0.811	-	0.885	-	0.879	0.911	-	-	0.996	-	0.979
<b>Lights</b>	0	0	1	0	1	0	279	129	0	408	-	115	0	184	0	299	-	203	256	0	0	459	-	1167	
<b>% Lights</b>	0%	0%	100%	0%	100%	0%	96.9%	99.2%	0%	97.6%	-	99.1%	0%	99.5%	0%	99.3%	-	99.5%	96.2%	0%	0%	97.7%	-	98.1%	
<b>Single-Unit Trucks</b>	0	0	0	0	0	0	7	1	0	8	-	0	0	1	0	1	-	1	10	0	0	11	-	20	
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	0%	0%	2.4%	0.8%	0%	1.9%	-	0%	0%	0.5%	0%	0.3%	-	0.5%	3.8%	0%	0%	2.3%	-	1.7%	
<b>Articulated Trucks</b>	0	0	0	0	0	0	1	0	0	1	-	1	0	0	0	1	-	0	0	0	0	0	-	2	
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	0%	0.3%	0%	0%	0.2%	-	0.9%	0%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0.2%	
<b>Buses</b>	0	0	0	0	0	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	1	
<b>% Buses</b>	0%	0%	0%	0%	0%	0%	0.3%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%	
<b>Pedestrians</b>	-	-	-	-	0	-	-	-	-	4	-	-	-	-	-	2	-	-	-	-	-	0	-	-	
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-100%	-	-	-	-	-	-100%	-	-	-	-	-	-	-	-	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Wentworth / Cole - TMC

Tue Nov 19, 2024

Midday Peak (12 PM - 1 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250981, Location: 44.990511, -64.11524



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Provided by: DesignPoint Engineering & Surveying Ltd.

90 Western Parkway, Suite 500,

Bedford, NS, B4B 2J3, CA

[N] Private Driveway

Total: 1

In: 1 Out: 0

1

[W] Wentworth Road  
Total: 943  
In: 470 Out: 473

266

204

1

185

116

Out: 334 In: 301

Total: 635

[S] Cole Drive

288  
130  
Out: 383 In: 418  
Total: 801

[E] Wentworth Road

1

3

Wentworth / Cole - TMC

Tue Nov 19, 2024

PM Peak (4 PM - 5 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250981, Location: 44.990511, -64.11524



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Provided by: DesignPoint Engineering & Surveying Ltd.

90 Western Parkway, Suite 500,

Bedford, NS, B4B 2J3, CA

Leg Direction	Private Driveway Southbound						Wentworth Road Westbound						Cole Drive Northbound						Wentworth Road Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2024-11-19 4:00PM	0	0	0	0	0	1	1	60	63	0	124	0	39	0	52	0	91	0	44	96	0	0	140	0	355
4:15PM	0	0	1	0	1	0	0	63	39	0	102	0	45	0	50	0	95	1	40	72	0	0	112	0	310
4:30PM	0	0	0	0	0	0	0	84	40	0	124	0	42	0	44	0	86	0	52	87	0	0	139	0	349
4:45PM	0	0	0	0	0	3	0	81	47	0	128	2	37	0	52	0	89	0	36	75	0	0	111	0	328
<b>Total</b>	0	0	1	0	1	4	1	288	189	0	478	2	163	0	198	0	361	1	172	330	0	0	502	0	1342
<b>% Approach</b>	0%	0%	100%	0%	-	-	0.2%	60.3%	39.5%	0%	-	-	45.2%	0%	54.8%	0%	-	-	34.3%	65.7%	0%	0%	-	-	-
<b>% Total</b>	0%	0%	0.1%	0%	0.1%	-	0.1%	21.5%	14.1%	0%	35.6%	-	12.1%	0%	14.8%	0%	26.9%	-	12.8%	24.6%	0%	0%	37.4%	-	-
<b>PHF</b>	-	-	0.250	-	0.250	-	0.250	0.857	0.750	-	0.934	-	0.906	-	0.952	-	0.950	-	0.827	0.859	-	-	0.896	-	0.945
<b>Lights</b>	0	0	1	0	1	-	1	284	186	0	471	-	156	0	198	0	354	-	171	325	0	0	496	-	1322
<b>% Lights</b>	0%	0%	100%	0%	100%	-	100%	98.6%	98.4%	0%	98.5%	-	95.7%	0%	100%	0%	98.1%	-	99.4%	98.5%	0%	0%	98.8%	-	98.5%
<b>Single-Unit Trucks</b>	0	0	0	0	0	-	0	3	3	0	6	-	4	0	0	0	4	-	1	5	0	0	6	-	16
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	0%	1.0%	1.6%	0%	1.3%	-	2.5%	0%	0%	0%	1.1%	-	0.6%	1.5%	0%	0%	1.2%	-	1.2%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	1	0	0	1	-	3	0	0	0	3	-	0	0	0	0	0	-	4
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0.2%	-	1.8%	0%	0%	0%	0.8%	-	0%	0%	0%	0%	0%	-	0.3%
<b>Buses</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Pedestrians</b>	-	-	-	-	-	4	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Wentworth / Cole - TMC

Tue Nov 19, 2024

PM Peak (4 PM - 5 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1250981, Location: 44.990511, -64.11524



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Provided by: DesignPoint Engineering & Surveying Ltd.

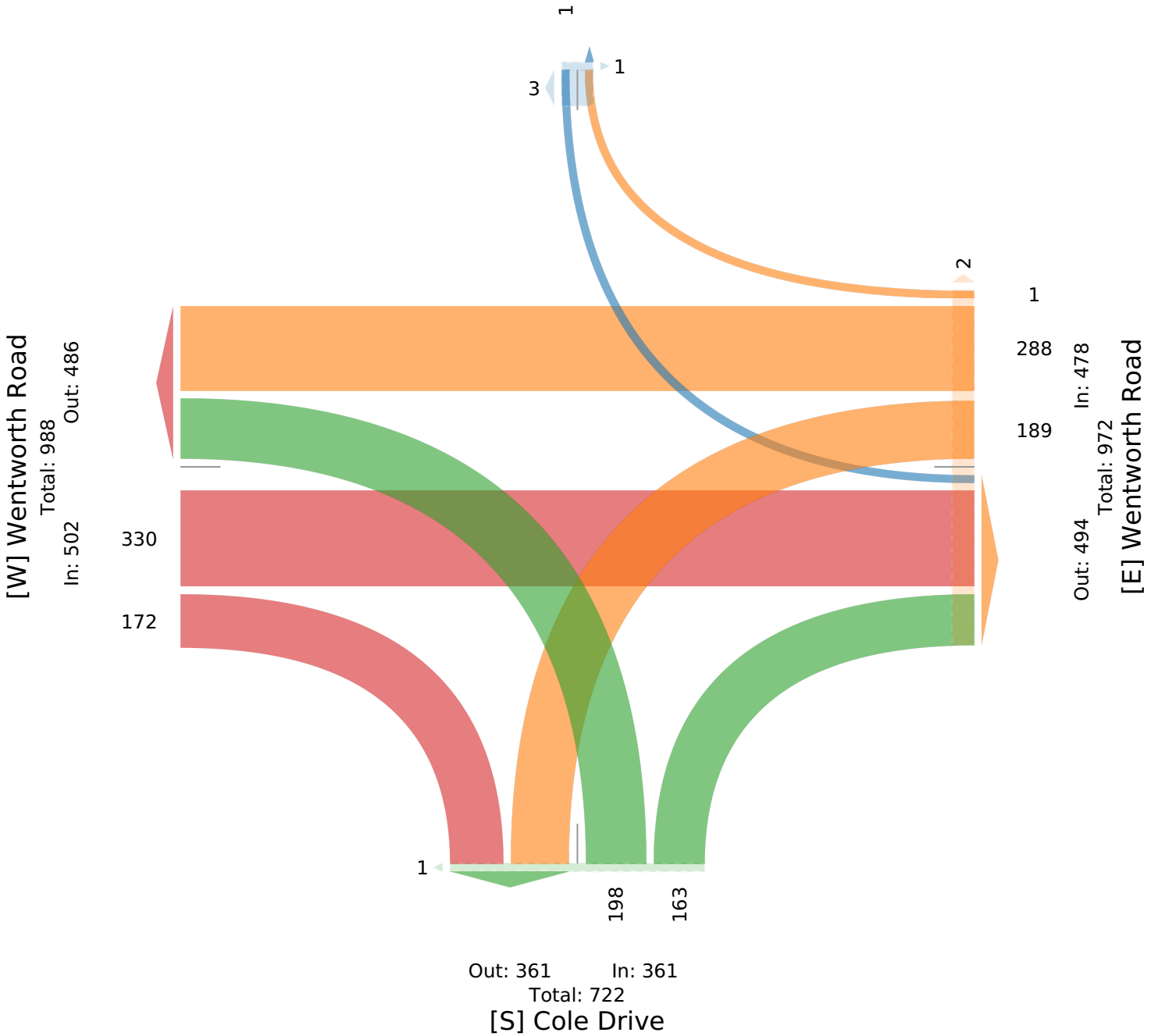
90 Western Parkway, Suite 500,

Bedford, NS, B4B 2J3, CA

[N] Private Driveway

Total: 2

In: 1 Out: 1



Wentworth / Centennial - TMC

Thu Nov 14, 2024

Full Length (7 AM-9 AM, 11 AM-1 PM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1248585, Location: 44.989795, -64.118776



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Provided by: DesignPoint Engineering & Surveying Ltd.

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

Leg Direction	Centennial Drive Southbound					Wentworth Road Westbound					Wentworth Road Eastbound					Int
	R	L	U	App	Ped*	R	T	U	App	Ped*	T	L	U	App	Ped*	
2024-11-14 7:00AM	22	2	0	24	2	8	310	0	318	0	287	22	0	309	0	651
8:00AM	34	10	0	44	5	24	527	0	551	0	427	51	0	478	0	1073
11:00AM	74	35	0	109	3	40	414	0	454	0	444	54	0	498	0	1061
12:00PM	79	42	0	121	1	44	476	0	520	0	509	67	0	576	0	1217
4:00PM	65	23	0	88	0	16	488	0	504	0	541	34	0	575	0	1167
5:00PM	58	19	0	77	2	46	395	0	441	0	402	33	0	435	0	953
6:00PM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
<b>Total</b>	332	131	0	463	13	178	2611	0	2789	0	2610	261	0	2871	0	6123
<b>% Approach</b>	71.7%	28.3%	0%	-	-	6.4%	93.6%	0%	-	-	90.9%	9.1%	0%	-	-	-
<b>% Total</b>	5.4%	2.1%	0%	7.6%	-	2.9%	42.6%	0%	45.5%	-	42.6%	4.3%	0%	46.9%	-	-
<b>Lights</b>	317	129	0	446	-	176	2563	0	2739	-	2564	247	0	2811	-	5996
<b>% Lights</b>	95.5%	98.5%	0%	96.3%	-	98.9%	98.2%	0%	98.2%	-	98.2%	94.6%	0%	97.9%	-	97.9%
<b>Single-Unit Trucks</b>	12	1	0	13	-	2	23	0	25	-	26	10	0	36	-	74
<b>% Single-Unit Trucks</b>	3.6%	0.8%	0%	2.8%	-	1.1%	0.9%	0%	0.9%	-	1.0%	3.8%	0%	1.3%	-	1.2%
<b>Articulated Trucks</b>	1	0	0	1	-	0	5	0	5	-	4	4	0	8	-	14
<b>% Articulated Trucks</b>	0.3%	0%	0%	0.2%	-	0%	0.2%	0%	0.2%	-	0.2%	1.5%	0%	0.3%	-	0.2%
<b>Buses</b>	2	1	0	3	-	0	20	0	20	-	16	0	0	16	-	39
<b>% Buses</b>	0.6%	0.8%	0%	0.6%	-	0%	0.8%	0%	0.7%	-	0.6%	0%	0%	0.6%	-	0.6%
<b>Pedestrians</b>	-	-	-	-	13	-	-	-	-	0	-	-	-	-	-	0
<b>% Pedestrians</b>	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**Wentworth / Centennial - TMC**

Thu Nov 14, 2024

Full Length (7 AM-9 AM, 11 AM-1 PM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1248585, Location: 44.989795, -64.118776



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90 Western Parkway, Suite 500,

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**[N] Centennial Drive**

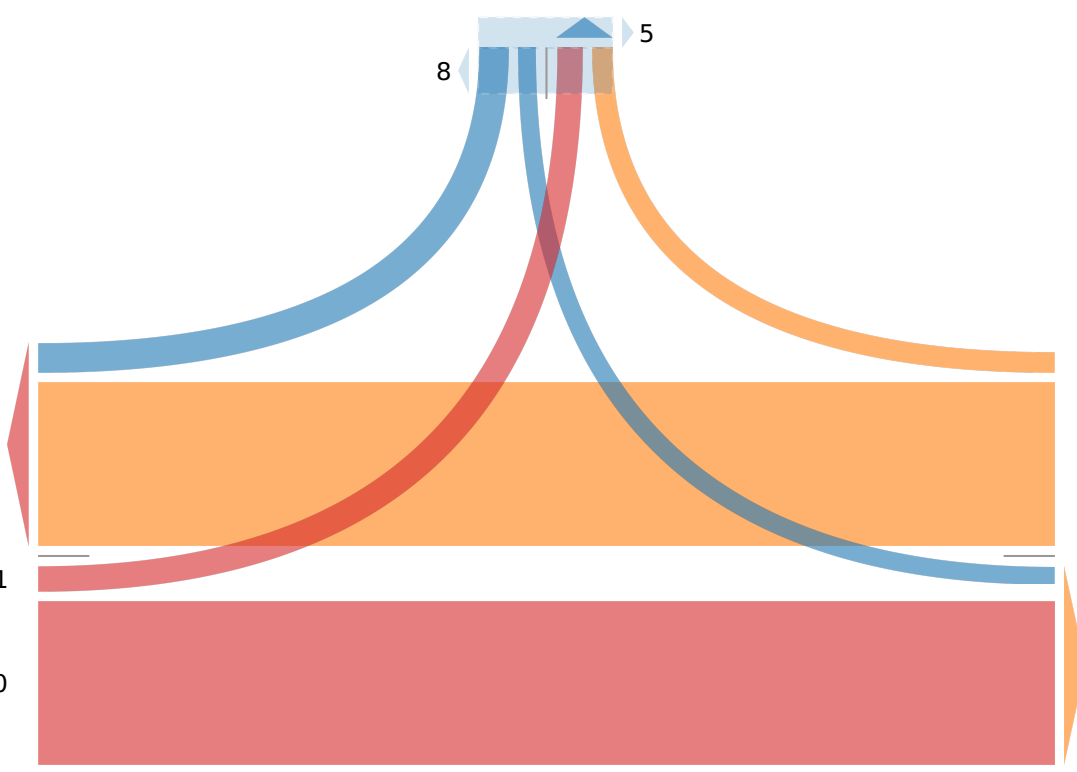
Total: 902

In: 463 Out: 439



**[W] Wentworth Road**  
Total: 5814  
In: 2871 Out: 2943

261  
2610



178  
2611

Out: 2741 In: 2789  
Total: 5530  
**[E] Wentworth Road**

Wentworth / Centennial - TMC

Thu Nov 14, 2024

AM Peak (8 AM - 9 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1248585, Location: 44.989795, -64.118776



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

Leg Direction	Centennial Drive Southbound					Wentworth Road Westbound					Wentworth Road Eastbound					
Time	R	L	U	App	Ped*	R	T	U	App	Ped*	T	L	U	App	Ped*	Int
2024-11-14 8:00AM	12	5	0	17	1	3	96	0	99	0	93	4	0	97	0	213
8:15AM	4	1	0	5	1	5	129	0	134	0	94	16	0	110	0	249
8:30AM	7	4	0	11	2	8	141	0	149	0	110	15	0	125	0	285
8:45AM	11	0	0	11	1	8	161	0	169	0	130	16	0	146	0	326
<b>Total</b>	34	10	0	44	5	24	527	0	551	0	427	51	0	478	0	1073
<b>% Approach</b>	77.3%	22.7%	0%	-	-	4.4%	95.6%	0%	-	-	89.3%	10.7%	0%	-	-	-
<b>% Total</b>	3.2%	0.9%	0%	4.1%	-	2.2%	49.1%	0%	51.4%	-	39.8%	4.8%	0%	44.5%	-	-
<b>PHF</b>	0.708	0.500	-	0.647	-	0.750	0.818	-	0.815	-	0.821	0.797	-	0.818	-	0.823
<b>Lights</b>	32	10	0	42	-	24	504	0	528	-	403	48	0	451	-	1021
<b>% Lights</b>	94.1%	100%	0%	95.5%	-	100%	95.6%	0%	95.8%	-	94.4%	94.1%	0%	94.4%	-	95.2%
<b>Single-Unit Trucks</b>	1	0	0	1	-	0	5	0	5	-	9	1	0	10	-	16
<b>% Single-Unit Trucks</b>	2.9%	0%	0%	2.3%	-	0%	0.9%	0%	0.9%	-	2.1%	2.0%	0%	2.1%	-	1.5%
<b>Articulated Trucks</b>	1	0	0	1	-	0	2	0	2	-	1	2	0	3	-	6
<b>% Articulated Trucks</b>	2.9%	0%	0%	2.3%	-	0%	0.4%	0%	0.4%	-	0.2%	3.9%	0%	0.6%	-	0.6%
<b>Buses</b>	0	0	0	0	-	0	16	0	16	-	14	0	0	14	-	30
<b>% Buses</b>	0%	0%	0%	0%	-	0%	3.0%	0%	2.9%	-	3.3%	0%	0%	2.9%	-	2.8%
<b>Pedestrians</b>	-	-	-	-	5	-	-	-	-	0	-	-	-	-	0	-
<b>% Pedestrians</b>	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**Wentworth / Centennial - TMC**

Thu Nov 14, 2024

AM Peak (8 AM - 9 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1248585, Location: 44.989795, -64.118776



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90 Western Parkway, Suite 500,

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**[N] Centennial Drive**

Total: 119

In: 44 Out: 75

34 10

4

1

**[W] Wentworth Road**  
Total: 1039  
In: 478 Out: 561

51  
427

24  
527

Out: 437 In: 551  
Total: 988  
**[E] Wentworth Road**

Wentworth / Centennial - TMC

Thu Nov 14, 2024

Midday Peak (11:45 AM - 12:45 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1248585, Location: 44.989795, -64.118776



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

Leg Direction	Centennial Drive Southbound					Wentworth Road Westbound					Wentworth Road Eastbound					
Time	R	L	U	App	Ped*	R	T	U	App	Ped*	T	L	U	App	Ped*	Int
2024-11-14 11:45AM	25	10	0	35	0	11	116	0	127	0	119	16	0	135	0	297
12:00PM	28	17	0	45	1	16	110	0	126	0	127	21	0	148	0	319
12:15PM	16	10	0	26	0	12	120	0	132	0	135	21	0	156	0	314
12:30PM	19	6	0	25	0	9	136	0	145	0	124	14	0	138	0	308
<b>Total</b>	88	43	0	131	1	48	482	0	530	0	505	72	0	577	0	1238
<b>% Approach</b>	67.2%	32.8%	0%	-	-	9.1%	90.9%	0%	-	-	87.5%	12.5%	0%	-	-	-
<b>% Total</b>	7.1%	3.5%	0%	10.6%	-	3.9%	38.9%	0%	42.8%	-	40.8%	5.8%	0%	46.6%	-	-
<b>PHF</b>	0.786	0.632	-	0.728	-	0.750	0.886	-	0.914	-	0.935	0.857	-	0.925	-	0.970
<b>Lights</b>	86	43	0	129	-	48	479	0	527	-	503	68	0	571	-	1227
<b>% Lights</b>	97.7%	100%	0%	98.5%	-	100%	99.4%	0%	99.4%	-	99.6%	94.4%	0%	99.0%	-	99.1%
<b>Single-Unit Trucks</b>	2	0	0	2	-	0	2	0	2	-	2	3	0	5	-	9
<b>% Single-Unit Trucks</b>	2.3%	0%	0%	1.5%	-	0%	0.4%	0%	0.4%	-	0.4%	4.2%	0%	0.9%	-	0.7%
<b>Articulated Trucks</b>	0	0	0	0	-	0	0	0	0	-	0	1	0	1	-	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	1.4%	0%	0.2%	-	0.1%
<b>Buses</b>	0	0	0	0	-	0	1	0	1	-	0	0	0	0	-	1
<b>% Buses</b>	0%	0%	0%	0%	-	0%	0.2%	0%	0.2%	-	0%	0%	0%	0%	-	0.1%
<b>Pedestrians</b>	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-
<b>% Pedestrians</b>	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Wentworth / Centennial - TMC

Thu Nov 14, 2024

Midday Peak (11:45 AM - 12:45 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1248585, Location: 44.989795, -64.118776



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90 Western Parkway, Suite 500,

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[N] Centennial Drive

Total: 251

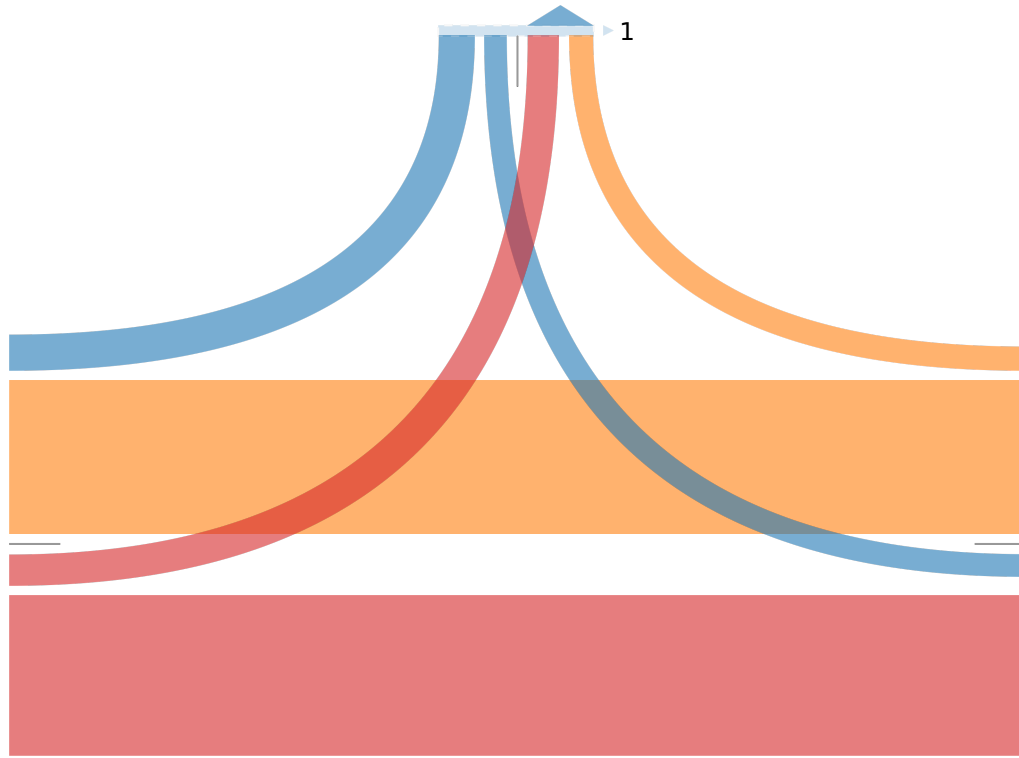
In: 131 Out: 120

88 43

1

[W] Wentworth Road  
Total: 1147  
In: 577 Out: 570

72  
505



48  
482

Out: 548 In: 530  
Total: 1078  
[E] Wentworth Road

**Wentworth / Centennial - TMC**

Thu Nov 14, 2024

PM Peak (4 PM - 5 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1248585, Location: 44.989795, -64.118776



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90 Western Parkway, Suite 500,  
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Leg Direction	Centennial Drive Southbound					Wentworth Road Westbound					Wentworth Road Eastbound					
Time	R	L	U	App	Ped*	R	T	U	App	Ped*	T	L	U	App	Ped*	Int
2024-11-14 4:00PM	20	3	0	23	0	2	125	0	127	0	168	6	0	174	0	324
4:15PM	9	8	0	17	0	6	105	0	111	0	130	13	0	143	0	271
4:30PM	25	4	0	29	0	6	125	0	131	0	131	9	0	140	0	300
4:45PM	11	8	0	19	0	2	133	0	135	0	112	6	0	118	0	272
<b>Total</b>	65	23	0	88	0	16	488	0	504	0	541	34	0	575	0	1167
<b>% Approach</b>	73.9%	26.1%	0%	-	-	3.2%	96.8%	0%	-	-	94.1%	5.9%	0%	-	-	-
<b>% Total</b>	5.6%	2.0%	0%	7.5%	-	1.4%	41.8%	0%	43.2%	-	46.4%	2.9%	0%	49.3%	-	-
<b>PHF</b>	0.650	0.719	-	0.759	-	0.667	0.917	-	0.933	-	0.805	0.654	-	0.826	-	0.900
<b>Lights</b>	63	23	0	86	-	15	484	0	499	-	539	33	0	572	-	1157
<b>% Lights</b>	96.9%	100%	0%	97.7%	-	93.8%	99.2%	0%	99.0%	-	99.6%	97.1%	0%	99.5%	-	99.1%
<b>Single-Unit Trucks</b>	2	0	0	2	-	1	3	0	4	-	2	1	0	3	-	9
<b>% Single-Unit Trucks</b>	3.1%	0%	0%	2.3%	-	6.3%	0.6%	0%	0.8%	-	0.4%	2.9%	0%	0.5%	-	0.8%
<b>Articulated Trucks</b>	0	0	0	0	-	0	1	0	1	-	0	0	0	0	-	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	-	0%	0.2%	0%	0.2%	-	0%	0%	0%	0%	-	0.1%
<b>Buses</b>	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
<b>% Buses</b>	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
<b>Pedestrians</b>	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
<b>% Pedestrians</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**Wentworth / Centennial - TMC**

Thu Nov 14, 2024

PM Peak (4 PM - 5 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1248585, Location: 44.989795, -64.118776



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90 Western Parkway, Suite 500,

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**[N] Centennial Drive**

Total: 138

In: 88 Out: 50

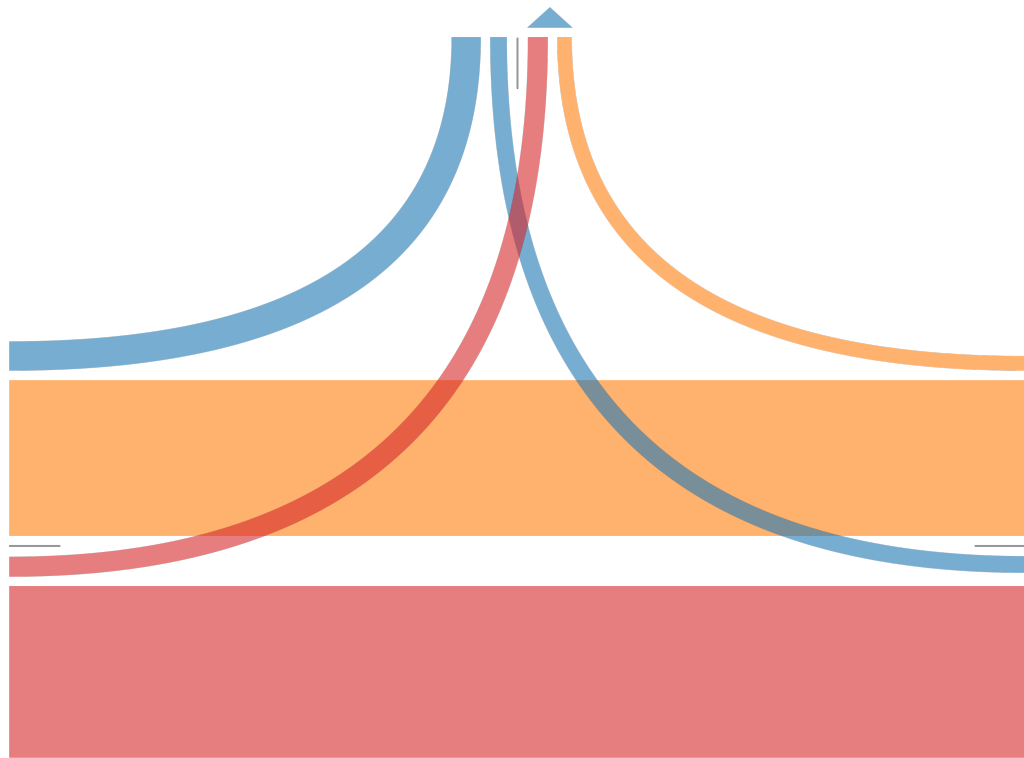
65 23

**[W] Wentworth Road**

Total: 1128  
In: 575

Out: 553

34  
541



16  
488

Out: 564 In: 504

Total: 1068

**[E] Wentworth Road**

## **APPENDIX A- TRAFFIC COUNTS**

Wentworth / Payzant - TMC

Thu Nov 14, 2024

Full Length (7 AM-9 AM, 11 AM-1 PM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1247502, Location: 44.98996, -64.121081



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

Leg Direction	Private Driveway Southbound						Wentworth Road Westbound						Payzant Drive Northbound						Wentworth Road Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2024-11-14																									
7:00AM	0	0	0	0	0	5	3	230	99	0	332	3	45	0	33	0	78	1	57	263	3	0	323	0	733
8:00AM	3	0	0	0	3	6	3	323	238	0	564	4	151	1	65	0	217	5	152	333	2	0	487	0	1271
11:00AM	3	0	1	0	4	5	1	394	82	0	477	5	89	1	97	0	187	1	79	422	1	0	502	0	1170
12:00PM	5	1	3	0	9	2	3	462	96	0	561	3	112	1	74	0	187	1	93	461	1	0	555	0	1312
4:00PM	6	0	4	0	10	3	1	477	73	0	551	2	101	0	69	0	170	1	71	466	0	0	537	0	1268
5:00PM	0	0	2	0	2	1	0	404	57	0	461	0	70	0	42	0	112	1	44	368	1	0	413	0	988
<b>Total</b>	17	1	10	0	28	22	11	2290	645	0	2946	17	568	3	380	0	951	10	496	2313	8	0	2817	0	6742
<b>% Approach</b>	60.7%	3.6%	35.7%	0%	-	-	0.4%	77.7%	21.9%	0%	-	-	59.7%	0.3%	40.0%	0%	-	-	17.6%	82.1%	0.3%	0%	-	-	-
<b>% Total</b>	0.3%	0%	0.1%	0%	0.4%	-	0.2%	34.0%	9.6%	0%	43.7%	-	8.4%	0%	5.6%	0%	14.1%	-	7.4%	34.3%	0.1%	0%	41.8%	-	-
<b>Lights</b>	17	1	10	0	28	-	11	2249	623	0	2883	-	543	3	374	0	920	-	482	2277	8	0	2767	-	6598
<b>% Lights</b>	100%	100%	100%	0%	100%	-	100%	98.2%	96.6%	0%	97.9%	-	95.6%	100%	98.4%	0%	96.7%	-	97.2%	98.4%	100%	0%	98.2%	-	97.9%
<b>Single-Unit Trucks</b>	0	0	0	0	0	-	0	31	8	0	39	-	12	0	4	0	16	-	5	26	0	0	31	-	86
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	0%	1.4%	1.2%	0%	1.3%	-	2.1%	0%	1.1%	0%	1.7%	-	1.0%	1.1%	0%	0%	1.1%	-	1.3%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	6	0	0	6	-	0	0	0	0	0	-	0	8	0	0	8	-	14
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0.3%	-	0.2%
<b>Buses</b>	0	0	0	0	0	-	0	4	14	0	18	-	13	0	2	0	15	-	9	2	0	0	11	-	44
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0.2%	2.2%	0%	0.6%	-	2.3%	0%	0.5%	0%	1.6%	-	1.8%	0.1%	0%	0%	0.4%	-	0.7%
<b>Pedestrians</b>	-	-	-	-	-	22	-	-	-	-	-	17	-	-	-	-	-	10	-	-	-	-	-	0	
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Wentworth / Payzant - TMC

Thu Nov 14, 2024

Full Length (7 AM-9 AM, 11 AM-1 PM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1247502, Location: 44.98996, -64.121081



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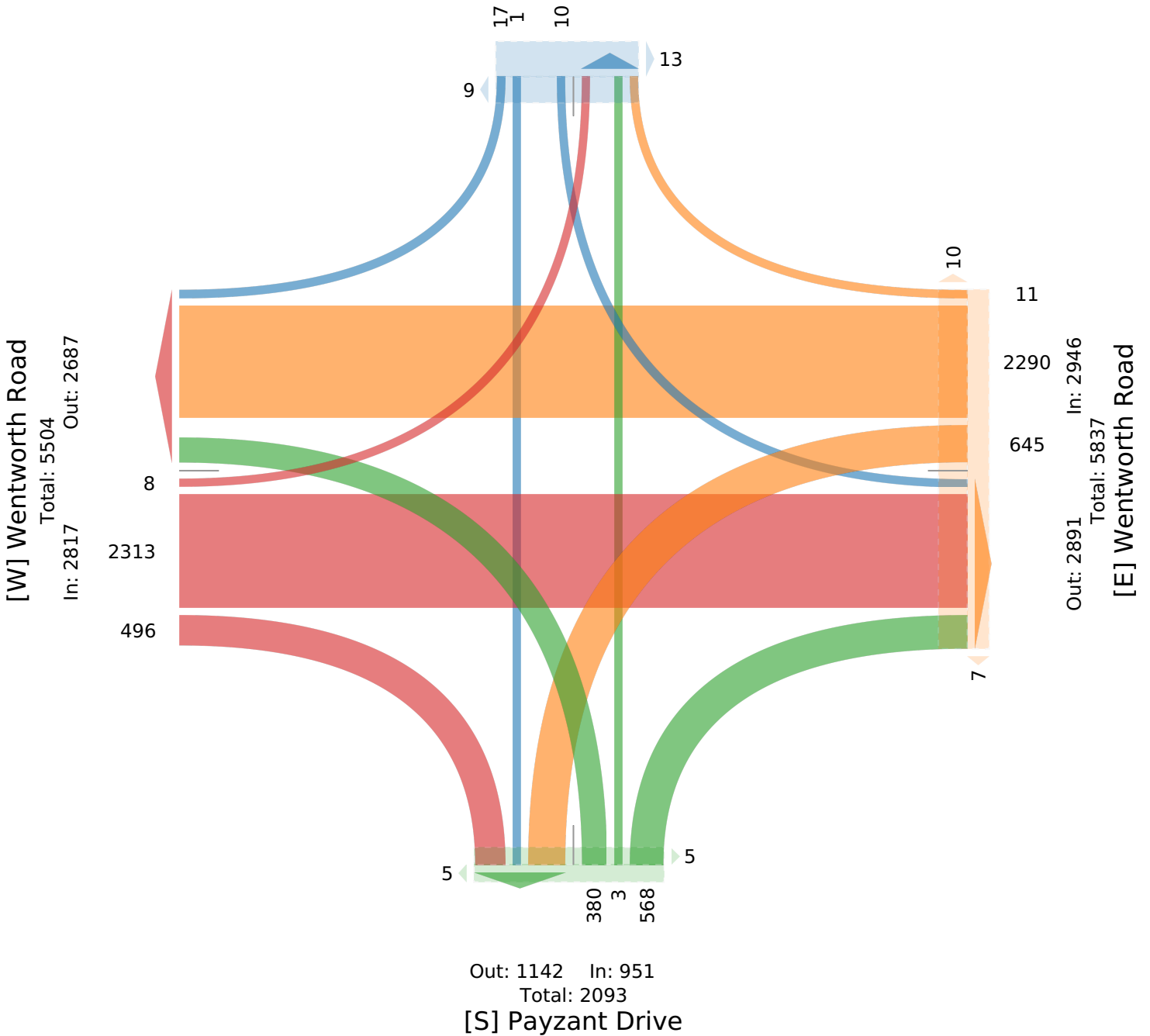
Provided by: DesignPoint Engineering & Surveying Ltd.

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

[N] Private Driveway

Total: 50

In: 28 Out: 22



Wentworth / Payzant - TMC

Thu Nov 14, 2024

AM Peak (8 AM - 9 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1247502, Location: 44.98996, -64.121081



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Provided by: DesignPoint Engineering & Surveying Ltd.

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

Leg Direction	Private Driveway Southbound							Wentworth Road Westbound							Payzant Drive Northbound							Wentworth Road Eastbound							
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int				
2024-11-14 8:00AM	1	0	0	0	1	1	1	56	48	0	105	0	20	1	8	0	29	1	27	78	1	0	106	0	241				
8:15AM	0	0	0	0	0	2	0	80	51	0	131	2	23	0	16	0	39	0	31	87	1	0	119	0	289				
8:30AM	0	0	0	0	0	2	0	89	60	0	149	0	46	0	24	0	70	0	44	77	0	0	121	0	340				
8:45AM	2	0	0	0	2	1	2	98	79	0	179	2	62	0	17	0	79	4	50	91	0	0	141	0	401				
<b>Total</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>6</b>	<b>3</b>	<b>323</b>	<b>238</b>	<b>0</b>	<b>564</b>	<b>4</b>	<b>151</b>	<b>1</b>	<b>65</b>	<b>0</b>	<b>217</b>	<b>5</b>	<b>152</b>	<b>333</b>	<b>2</b>	<b>0</b>	<b>487</b>	<b>0</b>	<b>1271</b>				
<b>% Approach</b>	100%	0%	0%	0%	-	-	0.5%	57.3%	42.2%	0%	-	-	69.6%	0.5%	30.0%	0%	-	-	31.2%	68.4%	0.4%	0%	-	-	-				
<b>% Total</b>	0.2%	0%	0%	0%	0.2%	-	0.2%	25.4%	18.7%	0%	44.4%	-	11.9%	0.1%	5.1%	0%	17.1%	-	12.0%	26.2%	0.2%	0%	38.3%	-	-				
<b>PHF</b>	0.375	-	-	-	0.375	-	0.375	0.824	0.753	-	0.788	-	0.609	0.250	0.677	-	0.687	-	0.760	0.915	0.500	-	0.863	-	0.792				
<b>Lights</b>	3	0	0	0	3	-	3	316	221	0	540	-	133	1	64	0	198	-	141	325	2	0	468	-	1209				
<b>% Lights</b>	100%	0%	0%	0%	100%	-	100%	97.8%	92.9%	0%	95.7%	-	88.1%	100%	98.5%	0%	91.2%	-	92.8%	97.6%	100%	0%	96.1%	-	95.1%				
<b>Single-Unit Trucks</b>	0	0	0	0	0	-	0	4	3	0	7	-	5	0	0	0	5	-	3	5	0	0	8	-	20				
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	0%	1.2%	1.3%	0%	1.2%	-	3.3%	0%	0%	0%	2.3%	-	2.0%	1.5%	0%	0%	1.6%	-	1.6%				
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	2	0	0	2	-	0	0	0	0	0	-	0	2	0	0	2	-	4				
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0.6%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0%	0.6%	0%	0%	0.4%	-	0.3%				
<b>Buses</b>	0	0	0	0	0	-	0	1	14	0	15	-	13	0	1	0	14	-	8	1	0	0	9	-	38				
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0.3%	5.9%	0%	2.7%	-	8.6%	0%	1.5%	0%	6.5%	-	5.3%	0.3%	0%	0%	1.8%	-	3.0%				
<b>Pedestrians</b>	-	-	-	-	-	6	-	-	-	-	-	4	-	-	-	-	-	5	-	-	-	-	-	0	-				
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-				

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Wentworth / Payzant - TMC

Thu Nov 14, 2024

AM Peak (8 AM - 9 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1247502, Location: 44.98996, -64.121081



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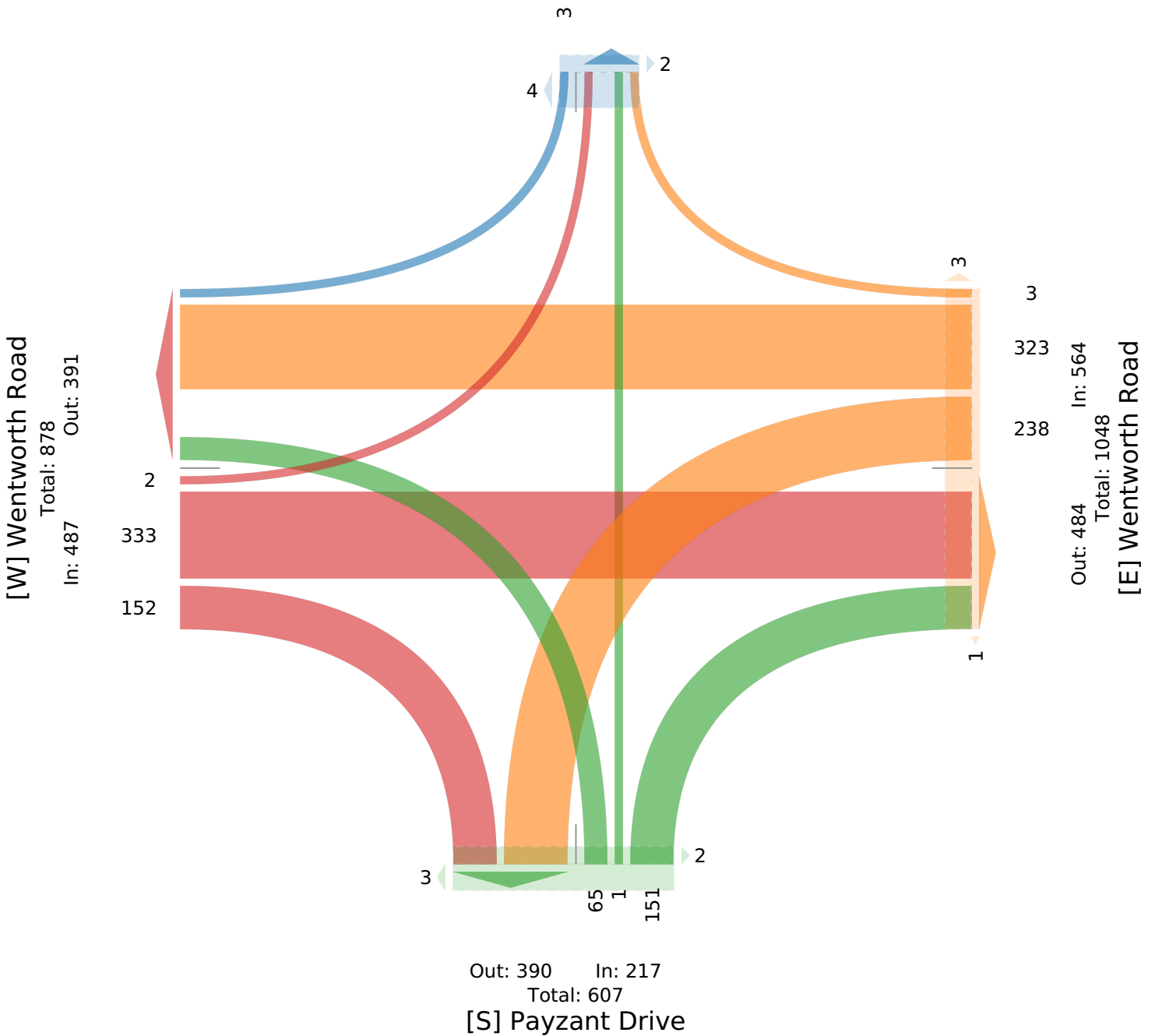
Provided by: DesignPoint Engineering & Surveying Ltd.

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

[N] Private Driveway

Total: 9

In: 3 Out: 6



Wentworth / Payzant - TMC

Thu Nov 14, 2024

Midday Peak (11:30 AM - 12:30 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1247502, Location: 44.98996, -64.121081



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Leg Direction	Private Driveway Southbound						Wentworth Road Westbound						Payzant Drive Northbound						Wentworth Road Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2024-11-14 11:30AM	0	0	0	0	0	3	0	109	20	0	129	1	32	1	29	0	62	0	24	114	0	0	138	0	329
11:45AM	1	0	0	0	1	0	0	105	35	0	140	4	27	0	25	0	52	1	21	112	0	0	133	0	326
12:00PM	3	0	0	0	3	1	0	125	17	0	142	0	36	0	27	0	63	0	30	113	0	0	143	0	351
12:15PM	1	0	1	0	2	0	0	116	18	0	134	0	27	0	15	0	42	0	24	125	0	0	149	0	327
<b>Total</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>6</b>	<b>4</b>	<b>0</b>	<b>455</b>	<b>90</b>	<b>0</b>	<b>545</b>	<b>5</b>	<b>122</b>	<b>1</b>	<b>96</b>	<b>0</b>	<b>219</b>	<b>1</b>	<b>99</b>	<b>464</b>	<b>0</b>	<b>0</b>	<b>563</b>	<b>0</b>	<b>1333</b>
<b>% Approach</b>	83.3%	0%	16.7%	0%	-	-	0%	83.5%	16.5%	0%	-	-	55.7%	0.5%	43.8%	0%	-	-	17.6%	82.4%	0%	0%	-	-	-
<b>% Total</b>	0.4%	0%	0.1%	0%	<b>0.5%</b>	-	0%	34.1%	6.8%	0%	<b>40.9%</b>	-	9.2%	0.1%	7.2%	0%	<b>16.4%</b>	-	7.4%	34.8%	0%	0%	<b>42.2%</b>	-	-
<b>PHF</b>	0.417	-	0.250	-	<b>0.500</b>	-	-	0.910	0.643	-	<b>0.960</b>	-	0.847	0.250	0.828	-	<b>0.869</b>	-	0.825	0.928	-	-	<b>0.945</b>	-	0.949
<b>Lights</b>	5	0	1	0	6	-	0	450	88	0	538	-	122	1	95	0	218	-	98	457	0	0	555	-	1317
<b>% Lights</b>	100%	0%	100%	0%	<b>100%</b>	-	0%	98.9%	97.8%	0%	<b>98.7%</b>	-	100%	100%	99.0%	0%	<b>99.5%</b>	-	99.0%	98.5%	0%	0%	<b>98.6%</b>	-	98.8%
<b>Single-Unit Trucks</b>	0	0	0	0	0	-	0	4	2	0	6	-	0	0	1	0	1	-	1	6	0	0	7	-	14
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	<b>0%</b>	-	0%	0.9%	2.2%	0%	<b>1.1%</b>	-	0%	0%	1.0%	0%	<b>0.5%</b>	-	1.0%	1.3%	0%	0%	<b>1.2%</b>	-	1.1%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	1
<b>% Articulated Trucks</b>	0%	0%	0%	0%	<b>0%</b>	-	0%	0%	0%	0%	<b>0%</b>	-	0%	0%	0%	0%	<b>0%</b>	-	0%	0.2%	0%	0%	<b>0.2%</b>	-	0.1%
<b>Buses</b>	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	1
<b>% Buses</b>	0%	0%	0%	0%	<b>0%</b>	-	0%	0.2%	0%	0%	<b>0.2%</b>	-	0%	0%	0%	0%	<b>0%</b>	-	0%	0%	0%	0%	<b>0%</b>	-	0.1%
<b>Pedestrians</b>	-	-	-	-	-	4	-	-	-	-	-	5	-	-	-	-	-	1	-	-	-	-	-	0	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-

\* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Wentworth / Payzant - TMC

Thu Nov 14, 2024

Midday Peak (11:30 AM - 12:30 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1247502, Location: 44.98996, -64.121081



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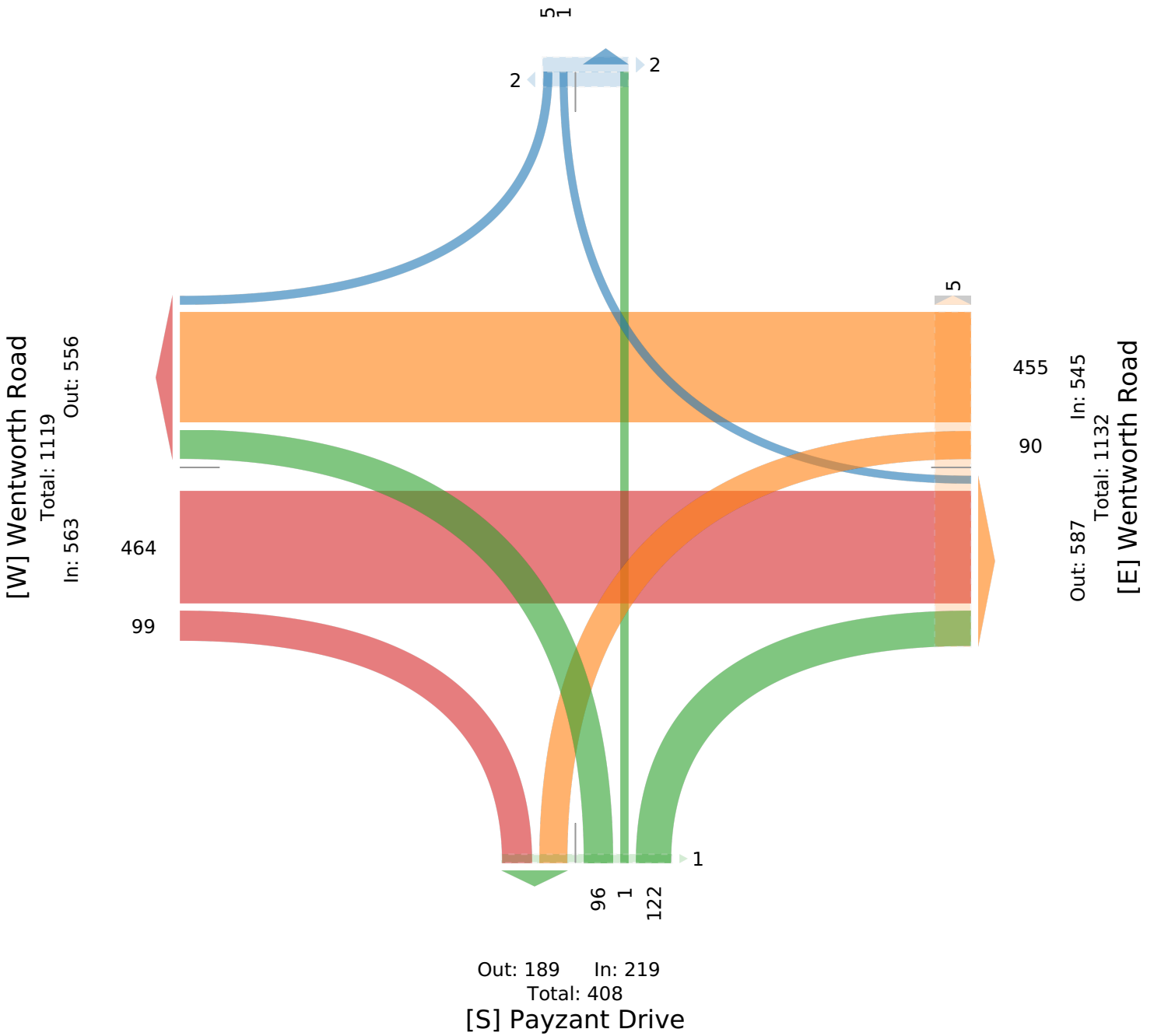
Provided by: DesignPoint Engineering & Surveying Ltd.

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

[N] Private Driveway

Total: 7

In: 6 Out: 1



Wentworth / Payzant - TMC

Thu Nov 14, 2024

PM Peak (4 PM - 5 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1247502, Location: 44.98996, -64.121081



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

Leg Direction	Private Driveway Southbound						Wentworth Road Westbound						Payzant Drive Northbound						Wentworth Road Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2024-11-14 4:00PM	1	0	0	0	1	0	0	127	17	0	144	1	33	0	23	0	56	1	11	141	0	0	152	0	353
4:15PM	0	0	1	0	1	1	0	97	16	0	113	1	29	0	11	0	40	0	17	110	0	0	127	0	281
4:30PM	2	0	3	0	5	0	0	135	19	0	154	0	20	0	20	0	40	0	21	114	0	0	135	0	334
4:45PM	3	0	0	0	3	2	1	118	21	0	140	0	19	0	15	0	34	0	22	101	0	0	123	0	300
<b>Total</b>	6	0	4	0	10	3	1	477	73	0	551	2	101	0	69	0	170	1	71	466	0	0	537	0	1268
<b>% Approach</b>	60.0%	0%	40.0%	0%	-	-	0.2%	86.6%	13.2%	0%	-	-	59.4%	0%	40.6%	0%	-	-	13.2%	86.8%	0%	0%	-	-	-
<b>% Total</b>	0.5%	0%	0.3%	0%	0.8%	-	0.1%	37.6%	5.8%	0%	43.5%	-	8.0%	0%	5.4%	0%	13.4%	-	5.6%	36.8%	0%	0%	42.4%	-	-
<b>PHF</b>	0.500	-	0.333	-	0.500	-	0.250	0.883	0.869	-	0.894	-	0.765	-	0.750	-	0.759	-	0.807	0.826	-	-	0.883	-	0.898
<b>Lights</b>	6	0	4	0	10	-	1	472	72	0	545	-	101	0	68	0	169	-	71	463	0	0	534	-	1258
<b>% Lights</b>	100%	0%	100%	0%	100%	-	100%	99.0%	98.6%	0%	98.9%	-	100%	0%	98.6%	0%	99.4%	-	100%	99.4%	0%	0%	99.4%	-	99.2%
<b>Single-Unit Trucks</b>	0	0	0	0	0	-	0	5	1	0	6	-	0	0	1	0	1	-	0	3	0	0	3	-	10
<b>% Single-Unit Trucks</b>	0%	0%	0%	0%	0%	-	0%	1.0%	1.4%	0%	1.1%	-	0%	0%	1.4%	0%	0.6%	-	0%	0.6%	0%	0%	0.6%	-	0.8%
<b>Articulated Trucks</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Articulated Trucks</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Buses</b>	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
<b>% Buses</b>	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
<b>Pedestrians</b>	-	-	-	-	-	3	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-
<b>% Pedestrians</b>	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-

\*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**Wentworth / Payzant - TMC**

Thu Nov 14, 2024

PM Peak (4 PM - 5 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians)

All Movements

ID: 1247502, Location: 44.98996, -64.121081



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Provided by: DesignPoint Engineering & Surveying Ltd.

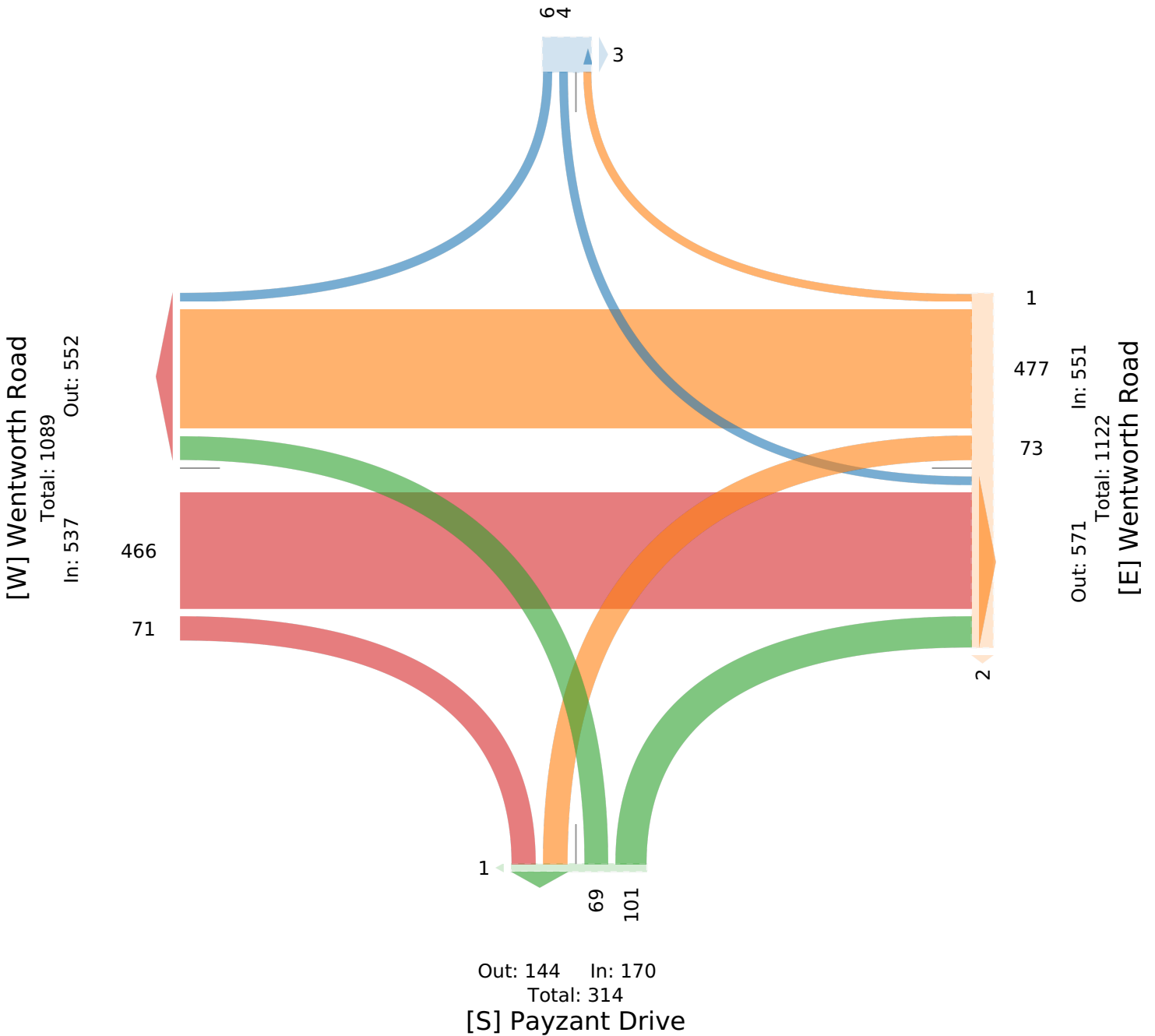
90 Western Parkway, Suite 500,

Bedford, NS, B4B 2J3, CA

**[N] Private Driveway**

Total: 11

In: 10 Out: 1



## **APPENDIX B- VISTRO REPORTS**

**Intersection Level Of Service Report  
Intersection 1: Payzant Drive**

Control Type:	Signalized	Delay (sec / veh):	13.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.492

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	1	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name												
Base Volume Input [veh/h]	69	0	101	3	4	6	2	466	71	75	477	1
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	32	0	0	0	0	71	0	33	73	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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	0	149	3	4	7	2	609	82	120	624	1
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	37	1	1	2	1	152	21	30	156	0
Total Analysis Volume [veh/h]	80	0	149	3	4	7	2	609	82	120	624	1
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0		0			0			0			
v_co, Outbound Pedestrian Volume crossing	0		0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0		0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0		0			0			0			
Bicycle Volume [bicycles/h]	0		0			0			0			

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	1	6	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-	
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0	
Maximum Green [s]	0	30	0	0	30	0	0	30	0	30	30	0	
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	
Split [s]	0	23	0	0	23	0	0	58	0	9	67	0	
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0	
Pedestrian Clearance [s]	0	6	0	0	10	0	0	6	0	0	10	0	
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Rest In Walk		No			No			No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	
Minimum Recall		No			No			No			No	No	
Maximum Recall		No			No			No			No	No	
Pedestrian Recall		No			No			No			No	No	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	L	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	17	17	17	57	57	57	65	65
g / C, Green / Cycle	0.19	0.19	0.19	0.63	0.63	0.63	0.73	0.73
(v / s)_i Volume / Saturation Flow Rate	0.06	0.10	0.01	0.00	0.36	0.06	0.16	0.37
s, saturation flow rate [veh/h]	1263	1431	1071	720	1683	1431	773	1683
c, Capacity [veh/h]	121	266	248	406	1057	898	539	1220
d1, Uniform Delay [s]	36.22	33.28	30.20	13.54	9.77	6.61	5.91	5.41
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.50	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.04	1.84	0.09	0.02	2.29	0.20	0.21	1.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.66	0.56	0.06	0.00	0.58	0.09	0.22	0.51
d, Delay for Lane Group [s/veh]	42.26	35.12	30.30	13.56	12.06	6.81	6.12	6.95
Lane Group LOS	D	D	C	B	B	A	A	A
Critical Lane Group	No	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.90	3.04	0.25	0.02	6.73	0.60	0.54	4.42
50th-Percentile Queue Length [m/ln]	14.49	23.14	1.93	0.18	51.29	4.59	4.11	33.66
95th-Percentile Queue Length [veh/ln]	3.42	5.47	0.46	0.04	10.99	1.08	0.97	7.86
95th-Percentile Queue Length [m/ln]	26.08	41.65	3.47	0.33	83.71	8.26	7.39	59.93

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	42.26	35.12	35.12	30.30	30.30	30.30	13.56	12.06	6.81	6.12	6.95	6.95
Movement LOS	D	D	D	C	C	C	B	B	A	A	A	A
d_A, Approach Delay [s/veh]	37.61			30.30			11.44			6.82		
Approach LOS	D			C			B			A		
d_I, Intersection Delay [s/veh]	13.12											
Intersection LOS	B											
Intersection V/C	0.492											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00	0.00	36.45
I_p,int, Pedestrian LOS Score for Intersectio	2.288	0.000	0.000	2.762
Crosswalk LOS	B	F	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	422	422	1200	1400
d_b, Bicycle Delay [s]	28.01	28.01	7.20	4.05
I_b,int, Bicycle LOS Score for Intersection	1.937	1.583	2.703	2.789
Bicycle LOS	A	A	B	C

**Sequence**




Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 2: Centennial Drive**

Control Type:	Two-way stop	Delay (sec / veh):	39.5
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.203

**Intersection Setup**

Name	Southbound		Eastbound		Westbound	
Approach						
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	0	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]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

**Volumes**

Name	Southbound		Eastbound		Westbound	
Base Volume Input [veh/h]	23	65	34	541	482	16
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	103	106	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]	27	75	39	728	662	19
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]	7	19	10	182	166	5
Total Analysis Volume [veh/h]	27	75	39	728	662	19
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.20	0.16	0.04	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	39.47	20.25	9.13	0.00	0.00	0.00
Movement LOS	E	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.62	1.62	0.13	0.00	0.00	0.00
95th-Percentile Queue Length [m/ln]	12.38	12.38	1.02	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	25.34		0.46		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	1.90					
Intersection LOS	E					

**Intersection Level Of Service Report  
Intersection 3: Cole Drive**

Control Type:	Signalized	Delay (sec / veh):	21.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.598

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
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	1	0	0	0	0	0	1	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name												
Base Volume Input [veh/h]	198	0	163	0	0	0	0	330	172	1	189	288
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	97	0	186	0	0	0	0	24	49	139	66	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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	326	0	375	0	0	0	0	405	248	140	285	333
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]	82	0	94	0	0	0	0	101	62	35	71	83
Total Analysis Volume [veh/h]	326	0	375	0	0	0	0	405	248	140	285	333
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	37	0	0	37	0	0	44	0	9	53	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	9	0	0	6	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			No			No		No	No	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	C	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	33	33	33	40	40	49	49
g / C, Green / Cycle	0.37	0.37	0.37	0.44	0.44	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.23	0.24	0.00	0.22	0.16	0.15	0.36
s, saturation flow rate [veh/h]	1439	1589	1870	1870	1589	922	1708
c, Capacity [veh/h]	608	583	726	871	706	502	930
d1, Uniform Delay [s]	23.05	23.62	0.00	17.73	16.46	11.43	14.64
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.37	5.39	0.00	1.78	1.37	1.38	3.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.54	0.64	0.00	0.46	0.35	0.28	0.66
d, Delay for Lane Group [s/veh]	26.43	29.02	0.00	19.51	17.83	12.81	18.38
Lane Group LOS	C	C	A	B	B	B	B
Critical Lane Group	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.97	7.20	0.00	6.10	3.49	1.48	9.16
50th-Percentile Queue Length [m/ln]	45.50	54.90	0.00	46.45	26.58	11.26	69.78
95th-Percentile Queue Length [veh/ln]	9.98	11.61	0.00	10.14	6.28	2.66	14.12
95th-Percentile Queue Length [m/ln]	76.04	88.44	0.00	77.30	47.85	20.26	107.60

**Movement, Approach, & Intersection Results**

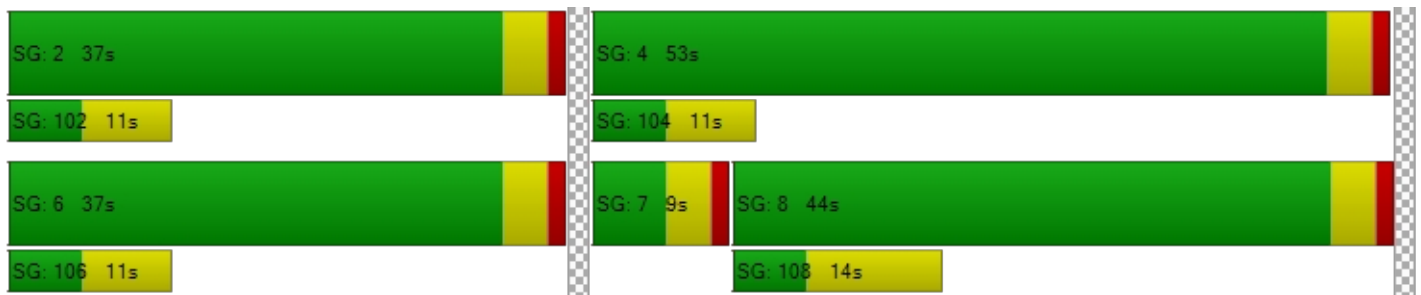
d_M, Delay for Movement [s/veh]	26.43	26.43	29.02	0.00	0.00	0.00	19.51	19.51	17.83	12.81	18.38	18.38
Movement LOS	C	C	C	A	A	A	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	27.81			0.00			18.87			17.35		
Approach LOS	C			A			B			B		
d_I, Intersection Delay [s/veh]	21.29											
Intersection LOS	C											
Intersection V/C	0.598											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [m <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersectio	2.625	1.987	3.090	2.775
Crosswalk LOS	B	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	733	889	1089
d_b, Bicycle Delay [s]	18.05	18.05	13.89	9.34
I_b,int, Bicycle LOS Score for Intersection	2.716	1.560	2.637	2.810
Bicycle LOS	B	A	B	C

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 4: Industrial Drive**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 440.0  
 Level Of Service: F  
 Volume to Capacity (v/c): 0.253

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
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	0	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	70	16	115	8	351	230	101	405	16
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1090	1.1090	1.1090	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
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	97	0	165	44	0	107	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]	0	0	0	81	19	230	9	570	309	117	574	19
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]	0	0	0	20	5	58	2	143	77	29	144	5
Total Analysis Volume [veh/h]	0	0	0	81	19	230	9	570	309	117	574	19
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	1.07	0.25	0.45	0.01	0.01	0.00	0.15	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	439.43	439.97	398.98	8.67	0.00	0.00	10.52	0.00	0.00
Movement LOS				F	F	F	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	23.28	23.28	23.28	0.02	0.02	0.02	0.54	0.00	0.00
95th-Percentile Queue Length [m/ln]	0.00	0.00	0.00	177.39	177.39	177.39	0.12	0.12	0.12	4.08	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			411.27			0.09			1.73		
Approach LOS	A			F			A			A		
d_I, Intersection Delay [s/veh]	71.07											
Intersection LOS	F											

**Intersection Level Of Service Report  
Intersection 5: Roundabout**

Control Type: Roundabout  
 Analysis Method: Kimber  
 Analysis Period: 15 minutes

Delay (sec / veh): 3.9  
 Level Of Service: A

**Intersection Setup**

Name	Northbound				Southbound				Eastbound			
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Right	Left	Thru	Thru	Right	Left	Thru	Right	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	0	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]	50.00				50.00				50.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

**Volumes**

Name	Northbound				Southbound				Eastbound			
Base Volume Input [veh/h]	152	0	101	31	0	0	0	0	152	184	57	0
Base Volume Adjustment Factor	1.0400	1.0400	1.0000	1.0400	1.0000	1.0400	1.0400	1.0400	1.0400	1.0000	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.0000	1.1090	1.1090	1.1090	1.1100	1.1100	1.1100	1.1100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	43	0	0	0	0	0	0	0	99	66	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]	218	0	112	36	0	0	0	0	274	270	65	0
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]	55	0	28	9	0	0	0	0	69	68	16	0
Total Analysis Volume [veh/h]	218	0	112	36	0	0	0	0	274	270	65	0
Pedestrian Volume [ped/h]	0				0				0			

**Intersection Settings**

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**Movement, Approach, & Intersection Results**

Approach Delay [s/veh]	4.06	0.00	3.66
Approach LOS	A	A	A
Intersection Delay [s/veh]	3.92		
Intersection LOS	A		

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**Intersection Setup**

Name	Westbound				Northwestbound			
Approach								
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Left	Thru	Right
Lane Width [m]	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
Entry Pocket Length [m]	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
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	50.00				50.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				No			

**Volumes**

Name	Westbound				Northwestbound			
Base Volume Input [veh/h]	24	0	118	65	0	112	62	75
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	64	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	0	201	75	0	129	71	83
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	7	0	50	19	0	32	18	21
Total Analysis Volume [veh/h]	28	0	201	75	0	129	71	83
Pedestrian Volume [ped/h]	0				0			

**Intersection Settings**

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**Movement, Approach, & Intersection Results**

Approach Delay [s/veh]	3.93	4.30
Approach LOS	A	A
Intersection Delay [s/veh]	3.92	
Intersection LOS	A	

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**Intersection Level Of Service Report  
Intersection 1: Payzant Drive**

Control Type:	Signalized	Delay (sec / veh):	10.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.465

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	1	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name												
Base Volume Input [veh/h]	65	1	151	2	0	4	2	333	152	238	323	3
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	18	0	0	0	0	40	0	12	28	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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	1	192	2	0	4	2	424	175	287	401	3
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]	19	0	48	1	0	1	1	106	44	72	100	1
Total Analysis Volume [veh/h]	75	1	192	2	0	4	2	424	175	287	401	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	35	0	0	35	0	0	15	0	10	25	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	10	0	0	6	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			No			No		No	No	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	L	C	R	L	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	10	10	10	32	32	32	42	42
g / C, Green / Cycle	0.17	0.17	0.17	0.53	0.53	0.53	0.69	0.69
(v / s)_i Volume / Saturation Flow Rate	0.06	0.13	0.01	0.00	0.25	0.12	0.32	0.24
s, saturation flow rate [veh/h]	1271	1432	671	883	1683	1431	903	1681
c, Capacity [veh/h]	155	247	196	459	888	754	673	1166
d1, Uniform Delay [s]	23.09	23.73	20.87	11.41	8.96	7.63	4.88	3.70
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.50	0.18	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.34	5.30	0.06	0.02	1.84	0.72	0.72	0.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.48	0.78	0.03	0.00	0.48	0.23	0.43	0.35
d, Delay for Lane Group [s/veh]	25.43	29.02	20.93	11.43	10.80	8.35	5.61	4.52
Lane Group LOS	C	C	C	B	B	A	A	A
Critical Lane Group	No	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.02	2.79	0.07	0.02	3.25	1.13	0.89	1.41
50th-Percentile Queue Length [m/ln]	7.75	21.24	0.52	0.13	24.74	8.64	6.78	10.76
95th-Percentile Queue Length [veh/ln]	1.83	5.02	0.12	0.03	5.84	2.04	1.60	2.54
95th-Percentile Queue Length [m/ln]	13.95	38.24	0.94	0.23	44.54	15.54	12.21	19.37

**Movement, Approach, & Intersection Results**

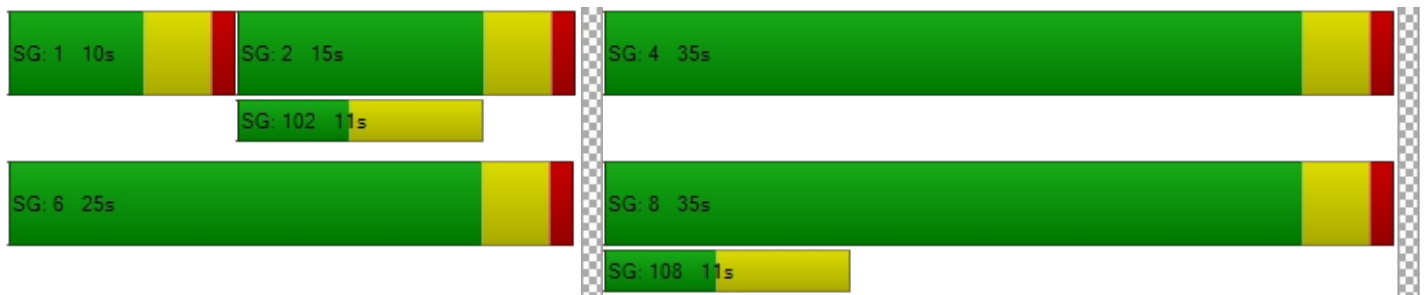
d_M, Delay for Movement [s/veh]	25.43	29.02	29.02	20.93	20.93	20.93	11.43	10.80	8.35	5.61	4.52	4.52
Movement LOS	C	C	C	C	C	C	B	B	A	A	A	A
d_A, Approach Delay [s/veh]	28.02			20.93			10.09			4.97		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	10.94											
Intersection LOS	B											
Intersection V/C	0.465											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersectio	2.546	0.000	0.000	2.633
Crosswalk LOS	B	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1033	1033	367	700
d_b, Bicycle Delay [s]	7.01	7.01	20.01	12.68
I_b,int, Bicycle LOS Score for Intersection	2.002	1.570	2.551	2.700
Bicycle LOS	B	A	B	B

**Sequence**




Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 2: Centennial Drive**

Control Type:	Two-way stop	Delay (sec / veh):	27.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

**Intersection Setup**

Name	Southbound		Eastbound		Westbound	
Approach						
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	0	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]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

**Volumes**

Name	Southbound		Eastbound		Westbound	
Base Volume Input [veh/h]	1	4	51	427	527	24
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	58	40	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]	1	4	59	551	648	28
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]	0	1	15	138	162	7
Total Analysis Volume [veh/h]	1	4	59	551	648	28
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.01	0.01	0.06	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	27.75	12.96	9.20	0.00	0.00	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.21	0.00	0.00	0.00
95th-Percentile Queue Length [m/ln]	0.35	0.35	1.57	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.92		0.89		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.48					
Intersection LOS	D					

**Intersection Level Of Service Report  
Intersection 3: Cole Drive**

Control Type:	Signalized	Delay (sec / veh):	18.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.426

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
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	1	0	0	0	0	0	1	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name												
Base Volume Input [veh/h]	159	0	68	0	0	0	0	229	148	134	446	2
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	35	0	67	0	0	0	0	11	24	78	37	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	-40	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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	218	0	146	0	0	0	0	275	195	232	512	2
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]	55	0	37	0	0	0	0	69	49	58	128	1
Total Analysis Volume [veh/h]	218	0	146	0	0	0	0	275	195	232	512	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	7	4	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-	
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0	
Maximum Green [s]	0	30	0	0	30	0	0	30	0	30	30	0	
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	
Split [s]	0	33	0	0	33	0	0	35	0	22	57	0	
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0	
Pedestrian Clearance [s]	0	6	0	0	6	0	0	9	0	0	6	0	
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Rest In Walk		No			No			No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	
Minimum Recall		No			No			No		No	No		
Maximum Recall		No			No			No		No	No		
Pedestrian Recall		No			No			No		No	No		
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	C	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	29	29	29	31	31	53	53
g / C, Green / Cycle	0.32	0.32	0.32	0.34	0.34	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.15	0.09	0.00	0.15	0.12	0.19	0.28
s, saturation flow rate [veh/h]	1442	1589	1870	1870	1589	1247	1869
c, Capacity [veh/h]	545	512	643	684	547	749	1100
d1, Uniform Delay [s]	24.07	22.76	0.00	22.67	22.04	9.51	10.49
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.19	1.40	0.00	1.76	1.81	1.07	1.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.40	0.29	0.00	0.40	0.36	0.31	0.47
d, Delay for Lane Group [s/veh]	26.25	24.16	0.00	24.43	23.85	10.59	11.92
Lane Group LOS	C	C	A	C	C	B	B
Critical Lane Group	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.90	2.45	0.00	4.67	3.27	2.18	5.64
50th-Percentile Queue Length [m/ln]	29.75	18.68	0.00	35.60	24.89	16.63	43.00
95th-Percentile Queue Length [veh/ln]	7.03	4.41	0.00	8.22	5.88	3.93	9.54
95th-Percentile Queue Length [m/ln]	53.55	33.62	0.00	62.62	44.79	29.94	72.69

**Movement, Approach, & Intersection Results**

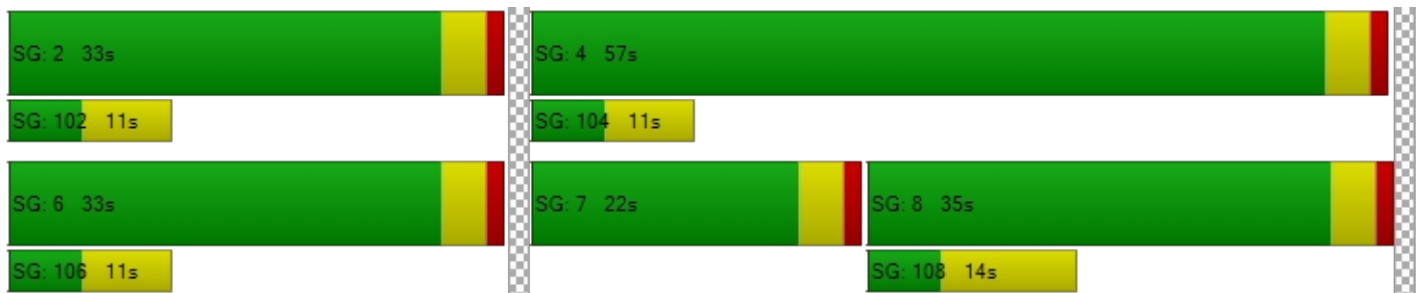
d_M, Delay for Movement [s/veh]	26.25	26.25	24.16	0.00	0.00	0.00	24.43	24.43	23.85	10.59	11.92	11.92
Movement LOS	C	C	C	A	A	A	C	C	C	B	B	B
d_A, Approach Delay [s/veh]	25.41			0.00			24.19			11.50		
Approach LOS	C			A			C			B		
d_I, Intersection Delay [s/veh]	18.48											
Intersection LOS	B											
Intersection V/C	0.426											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [m <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersectio	2.491	1.718	2.902	2.574
Crosswalk LOS	B	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	644	689	1178
d_b, Bicycle Delay [s]	20.67	20.67	19.34	7.61
I_b,int, Bicycle LOS Score for Intersection	2.160	1.560	2.335	2.791
Bicycle LOS	B	A	B	C

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 4: Industrial Drive**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 124.2  
 Level Of Service: F  
 Volume to Capacity (v/c): 0.609

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
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	0	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	78	10	122	5	281	130	61	444	24
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1090	1.1090	1.1090	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
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	55	0	61	17	0	59	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]	0	0	0	90	11	196	6	385	167	70	572	28
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]	0	0	0	23	3	49	2	96	42	18	143	7
Total Analysis Volume [veh/h]	0	0	0	90	11	196	6	385	167	70	572	28
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.61	0.07	0.38	0.01	0.00	0.00	0.07	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	124.20	123.73	106.92	8.69	0.00	0.00	8.80	0.00	0.00
Movement LOS				F	F	F	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	11.76	11.76	11.76	0.01	0.01	0.01	0.22	0.00	0.00
95th-Percentile Queue Length [m/ln]	0.00	0.00	0.00	89.61	89.61	89.61	0.08	0.08	0.08	1.68	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			112.78			0.09			0.92		
Approach LOS	A			F			A			A		
d_I, Intersection Delay [s/veh]	22.40											
Intersection LOS	F											

**Intersection Level Of Service Report  
Intersection 5: Roundabout**

Control Type: Roundabout  
 Analysis Method: Kimber  
 Analysis Period: 15 minutes

Delay (sec / veh): 3.8  
 Level Of Service: A

**Intersection Setup**

Name	Northbound				Southbound				Eastbound			
Approach	✚								✚			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right	Left	Thru	Thru	Right	Left	Thru	Right	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	0	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]	50.00				50.00				50.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

**Volumes**

Name	Northbound				Southbound				Eastbound			
Base Volume Input [veh/h]	162	0	223	72	0	0	0	0	106	126	80	0
Base Volume Adjustment Factor	1.0400	1.0400	1.0000	1.0400	1.0000	1.0400	1.0400	1.0400	1.0400	1.0000	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.0000	1.1090	1.1090	1.1090	1.1100	1.1100	1.1100	1.1100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	23	0	0	0	0	0	0	0	36	25	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]	209	0	248	83	0	0	0	0	158	165	92	0
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]	52	0	62	21	0	0	0	0	40	41	23	0
Total Analysis Volume [veh/h]	209	0	248	83	0	0	0	0	158	165	92	0
Pedestrian Volume [ped/h]	0				0				0			

**Intersection Settings**

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**Movement, Approach, & Intersection Results**

Approach Delay [s/veh]	4.53	0.00	3.14
Approach LOS	A	A	A
Intersection Delay [s/veh]	3.84		
Intersection LOS	A		

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**Intersection Setup**

Name	Westbound				Northwestbound			
Approach	Westbound				Northwestbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Left	Thru	Right
Lane Width [m]	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
Entry Pocket Length [m]	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
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	50.00				50.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				No			

**Volumes**

Name	Westbound				Northwestbound			
Base Volume Input [veh/h]	70	0	158	92	0	30	17	21
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	36	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	81	0	218	107	0	34	20	23
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	20	0	55	27	0	9	5	6
Total Analysis Volume [veh/h]	81	0	218	107	0	34	20	23
Pedestrian Volume [ped/h]	0				0			

**Intersection Settings**

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**Movement, Approach, & Intersection Results**

Approach Delay [s/veh]	3.72	3.30
Approach LOS	A	A
Intersection Delay [s/veh]	3.84	
Intersection LOS	A	

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**Intersection Level Of Service Report  
Intersection 1: Payzant Drive**

Control Type:	Signalized	Delay (sec / veh):	10.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.482

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	+			+			← →			← →		
Lane Configuration	+			+			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name												
Base Volume Input [veh/h]	69	0	101	3	4	6	0	466	71	75	477	1
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	0	117	3	4	7	0	538	82	87	551	1
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	29	1	1	2	0	135	21	22	138	0
Total Analysis Volume [veh/h]	80	0	117	3	4	7	0	538	82	87	551	1
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	19	0	0	19	0	0	32	0	9	41	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	10	0	0	6	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			No			No		No	No	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	C	L	C	R	L	C
C, Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	10	10	34	34	34	42	42
g / C, Green / Cycle	0.17	0.17	0.57	0.57	0.57	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.14	0.01	0.00	0.32	0.06	0.10	0.33
s, saturation flow rate [veh/h]	1399	1574	770	1683	1431	846	1682
c, Capacity [veh/h]	319	337	408	955	812	607	1175
d1, Uniform Delay [s]	24.04	20.95	0.00	8.25	5.95	4.49	4.06
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.94	0.05	0.00	2.40	0.25	0.11	1.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.62	0.04	0.00	0.56	0.10	0.14	0.47
d, Delay for Lane Group [s/veh]	25.98	21.00	0.00	10.65	6.20	4.60	5.40
Lane Group LOS	C	C	A	B	A	A	A
Critical Lane Group	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.68	0.16	0.00	4.00	0.43	0.21	2.14
50th-Percentile Queue Length [m/ln]	20.40	1.21	0.00	30.45	3.24	1.59	16.31
95th-Percentile Queue Length [veh/ln]	4.82	0.29	0.00	7.19	0.77	0.38	3.85
95th-Percentile Queue Length [m/ln]	36.71	2.19	0.00	54.82	5.84	2.86	29.35

**Movement, Approach, & Intersection Results**

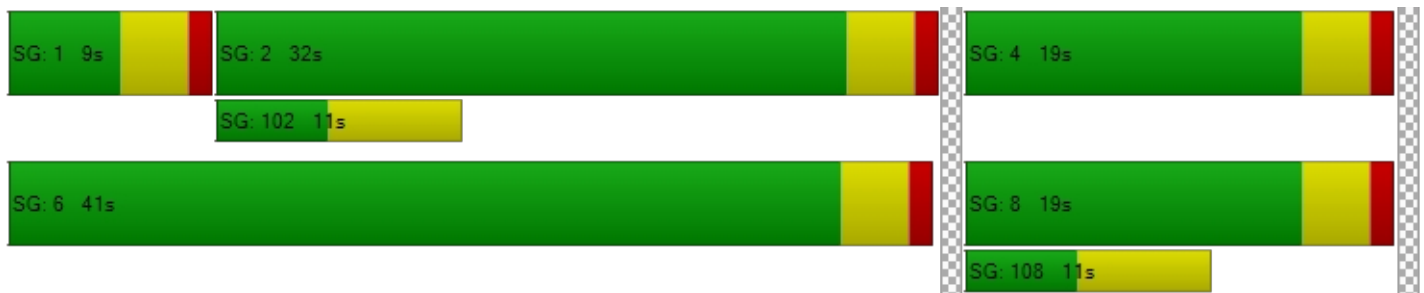
d_M, Delay for Movement [s/veh]	25.98	25.98	25.98	21.00	21.00	21.00	0.00	10.65	6.20	4.60	5.40	5.40
Movement LOS	C	C	C	C	C	C	A	B	A	A	A	A
d_A, Approach Delay [s/veh]	25.98			21.00			10.06			5.29		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	10.23											
Intersection LOS	B											
Intersection V/C	0.482											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersectio	2.071	0.000	0.000	2.628
Crosswalk LOS	B	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500	933	1233
d_b, Bicycle Delay [s]	16.88	16.88	8.53	4.41
I_b,int, Bicycle LOS Score for Intersection	1.885	1.583	2.583	2.614
Bicycle LOS	A	A	B	B

**Sequence**




Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 2: Centennial Drive**

Control Type:	Two-way stop	Delay (sec / veh):	30.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.154

**Intersection Setup**

Name	Southbound		Eastbound		Westbound	
Approach						
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	0	0	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]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

**Volumes**

Name	Southbound		Eastbound		Westbound	
Base Volume Input [veh/h]	23	65	34	541	482	16
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
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]	27	75	39	625	556	19
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]	7	19	10	156	139	5
Total Analysis Volume [veh/h]	27	75	39	625	556	19
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.15	0.14	0.04	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	29.99	16.26	8.65	0.00	0.00	0.00
Movement LOS	D	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.22	1.22	0.07	0.07	0.00	0.00
95th-Percentile Queue Length [m/ln]	9.31	9.31	0.51	0.51	0.00	0.00
d_A, Approach Delay [s/veh]	19.89		0.51		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.76					
Intersection LOS	D					

**Intersection Level Of Service Report  
Intersection 3: Cole Drive**

Control Type:	Signalized	Delay (sec / veh):	16.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.424

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
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	1	0	0	0	0	0	1	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name												
Base Volume Input [veh/h]	198	0	163	0	0	0	0	330	172	189	288	1
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	229	0	189	0	0	0	0	381	199	219	333	1
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]	57	0	47	0	0	0	0	95	50	55	83	0
Total Analysis Volume [veh/h]	229	0	189	0	0	0	0	381	199	219	333	1
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	34	0	0	34	0	0	47	0	9	56	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	9	0	0	6	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			No			No		No	No	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	C	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	30	30	30	43	43	52	52
g / C, Green / Cycle	0.33	0.33	0.33	0.48	0.48	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.16	0.12	0.00	0.20	0.13	0.23	0.18
s, saturation flow rate [veh/h]	1441	1589	1870	1870	1589	961	1869
c, Capacity [veh/h]	560	530	663	933	759	564	1080
d1, Uniform Delay [s]	23.49	22.70	0.00	15.41	14.03	10.24	9.77
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.20	1.87	0.00	1.32	0.84	2.01	0.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.41	0.36	0.00	0.41	0.26	0.39	0.31
d, Delay for Lane Group [s/veh]	25.69	24.57	0.00	16.74	14.87	12.25	10.51
Lane Group LOS	C	C	A	B	B	B	B
Critical Lane Group	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.05	3.22	0.00	5.19	2.48	2.22	3.32
50th-Percentile Queue Length [m/ln]	30.90	24.55	0.00	39.52	18.90	16.91	25.32
95th-Percentile Queue Length [veh/ln]	7.30	5.80	0.00	8.92	4.46	3.99	5.98
95th-Percentile Queue Length [m/ln]	55.62	44.19	0.00	67.99	34.01	30.44	45.58

**Movement, Approach, & Intersection Results**

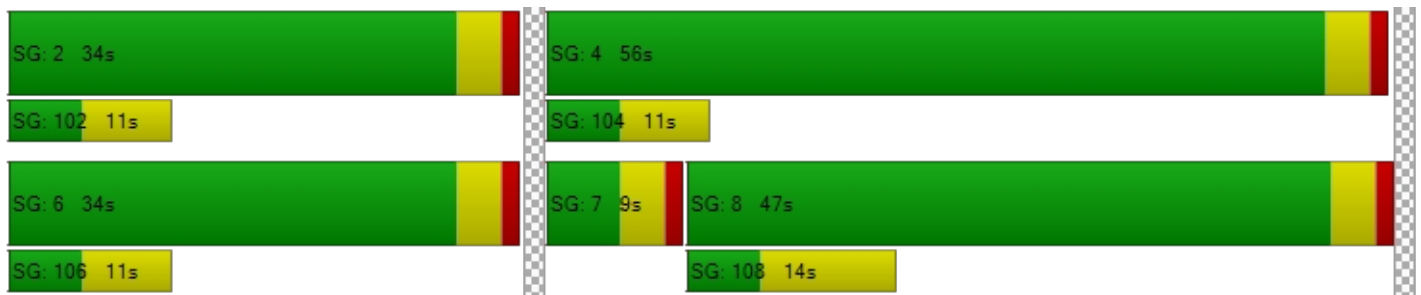
d_M, Delay for Movement [s/veh]	25.69	25.69	24.57	0.00	0.00	0.00	16.74	16.74	14.87	12.25	10.51	10.51
Movement LOS	C	C	C	A	A	A	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	25.19			0.00			16.09			11.20		
Approach LOS	C			A			B			B		
d_I, Intersection Delay [s/veh]	16.80											
Intersection LOS	B											
Intersection V/C	0.424											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [m <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersectio	2.550	1.717	2.886	2.550
Crosswalk LOS	B	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	956	1156
d_b, Bicycle Delay [s]	20.00	20.00	12.27	8.02
I_b,int, Bicycle LOS Score for Intersection	2.249	1.560	2.517	2.472
Bicycle LOS	B	A	B	B

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 4: Industrial Drive**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 127.4  
 Level Of Service: F  
 Volume to Capacity (v/c): 0.157

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
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	0	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	70	16	115	8	351	231	101	405	16
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1090	1.1090	1.1090	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
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]	0	0	0	81	19	133	9	405	266	117	467	19
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]	0	0	0	20	5	33	2	101	67	29	117	5
Total Analysis Volume [veh/h]	0	0	0	81	19	133	9	405	266	117	467	19
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.65	0.16	0.23	0.01	0.00	0.00	0.13	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	126.33	127.42	103.74	8.35	0.00	0.00	9.49	0.00	0.00
Movement LOS				F	F	F	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	9.77	9.77	9.77	0.02	0.02	0.02	0.44	0.00	0.00
95th-Percentile Queue Length [m/ln]	0.00	0.00	0.00	74.44	74.44	74.44	0.12	0.12	0.12	3.32	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			113.53			0.11			1.84		
Approach LOS	A			F			A			A		
d_I, Intersection Delay [s/veh]	18.23											
Intersection LOS	F											

**Intersection Level Of Service Report  
Intersection 5: Roundabout**

Control Type: Roundabout  
 Analysis Method: Kimber  
 Analysis Period: 15 minutes

Delay (sec / veh): 3.4  
 Level Of Service: A

**Intersection Setup**

Name	Northbound				Southbound				Eastbound			
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Thru	Right	Left	Thru	Right	Right2
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	0	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]	50.00				50.00				50.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

**Volumes**

Name	Northbound				Southbound				Eastbound			
Base Volume Input [veh/h]	152	0	101	31	0	0	0	0	152	184	57	0
Base Volume Adjustment Factor	1.0400	1.0400	1.0000	1.0400	1.0000	1.0400	1.0400	1.0400	1.0400	1.0000	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.0000	1.1090	1.1090	1.1090	1.1100	1.1100	1.1100	1.1100
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]	175	0	112	36	0	0	0	0	175	204	65	0
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]	44	0	28	9	0	0	0	0	44	51	16	0
Total Analysis Volume [veh/h]	175	0	112	36	0	0	0	0	175	204	65	0
Pedestrian Volume [ped/h]	0				0				0			

**Intersection Settings**

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**Movement, Approach, & Intersection Results**

Approach Delay [s/veh]	3.53	0.00	3.14
Approach LOS	A	A	A
Intersection Delay [s/veh]	3.43		
Intersection LOS	A		

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**Intersection Setup**

Name	Westbound				Northwestbound			
Approach	Westbound				Northwestbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [m]	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
Entry Pocket Length [m]	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
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	50.00				50.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				No			

**Volumes**

Name	Westbound				Northwestbound			
Base Volume Input [veh/h]	24	0	118	65	0	112	62	75
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	0	137	75	0	129	71	83
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	7	0	34	19	0	32	18	21
Total Analysis Volume [veh/h]	28	0	137	75	0	129	71	83
Pedestrian Volume [ped/h]	0				0			

**Intersection Settings**

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**Movement, Approach, & Intersection Results**

Approach Delay [s/veh]	3.40	3.78
Approach LOS	A	A
Intersection Delay [s/veh]	3.43	
Intersection LOS	A	

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**Intersection Level Of Service Report  
Intersection 1: Payzant Drive**

Control Type:	Signalized	Delay (sec / veh):	10.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.482

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	+			+			← →			← →		
Lane Configuration	+			+			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name												
Base Volume Input [veh/h]	69	0	101	3	4	6	0	466	71	75	477	1
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	0	117	3	4	7	0	538	82	87	551	1
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	29	1	1	2	0	135	21	22	138	0
Total Analysis Volume [veh/h]	80	0	117	3	4	7	0	538	82	87	551	1
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	19	0	0	19	0	0	32	0	9	41	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	10	0	0	6	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			No			No		No	No	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	C	L	C	R	L	C
C, Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	10	10	34	34	34	42	42
g / C, Green / Cycle	0.17	0.17	0.57	0.57	0.57	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.14	0.01	0.00	0.32	0.06	0.10	0.33
s, saturation flow rate [veh/h]	1399	1574	770	1683	1431	846	1682
c, Capacity [veh/h]	319	337	408	955	812	607	1175
d1, Uniform Delay [s]	24.04	20.95	0.00	8.25	5.95	4.49	4.06
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.94	0.05	0.00	2.40	0.25	0.11	1.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.62	0.04	0.00	0.56	0.10	0.14	0.47
d, Delay for Lane Group [s/veh]	25.98	21.00	0.00	10.65	6.20	4.60	5.40
Lane Group LOS	C	C	A	B	A	A	A
Critical Lane Group	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.68	0.16	0.00	4.00	0.43	0.21	2.14
50th-Percentile Queue Length [m/ln]	20.40	1.21	0.00	30.45	3.24	1.59	16.31
95th-Percentile Queue Length [veh/ln]	4.82	0.29	0.00	7.19	0.77	0.38	3.85
95th-Percentile Queue Length [m/ln]	36.71	2.19	0.00	54.82	5.84	2.86	29.35

**Movement, Approach, & Intersection Results**

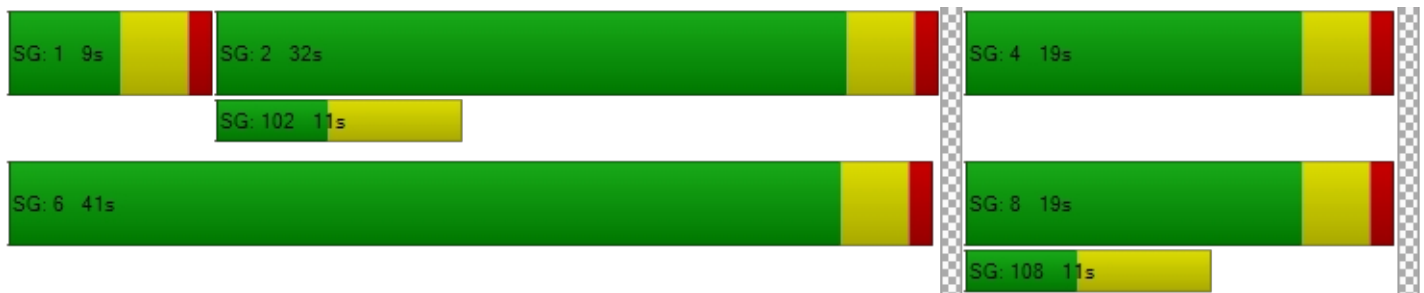
d_M, Delay for Movement [s/veh]	25.98	25.98	25.98	21.00	21.00	21.00	0.00	10.65	6.20	4.60	5.40	5.40
Movement LOS	C	C	C	C	C	C	A	B	A	A	A	A
d_A, Approach Delay [s/veh]	25.98			21.00			10.06			5.29		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	10.23											
Intersection LOS	B											
Intersection V/C	0.482											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersectio	2.071	0.000	0.000	2.628
Crosswalk LOS	B	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500	933	1233
d_b, Bicycle Delay [s]	16.88	16.88	8.53	4.41
I_b,int, Bicycle LOS Score for Intersection	1.885	1.583	2.583	2.614
Bicycle LOS	A	A	B	B

**Sequence**




Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 2: Centennial Drive**

Control Type:	Two-way stop	Delay (sec / veh):	30.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.154

**Intersection Setup**

Name	Southbound		Eastbound		Westbound	
Approach						
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	0	0	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]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

**Volumes**

Name	Southbound		Eastbound		Westbound	
Base Volume Input [veh/h]	23	65	34	541	482	16
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
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]	27	75	39	625	556	19
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]	7	19	10	156	139	5
Total Analysis Volume [veh/h]	27	75	39	625	556	19
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.15	0.14	0.04	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	29.99	16.26	8.65	0.00	0.00	0.00
Movement LOS	D	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.22	1.22	0.07	0.07	0.00	0.00
95th-Percentile Queue Length [m/ln]	9.31	9.31	0.51	0.51	0.00	0.00
d_A, Approach Delay [s/veh]	19.89		0.51		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.76					
Intersection LOS	D					

**Intersection Level Of Service Report  
Intersection 3: Cole Drive**

Control Type:	Signalized	Delay (sec / veh):	16.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.424

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
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	1	0	0	0	0	0	1	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name												
Base Volume Input [veh/h]	198	0	163	0	0	0	0	330	172	189	288	1
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	229	0	189	0	0	0	0	381	199	219	333	1
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]	57	0	47	0	0	0	0	95	50	55	83	0
Total Analysis Volume [veh/h]	229	0	189	0	0	0	0	381	199	219	333	1
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	34	0	0	34	0	0	47	0	9	56	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	9	0	0	6	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			No			No		No	No	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	C	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	30	30	30	43	43	52	52
g / C, Green / Cycle	0.33	0.33	0.33	0.48	0.48	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.16	0.12	0.00	0.20	0.13	0.23	0.18
s, saturation flow rate [veh/h]	1441	1589	1870	1870	1589	961	1869
c, Capacity [veh/h]	560	530	663	933	759	564	1080
d1, Uniform Delay [s]	23.49	22.70	0.00	15.41	14.03	10.24	9.77
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.20	1.87	0.00	1.32	0.84	2.01	0.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.41	0.36	0.00	0.41	0.26	0.39	0.31
d, Delay for Lane Group [s/veh]	25.69	24.57	0.00	16.74	14.87	12.25	10.51
Lane Group LOS	C	C	A	B	B	B	B
Critical Lane Group	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.05	3.22	0.00	5.19	2.48	2.22	3.32
50th-Percentile Queue Length [m/ln]	30.90	24.55	0.00	39.52	18.90	16.91	25.32
95th-Percentile Queue Length [veh/ln]	7.30	5.80	0.00	8.92	4.46	3.99	5.98
95th-Percentile Queue Length [m/ln]	55.62	44.19	0.00	67.99	34.01	30.44	45.58

**Movement, Approach, & Intersection Results**

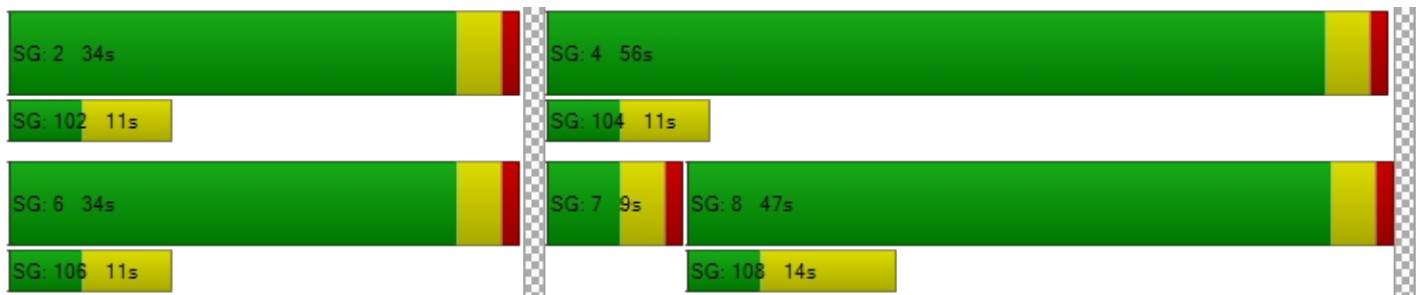
d_M, Delay for Movement [s/veh]	25.69	25.69	24.57	0.00	0.00	0.00	16.74	16.74	14.87	12.25	10.51	10.51
Movement LOS	C	C	C	A	A	A	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	25.19			0.00			16.09			11.20		
Approach LOS	C			A			B			B		
d_I, Intersection Delay [s/veh]	16.80											
Intersection LOS	B											
Intersection V/C	0.424											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [m <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersectio	2.550	1.717	2.886	2.550
Crosswalk LOS	B	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	956	1156
d_b, Bicycle Delay [s]	20.00	20.00	12.27	8.02
I_b,int, Bicycle LOS Score for Intersection	2.249	1.560	2.517	2.472
Bicycle LOS	B	A	B	B

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 4: Industrial Drive**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 127.4  
 Level Of Service: F  
 Volume to Capacity (v/c): 0.157

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
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	0	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	70	16	115	8	351	231	101	405	16
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1090	1.1090	1.1090	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
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]	0	0	0	81	19	133	9	405	266	117	467	19
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]	0	0	0	20	5	33	2	101	67	29	117	5
Total Analysis Volume [veh/h]	0	0	0	81	19	133	9	405	266	117	467	19
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**



V/C, Movement V/C Ratio	0.00	0.00	0.00	0.65	0.16	0.23	0.01	0.00	0.00	0.13	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	126.33	127.42	103.74	8.35	0.00	0.00	9.49	0.00	0.00
Movement LOS				F	F	F	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	9.77	9.77	9.77	0.02	0.02	0.02	0.44	0.00	0.00
95th-Percentile Queue Length [m/ln]	0.00	0.00	0.00	74.44	74.44	74.44	0.12	0.12	0.12	3.32	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			113.53			0.11			1.84		
Approach LOS	A			F			A			A		
d_I, Intersection Delay [s/veh]	18.23											
Intersection LOS	F											

**Intersection Level Of Service Report  
Intersection 5: Roundabout**

Control Type: Roundabout  
 Analysis Method: Kimber  
 Analysis Period: 15 minutes

Delay (sec / veh): 3.4  
 Level Of Service: A

**Intersection Setup**

Name	Northbound				Southbound				Eastbound			
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left	Thru	Thru	Right	Left	Thru	Right	Right2
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	0	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]	50.00				50.00				50.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

**Volumes**

Name	Northbound				Southbound				Eastbound			
Base Volume Input [veh/h]	152	0	101	31	0	0	0	0	152	184	57	0
Base Volume Adjustment Factor	1.0400	1.0400	1.0000	1.0400	1.0000	1.0400	1.0400	1.0400	1.0400	1.0000	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.0000	1.1090	1.1090	1.1090	1.1100	1.1100	1.1100	1.1100
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]	175	0	112	36	0	0	0	0	175	204	65	0
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]	44	0	28	9	0	0	0	0	44	51	16	0
Total Analysis Volume [veh/h]	175	0	112	36	0	0	0	0	175	204	65	0
Pedestrian Volume [ped/h]	0				0				0			

**Intersection Settings**

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**Movement, Approach, & Intersection Results**

Approach Delay [s/veh]	3.53	0.00	3.14
Approach LOS	A	A	A
Intersection Delay [s/veh]	3.43		
Intersection LOS	A		

---

**Intersection Setup**

Name	Westbound				Northwestbound			
Approach								
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Thru	Right
Lane Width [m]	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
Entry Pocket Length [m]	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
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	50.00				50.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				No			

**Volumes**

Name	Westbound				Northwestbound			
Base Volume Input [veh/h]	24	0	118	65	0	112	62	75
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	0	137	75	0	129	71	83
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	7	0	34	19	0	32	18	21
Total Analysis Volume [veh/h]	28	0	137	75	0	129	71	83
Pedestrian Volume [ped/h]	0				0			

**Intersection Settings**

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**Movement, Approach, & Intersection Results**

Approach Delay [s/veh]	3.40	3.78
Approach LOS	A	A
Intersection Delay [s/veh]	3.43	
Intersection LOS	A	

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**Intersection Level Of Service Report  
Intersection 1: Payzant Drive**

Control Type:	Signalized	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.424

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	1	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name												
Base Volume Input [veh/h]	65	1	151	2	0	4	2	333	238	238	323	3
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	1	174	2	0	4	2	384	275	275	373	3
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]	19	0	44	1	0	1	1	96	69	69	93	1
Total Analysis Volume [veh/h]	75	1	174	2	0	4	2	384	275	275	373	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	21	0	0	21	0	0	29	0	10	39	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	10	0	0	6	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			No			No		No	No	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	L	C	R	L	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	10	10	10	32	32	32	42	42
g / C, Green / Cycle	0.17	0.17	0.17	0.54	0.54	0.54	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.06	0.12	0.01	0.00	0.23	0.19	0.32	0.22
s, saturation flow rate [veh/h]	1271	1432	711	906	1683	1431	865	1681
c, Capacity [veh/h]	137	238	198	490	905	770	677	1178
d1, Uniform Delay [s]	23.55	23.78	21.17	10.52	8.30	7.93	4.32	3.46
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.50	0.18	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.37	4.41	0.06	0.02	1.46	1.29	0.67	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.55	0.74	0.03	0.00	0.42	0.36	0.41	0.32
d, Delay for Lane Group [s/veh]	26.92	28.19	21.23	10.53	9.75	9.22	4.98	4.18
Lane Group LOS	C	C	C	B	A	A	A	A
Critical Lane Group	No	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.06	2.48	0.07	0.02	2.73	1.89	0.80	1.22
50th-Percentile Queue Length [m/ln]	8.06	18.91	0.53	0.12	20.77	14.41	6.11	9.31
95th-Percentile Queue Length [veh/ln]	1.90	4.47	0.13	0.03	4.91	3.40	1.44	2.20
95th-Percentile Queue Length [m/ln]	14.51	34.03	0.95	0.22	37.38	25.94	11.01	16.76

**Movement, Approach, & Intersection Results**

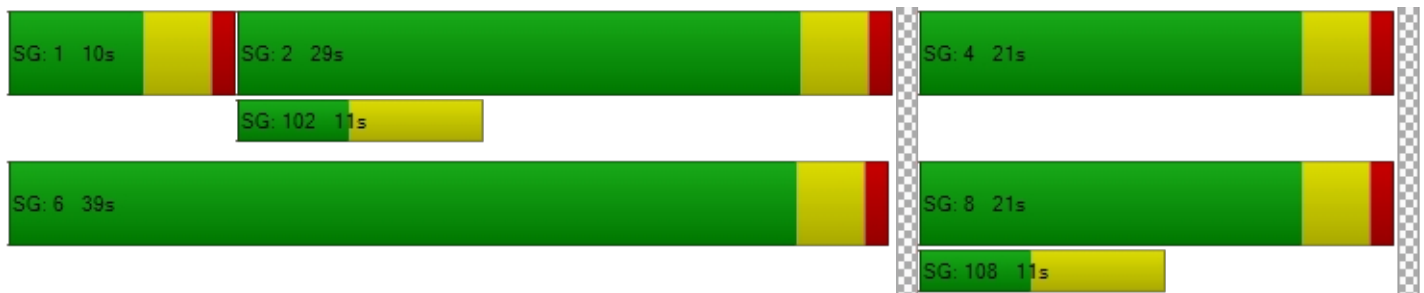
d_M, Delay for Movement [s/veh]	26.92	28.19	28.19	21.23	21.23	21.23	10.53	9.75	9.22	4.98	4.18	4.18
Movement LOS	C	C	C	C	C	C	B	A	A	A	A	A
d_A, Approach Delay [s/veh]	27.81			21.23			9.54			4.52		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	10.41											
Intersection LOS	B											
Intersection V/C	0.424											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [m <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00	21.68
I_p,int, Pedestrian LOS Score for Intersectio	2.578	0.000	0.000	2.580
Crosswalk LOS	B	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	567	833	1167
d_b, Bicycle Delay [s]	15.41	15.41	10.21	5.21
I_b,int, Bicycle LOS Score for Intersection	1.972	1.570	2.650	2.634
Bicycle LOS	A	A	B	B

**Sequence**




Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 2: Centennial Drive**

Control Type:	Two-way stop	Delay (sec / veh):	24.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

**Intersection Setup**

Name	Southbound		Eastbound		Westbound	
Approach						
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	0	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]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

**Volumes**

Name	Southbound		Eastbound		Westbound	
Base Volume Input [veh/h]	1	4	51	427	527	24
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
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]	1	4	59	493	608	28
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]	0	1	15	123	152	7
Total Analysis Volume [veh/h]	1	4	59	493	608	28
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.01	0.01	0.06	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	24.79	12.53	9.05	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.20	0.00	0.00	0.00
95th-Percentile Queue Length [m/ln]	0.32	0.32	1.52	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.99		0.97		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.51					
Intersection LOS	C					

**Intersection Level Of Service Report  
Intersection 3: Cole Drive**

Control Type:	Signalized	Delay (sec / veh):	14.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.402

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
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	1	0	0	0	0	0	1	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name												
Base Volume Input [veh/h]	159	0	68	0	0	0	0	229	148	134	446	2
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	183	0	79	0	0	0	0	264	171	154	515	2
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]	46	0	20	0	0	0	0	66	43	39	129	1
Total Analysis Volume [veh/h]	183	0	79	0	0	0	0	264	171	154	515	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	7	4	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-	
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0	
Maximum Green [s]	0	30	0	0	30	0	0	30	0	30	30	0	
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	
Split [s]	0	23	0	0	23	0	0	37	0	20	57	0	
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0	
Pedestrian Clearance [s]	0	6	0	0	6	0	0	9	0	0	6	0	
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Rest In Walk		No			No			No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	
Minimum Recall		No			No			No			No	No	
Maximum Recall		No			No			No			No	No	
Pedestrian Recall		No			No			No			No	No	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	C	C	R	L	C
C, Cycle Length [s]	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	19	19	19	33	33	53	53
g / C, Green / Cycle	0.24	0.24	0.24	0.41	0.41	0.66	0.66
(v / s)_i Volume / Saturation Flow Rate	0.13	0.05	0.00	0.14	0.11	0.12	0.28
s, saturation flow rate [veh/h]	1455	1589	1870	1870	1589	1234	1869
c, Capacity [veh/h]	436	378	489	816	656	860	1238
d1, Uniform Delay [s]	26.32	24.47	0.00	16.08	15.47	5.43	6.30
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.96	1.26	0.00	1.05	0.97	0.46	1.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.42	0.21	0.00	0.32	0.26	0.18	0.42
d, Delay for Lane Group [s/veh]	29.28	25.73	0.00	17.13	16.44	5.89	7.34
Lane Group LOS	C	C	A	B	B	A	A
Critical Lane Group	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.27	1.30	0.00	3.35	2.12	0.88	3.62
50th-Percentile Queue Length [m/ln]	24.94	9.88	0.00	25.53	16.12	6.70	27.60
95th-Percentile Queue Length [veh/ln]	5.89	2.33	0.00	6.03	3.81	1.58	6.52
95th-Percentile Queue Length [m/ln]	44.89	17.79	0.00	45.95	29.02	12.05	49.67

**Movement, Approach, & Intersection Results**

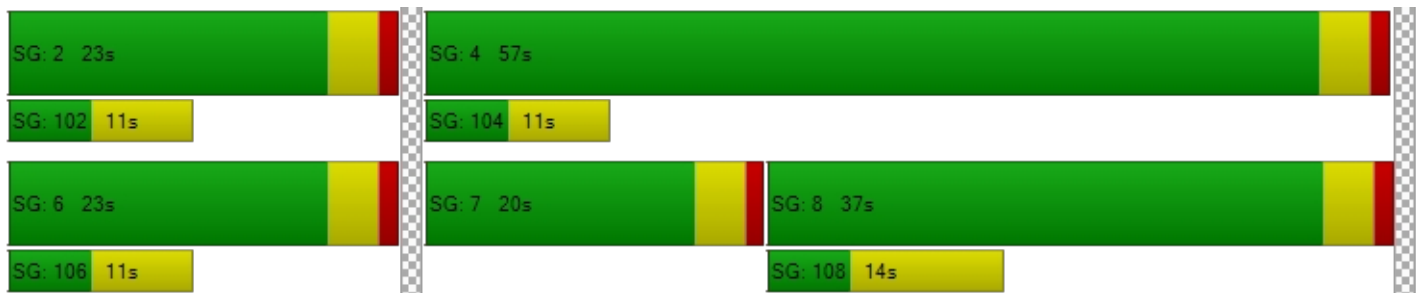
d_M, Delay for Movement [s/veh]	29.28	29.28	25.73	0.00	0.00	0.00	17.13	17.13	16.44	5.89	7.34	7.34
Movement LOS	C	C	C	A	A	A	B	B	B	A	A	A
d_A, Approach Delay [s/veh]	28.21			0.00			16.85			7.00		
Approach LOS	C			A			B			A		
d_I, Intersection Delay [s/veh]	14.20											
Intersection LOS	B											
Intersection V/C	0.402											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
I_p,int, Pedestrian LOS Score for Intersectio	2.350	1.712	2.810	2.485
Crosswalk LOS	B	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	475	475	825	1325
d_b, Bicycle Delay [s]	23.26	23.26	13.81	4.56
I_b,int, Bicycle LOS Score for Intersection	1.992	1.560	2.277	2.667
Bicycle LOS	A	A	B	B

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 4: Industrial Drive**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 60.9  
 Level Of Service: F  
 Volume to Capacity (v/c): 0.494

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
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	0	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	78	10	122	5	281	130	61	444	24
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1090	1.1090	1.1090	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
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]	0	0	0	90	11	141	6	324	150	70	513	28
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]	0	0	0	23	3	35	2	81	38	18	128	7
Total Analysis Volume [veh/h]	0	0	0	90	11	141	6	324	150	70	513	28
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.49	0.06	0.26	0.01	0.00	0.00	0.06	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	60.87	60.76	47.64	8.51	0.00	0.00	8.54	0.00	0.00
Movement LOS				F	F	E	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	6.62	6.62	6.62	0.01	0.01	0.01	0.21	0.00	0.00
95th-Percentile Queue Length [m/ln]	0.00	0.00	0.00	50.42	50.42	50.42	0.08	0.08	0.08	1.57	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			53.15			0.11			0.98		
Approach LOS	A			F			A			A		
d_I, Intersection Delay [s/veh]	10.14											
Intersection LOS	F											

**Intersection Level Of Service Report  
Intersection 5: Roundabout**

Control Type: Roundabout  
 Analysis Method: Kimber  
 Analysis Period: 15 minutes

Delay (sec / veh): 3.6  
 Level Of Service: A

**Intersection Setup**

Name	Northbound				Southbound				Eastbound			
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Right	Left	Thru	Thru	Right	Left	Thru	Right	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	0	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]	50.00				50.00				50.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

**Volumes**

Name	Northbound				Southbound				Eastbound			
Base Volume Input [veh/h]	162	0	223	72	0	0	0	0	106	126	80	0
Base Volume Adjustment Factor	1.0400	1.0400	1.0000	1.0400	1.0000	1.0400	1.0400	1.0400	1.0400	1.0000	1.0400	1.0400
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	1.1100	1.1100	1.1100	1.1100	1.0000	1.1090	1.1090	1.1090	1.1100	1.1100	1.1100	1.1100
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]	186	0	248	83	0	0	0	0	122	140	92	0
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]	47	0	62	21	0	0	0	0	31	35	23	0
Total Analysis Volume [veh/h]	186	0	248	83	0	0	0	0	122	140	92	0
Pedestrian Volume [ped/h]	0				0				0			

**Intersection Settings**

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**Movement, Approach, & Intersection Results**

Approach Delay [s/veh]	4.23	0.00	2.99
Approach LOS	A	A	A
Intersection Delay [s/veh]	3.63		
Intersection LOS	A		

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**Intersection Setup**

Name	Westbound				Northwestbound			
Approach	Westbound				Northwestbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Left	Thru	Right
Lane Width [m]	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
Entry Pocket Length [m]	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
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	50.00				50.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				No			

**Volumes**

Name	Westbound				Northwestbound			
Base Volume Input [veh/h]	70	0	158	92	0	30	17	21
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100	1.1100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	81	0	182	107	0	34	20	23
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	20	0	46	27	0	9	5	6
Total Analysis Volume [veh/h]	81	0	182	107	0	34	20	23
Pedestrian Volume [ped/h]	0				0			

**Intersection Settings**

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**Movement, Approach, & Intersection Results**

Approach Delay [s/veh]	3.48	3.16
Approach LOS	A	A
Intersection Delay [s/veh]	3.63	
Intersection LOS	A	

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**Intersection Level Of Service Report  
Intersection 1: Payzant Drive**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 49.7  
 Level Of Service: E  
 Volume to Capacity (v/c): 0.482

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔			↑			↔			↔		
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]	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	69	0	101	3	4	6	0	466	71	75	477	1
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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]	72	0	105	3	4	6	0	485	74	78	496	1
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]	18	0	26	1	1	2	0	121	19	20	124	0
Total Analysis Volume [veh/h]	72	0	105	3	4	6	0	485	74	78	496	1
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	0.48	0.00	0.19	0.03	0.02	0.01	0.00	0.00	0.00	0.08	0.00	0.00
d_M, Delay for Movement [s/veh]	49.70	26.88	13.00	37.07	27.48	12.34	8.37	0.00	0.00	8.85	0.00	0.00
Movement LOS	E	D	B	E	D	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	2.26	0.69	0.69	0.19	0.19	0.19	0.00	0.00	0.00	0.25	0.00	0.00
95th-Percentile Queue Length [m/ln]	17.24	5.27	5.27	1.45	1.45	1.45	0.00	0.00	0.00	1.91	0.00	0.00
d_A, Approach Delay [s/veh]	27.93			22.71			0.00			1.20		
Approach LOS	D			C			A			A		
d_I, Intersection Delay [s/veh]	4.48											
Intersection LOS	E											

**Intersection Level Of Service Report  
Intersection 2: Centennial Drive**

Control Type:	Two-way stop	Delay (sec / veh):	24.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.112

**Intersection Setup**

Name	Southbound		Eastbound		Westbound	
Approach						
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	0	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]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

**Volumes**

Name	Southbound		Eastbound		Westbound	
Base Volume Input [veh/h]	23	65	34	541	482	16
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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]	24	68	35	563	501	17
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]	6	17	9	141	125	4
Total Analysis Volume [veh/h]	24	68	35	563	501	17
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.11	0.12	0.03	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	24.56	14.13	8.55	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.89	0.89	0.10	0.00	0.00	0.00
95th-Percentile Queue Length [m/ln]	6.78	6.78	0.79	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	16.85		0.50		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.53					
Intersection LOS	C					

**Intersection Level Of Service Report  
Intersection 3: Cole Drive**

Control Type:	Signalized	Delay (sec / veh):	16.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.382

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
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	1	0	0	0	0	0	1	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name													
Base Volume Input [veh/h]	198	0	163	0	0	0	0	330	172	189	288	1	
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	
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	1.0000	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	
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Total Hourly Volume [veh/h]	206	0	170	0	0	0	0	343	179	197	300	1	
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]	52	0	43	0	0	0	0	86	45	49	75	0	
Total Analysis Volume [veh/h]	206	0	170	0	0	0	0	343	179	197	300	1	
Presence of On-Street Parking	No		No	No		No	No		No	No		No	
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	
v_do, Outbound Pedestrian Volume crossing	0		0		0		0		0		0		
v_di, Inbound Pedestrian Volume crossing m	0		0		0		0		0		0		
v_co, Outbound Pedestrian Volume crossing	0		0		0		0		0		0		
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0		0		0		0		
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0		0		0		0		
Bicycle Volume [bicycles/h]	0		0		0		0		0		0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	34	0	0	34	0	0	47	0	9	56	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	9	0	0	6	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			No			No		No	No	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	C	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	30	30	30	43	43	52	52
g / C, Green / Cycle	0.33	0.33	0.33	0.48	0.48	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.14	0.11	0.00	0.18	0.11	0.20	0.16
s, saturation flow rate [veh/h]	1441	1589	1870	1870	1589	1001	1869
c, Capacity [veh/h]	560	530	663	933	759	595	1080
d1, Uniform Delay [s]	23.05	22.40	0.00	15.03	13.83	9.82	9.56
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.85	1.60	0.00	1.12	0.73	1.49	0.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.37	0.32	0.00	0.37	0.24	0.33	0.28
d, Delay for Lane Group [s/veh]	24.91	23.99	0.00	16.14	14.56	11.31	10.21
Lane Group LOS	C	C	A	B	B	B	B
Critical Lane Group	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.56	2.85	0.00	4.54	2.20	1.93	2.93
50th-Percentile Queue Length [m/ln]	27.16	21.71	0.00	34.61	16.73	14.74	22.31
95th-Percentile Queue Length [veh/ln]	6.42	5.13	0.00	8.04	3.95	3.48	5.27
95th-Percentile Queue Length [m/ln]	48.89	39.08	0.00	61.24	30.12	26.54	40.16

**Movement, Approach, & Intersection Results**

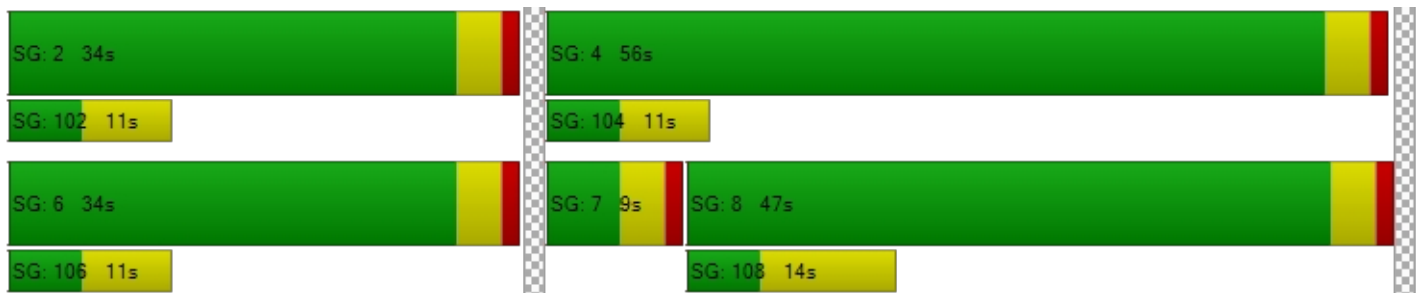
d_M, Delay for Movement [s/veh]	24.91	24.91	23.99	0.00	0.00	0.00	16.14	16.14	14.56	11.31	10.21	10.21
Movement LOS	C	C	C	A	A	A	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	24.49			0.00			15.60			10.64		
Approach LOS	C			A			B			B		
d_I, Intersection Delay [s/veh]	16.23											
Intersection LOS	B											
Intersection V/C	0.382											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [m <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
I_p,int, Pedestrian LOS Score for Intersectio	2.489	1.717	2.792	2.489
Crosswalk LOS	B	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	956	1156
d_b, Bicycle Delay [s]	20.00	20.00	12.27	8.02
I_b,int, Bicycle LOS Score for Intersection	2.180	1.560	2.421	2.381
Bicycle LOS	B	A	B	B

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 4: Industrial Drive**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 125.9  
 Level Of Service: F  
 Volume to Capacity (v/c): 0.156

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
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	0	1	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	No			No			No			No		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	70	16	115	8	351	230	101	405	16
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.1090	1.1090	1.1090	1.1090	1.1090	1.1090	1.1090	1.1090	1.1090	1.1090	1.1090	1.1090
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]	0	0	0	81	19	133	9	405	265	116	467	19
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]	0	0	0	20	5	33	2	101	66	29	117	5
Total Analysis Volume [veh/h]	0	0	0	81	19	133	9	405	265	116	467	19
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.64	0.16	0.23	0.01	0.00	0.00	0.13	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	124.78	125.85	102.34	8.35	0.00	0.00	9.48	0.00	0.00
Movement LOS				F	F	F	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	9.71	9.71	9.71	0.02	0.02	0.02	0.43	0.00	0.00
95th-Percentile Queue Length [m/ln]	0.00	0.00	0.00	73.97	73.97	73.97	0.12	0.12	0.12	3.28	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			112.06			0.11			1.83		
Approach LOS	A			F			A			A		
d_I, Intersection Delay [s/veh]	18.02											
Intersection LOS	F											

**Intersection Level Of Service Report  
Intersection 5: Roundabout**

Control Type: Roundabout  
 Analysis Method: Kimber  
 Analysis Period: 15 minutes

Delay (sec / veh): 3.3  
 Level Of Service: A

**Intersection Setup**

Name	Northbound				Southbound				Eastbound			
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Right	Left	Thru	Thru	Right	Left	Thru	Right	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	0	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]	50.00				50.00				50.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

**Volumes**

Name	Northbound				Southbound				Eastbound			
Base Volume Input [veh/h]	152	0	101	31	0	0	0	0	152	184	57	0
Base Volume Adjustment Factor	1.0400	1.0400	1.0000	1.0400	1.0000	1.0400	1.0400	1.0400	1.0400	1.0000	1.0400	1.0400
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]	158	0	101	32	0	0	0	0	158	184	59	0
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]	40	0	25	8	0	0	0	0	40	46	15	0
Total Analysis Volume [veh/h]	158	0	101	32	0	0	0	0	158	184	59	0
Pedestrian Volume [ped/h]	0				0				0			

**Intersection Settings**

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**Movement, Approach, & Intersection Results**

Approach Delay [s/veh]	3.34	0.00	3.03
Approach LOS	A	A	A
Intersection Delay [s/veh]	3.26		
Intersection LOS	A		

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**Intersection Setup**

Name	Westbound				Northwestbound			
Approach	Westbound				Northwestbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Left	Thru	Right
Lane Width [m]	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
Entry Pocket Length [m]	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
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	50.00				50.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				No			

**Volumes**

Name	Westbound				Northwestbound			
Base Volume Input [veh/h]	24	0	118	65	0	112	62	75
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0000
Heavy Vehicles Percentage [%]	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
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	0	123	68	0	116	64	75
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	6	0	31	17	0	29	16	19
Total Analysis Volume [veh/h]	25	0	123	68	0	116	64	75
Pedestrian Volume [ped/h]	0				0			

**Intersection Settings**

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**Movement, Approach, & Intersection Results**

Approach Delay [s/veh]	3.24	3.55
Approach LOS	A	A
Intersection Delay [s/veh]	3.26	
Intersection LOS	A	

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**Intersection Level Of Service Report  
Intersection 1: Payzant Drive**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 45.7  
 Level Of Service: E  
 Volume to Capacity (v/c): 0.441

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	↔			↑			↔			↔		
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]	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	65	1	155	2	0	4	0	466	71	75	477	1
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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]	68	1	161	2	0	4	0	485	74	78	496	1
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	40	1	0	1	0	121	19	20	124	0
Total Analysis Volume [veh/h]	68	1	161	2	0	4	0	485	74	78	496	1
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	0.44	0.01	0.29	0.02	0.00	0.01	0.00	0.00	0.00	0.08	0.00	0.00
d_M, Delay for Movement [s/veh]	45.66	28.11	14.23	42.73	26.89	11.75	8.37	0.00	0.00	8.85	0.00	0.00
Movement LOS	E	D	B	E	D	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	2.00	1.23	1.23	0.09	0.09	0.09	0.00	0.00	0.00	0.25	0.00	0.00
95th-Percentile Queue Length [m/ln]	15.24	9.37	9.37	0.65	0.65	0.65	0.00	0.00	0.00	1.91	0.00	0.00
d_A, Approach Delay [s/veh]	23.58			22.08			0.00			1.20		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	4.56											
Intersection LOS	E											

**Intersection Level Of Service Report**  
**Intersection 2: Centennial Drive**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 21.5  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.005

**Intersection Setup**

Name	Southbound		Eastbound		Westbound	
Approach						
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	0	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]	50.00		50.00		50.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

**Volumes**

Name	Southbound		Eastbound		Westbound	
Base Volume Input [veh/h]	1	4	51	427	527	24
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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]	1	4	53	444	548	25
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]	0	1	13	111	137	6
Total Analysis Volume [veh/h]	1	4	53	444	548	25
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.00	0.01	0.05	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	21.53	11.93	8.80	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.17	0.00	0.00	0.00
95th-Percentile Queue Length [m/ln]	0.28	0.28	1.28	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.85		0.94		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.50					
Intersection LOS	C					

**Intersection Level Of Service Report  
Intersection 3: Cole Drive**

Control Type:	Signalized	Delay (sec / veh):	14.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.364

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
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	1	0	0	0	0	0	1	1	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]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name												
Base Volume Input [veh/h]	159	0	68	0	0	0	0	229	148	131	446	2
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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	1.0000	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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	165	0	71	0	0	0	0	238	154	136	464	2
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]	41	0	18	0	0	0	0	60	39	34	116	1
Total Analysis Volume [veh/h]	165	0	71	0	0	0	0	238	154	136	464	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	7	4	0	
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-	
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0	
Maximum Green [s]	0	30	0	0	30	0	0	30	0	30	30	0	
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	
Split [s]	0	15	0	0	15	0	0	18	0	27	45	0	
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0	
Pedestrian Clearance [s]	0	6	0	0	6	0	0	9	0	0	6	0	
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Rest In Walk		No			No			No			No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	
Minimum Recall		No			No			No			No	No	
Maximum Recall		No			No			No			No	No	
Pedestrian Recall		No			No			No			No	No	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	C	C	R	L	C
C, Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	30	30	30	14	14	22	22
g / C, Green / Cycle	0.50	0.50	0.50	0.23	0.23	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.11	0.04	0.00	0.13	0.10	0.11	0.25
s, saturation flow rate [veh/h]	1437	1589	1870	1870	1589	1195	1869
c, Capacity [veh/h]	749	695	878	594	454	447	802
d1, Uniform Delay [s]	10.56	9.94	0.00	17.55	16.96	12.71	13.01
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.68	0.29	0.00	0.44	0.44	0.38	0.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.22	0.10	0.00	0.40	0.34	0.30	0.58
d, Delay for Lane Group [s/veh]	11.24	10.24	0.00	17.98	17.40	13.09	13.68
Lane Group LOS	B	B	A	B	B	B	B
Critical Lane Group	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.14	0.46	0.00	2.79	1.76	1.16	4.86
50th-Percentile Queue Length [m/ln]	8.67	3.52	0.00	21.26	13.37	8.87	37.00
95th-Percentile Queue Length [veh/ln]	2.05	0.83	0.00	5.02	3.16	2.09	8.47
95th-Percentile Queue Length [m/ln]	15.61	6.33	0.00	38.27	24.07	15.96	64.54

**Movement, Approach, & Intersection Results**

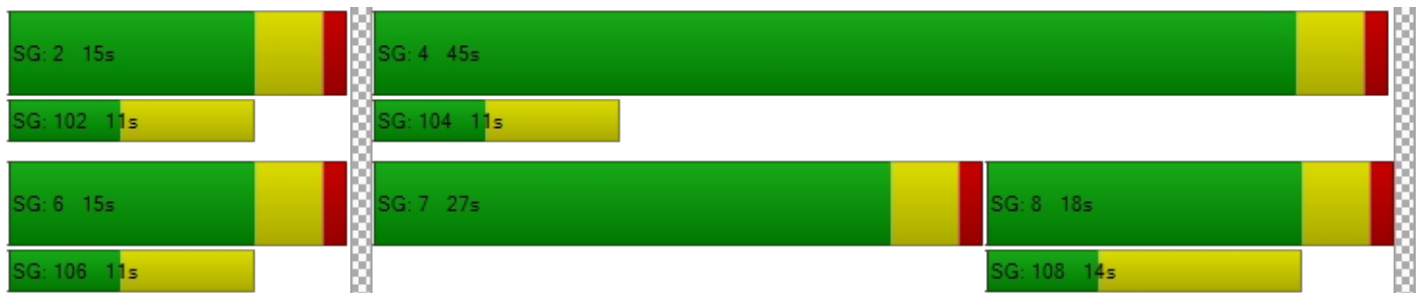
d_M, Delay for Movement [s/veh]	11.24	11.24	10.24	0.00	0.00	0.00	17.98	17.98	17.40	13.09	13.68	13.68
Movement LOS	B	B	B	A	A	A	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	10.94			0.00			17.75			13.55		
Approach LOS	B			A			B			B		
d_I, Intersection Delay [s/veh]	14.39											
Intersection LOS	B											
Intersection V/C	0.364											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
I_p,int, Pedestrian LOS Score for Intersectio	2.256	1.697	2.709	2.414
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	367	467	1367
d_b, Bicycle Delay [s]	20.01	20.01	17.63	3.01
I_b,int, Bicycle LOS Score for Intersection	1.949	1.560	2.206	2.553
Bicycle LOS	A	A	B	B

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report  
Intersection 4: Industrial Drive**

Control Type: Two-way stop  
 Analysis Method: HCM 7th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 38.0  
 Level Of Service: E  
 Volume to Capacity (v/c): 0.046

**Intersection Setup**

Name	Northbound			Southbound			Eastbound			Westbound		
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	0	1	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			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	0	78	10	122	5	281	130	61	444	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
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]	0	0	0	81	10	127	5	292	135	63	462	25
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]	0	0	0	20	3	32	1	73	34	16	116	6
Total Analysis Volume [veh/h]	0	0	0	81	10	127	5	292	135	63	462	25
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.37	0.05	0.22	0.00	0.00	0.00	0.06	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	37.85	37.96	27.46	8.35	0.00	0.00	8.37	0.00	0.00
Movement LOS				E	E	D	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	4.10	4.10	4.10	0.01	0.01	0.01	0.18	0.00	0.00
95th-Percentile Queue Length [m/ln]	0.00	0.00	0.00	31.25	31.25	31.25	0.07	0.07	0.07	1.34	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			31.80			0.10			0.96		
Approach LOS	A			D			A			A		
d_I, Intersection Delay [s/veh]	6.25											
Intersection LOS	E											

**Intersection Level Of Service Report  
Intersection 5: Roundabout**

Control Type: Roundabout  
 Analysis Method: Kimber  
 Analysis Period: 15 minutes

Delay (sec / veh): 3.2  
 Level Of Service: A

**Intersection Setup**

Name	Northbound				Southbound				Eastbound			
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Right	Left	Thru	Thru	Right	Left	Thru	Right	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	0	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]	50.00				50.00				50.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				No				No			

**Volumes**

Name	Northbound				Southbound				Eastbound			
Base Volume Input [veh/h]	162	0	113	72	0	0	0	0	106	126	80	0
Base Volume Adjustment Factor	1.0400	1.0400	1.0000	1.0400	1.0000	1.0400	1.0400	1.0400	1.0400	1.0000	1.0400	1.0400
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]	168	0	113	75	0	0	0	0	110	126	83	0
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]	42	0	28	19	0	0	0	0	28	32	21	0
Total Analysis Volume [veh/h]	168	0	113	75	0	0	0	0	110	126	83	0
Pedestrian Volume [ped/h]	0				0				0			

**Intersection Settings**

**Movement, Approach, & Intersection Results**

Approach Delay [s/veh]	3.49	0.00	2.89
Approach LOS	A	A	A
Intersection Delay [s/veh]	3.22		
Intersection LOS	A		

**Intersection Setup**

Name	Westbound				Northwestbound			
Approach	Westbound				Northwestbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Left	Thru	Right
Lane Width [m]	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
Entry Pocket Length [m]	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
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	50.00				50.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				No			

**Volumes**

Name	Westbound				Northwestbound			
Base Volume Input [veh/h]	70	0	158	92	0	30	17	21
Base Volume Adjustment Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0000
Heavy Vehicles Percentage [%]	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
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	0	164	96	0	31	18	21
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	18	0	41	24	0	8	5	5
Total Analysis Volume [veh/h]	73	0	164	96	0	31	18	21
Pedestrian Volume [ped/h]	0				0			

**Intersection Settings**

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**Movement, Approach, & Intersection Results**

Approach Delay [s/veh]	3.30	2.89
Approach LOS	A	A
Intersection Delay [s/veh]	3.22	
Intersection LOS	A	

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## Attachment D – Public Information Meeting Notes

March 5, 2025

PIDs 45055241, 45190386, and 45366457, Wentworth Rd, Windsor

<b>Meeting date and time</b>	A Public Information Meeting was held on March 5, 2025, beginning at 6:00 p.m. The meeting was broadcast live on the Municipal YouTube Channel.
<b>Attending</b>	In attendance for the meeting: One (1) Chair: <ul style="list-style-type: none"><li>• Councillor Jim Ivey</li></ul> Four (4) members of staff: <ul style="list-style-type: none"><li>• Acting Director Fougere</li><li>• Senior Planner Dunphy</li><li>• Planner Hong</li><li>• Planning Assistant Lake</li></ul> Approximately 2 members of the public.
<b>Applicant</b> Chrystal Fuller on behalf of J.D. Irving <b>Property</b> PIDs 45055241, 45190386, and 45366457, Wentworth Rd, Windsor	Planner Hong outlined the application to rezone the subject lots and concurrently enter into a development agreement to permit multiple commercial buildings on the properties.
<b>Comments</b>	Comments from the public could be submitted by mail, e-mail and telephone between March 5 - 19, 2025. Staff did not receive any phone calls or written submissions during the comment period. 1 member of the public spoke during the Public Information Meeting. Applicants responses are in purple. <ul style="list-style-type: none"><li>• Elizabeth McCarthy, resident of The Crossing, raised concerns about ambient light becoming worse, unless consideration is given to controlling the light. Another question was about the residential area, but this was not ready to be discussed at this time.</li></ul>

	<ul style="list-style-type: none"> <li>• Chrystal Fuller, applicant, responded that Developer will ensure light pollution is minimized to the greatest extent possible. In larger developments by DA, the municipality can require a lighting plan, or a clause stating light will be directed away from adjacent residential use. Irving is open to adhering to these regulations. The proponent has no interest in contributing to light pollution. Developers often have a lighting splay plan to ensure lighting is appropriately kept to a minimum to the adjacent use. There will be more lights, but all attempts will be made to minimize impact.</li> <li>• Michael Simms, applicant, commented that J.D. Irving will make every attempt to ensure light is directed away from the residents. They are conscious about the cost of electricity and many lights will be turned off at night. Another common question is about noise, and Irving is very sensitive to this issue, as many stores are in/near residential areas. Hours of operation and noise will be sensitive to a residential area.</li> </ul>
<b>Adjournment</b>	The Public Information Meeting was adjourned at approximately 6:35 p.m.