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39 Years

1450, 1454, 1464, 1468 Bankfield Road and 5479 & 5485 Elijah Court

Transportation Impact Assessment

in support of a Major Zoning By-law Amendment

Prepared for: Zena Investment Corporation

Proposed Commercial Development

1464 & 1468 Bankfield Road

Transportation Impact Assessment

Prepared By:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario
K2M 1P6

Dated: July 2024

Novatech File: 122002
Ref: R-2023-171

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Engineers, Planners & Landscape Architects

July 12, 2024

City of Ottawa
Planning and Growth Management Department
110 Laurier Ave. W., 4th Floor,
Ottawa, Ontario K1P 1J1

Attention: **Mr. Mike Giampa**
Transportation Project Manager, Transportation Review

Dear Mr. Giampa:

Reference: **1464 & 1468 Bankfield Road**
Transportation Impact Assessment
Novatech File No. 122002

We are pleased to submit the following Transportation Impact Assessment (TIA), in support of a Zoning By-law Amendment application at 1450-1468 Bankfield Road & 5479-5485 Elijah Court, for your review and signoff. The structure and format of this report is in accordance with the City of Ottawa Transportation Impact Assessment Guidelines (June 2023).

If you have any questions or comments regarding this report, please feel free to contact Brad Byvelds, or the undersigned.

Yours truly,

NOVATECH

Trevor Van Wiechen, M.Eng.
E.I.T. | Transportation

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TIA Plan Reports

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below.

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed[1] or registered[2] professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering ☑ or transportation planning ☐.

[1,2] **License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.**

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Dated at Ottawa (City) this 12 day of July, 2024 .

Name: Brad Byvelds
(Please Print)

Professional Title: P. Eng. - Project Manager

B. Byvelds

Signature of Individual certifier that s/he meets the above four criteria

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TABLE OF CONTENTS

Figures

Tables

Appendices

EXECUTIVE SUMMARY

This Transportation Impact Assessment (TIA) has been prepared in support of a Zoning By-law Amendment application for the commercial development at 1450-1468 Bankfield Road & 5479-5485 Elijah Court. The subject site is currently occupied by commercial and residential uses.

The subject site is located in the southeast corner of the Bankfield Road/Prince of Wales Drive intersection and is surrounded by the following:

- Bankfield Road followed by residential developments and farmlands to the north,
- Undeveloped lands followed by First Line Road to the east,
- Undeveloped lands followed by First Line Road/Elijah Court intersection to the south, and
- Elijah Court and Prince of Wales Drive to the west.

The proposed development includes a 2,130m^2 automobile dealership with a drop-off vehicle service and approximately 440 vehicle parking spaces for purchasable vehicles and employees/visitors. Access to the development is proposed via two all-movement accesses to Bankfield Road and one all-movement access to Elijah Court. The proposed development is anticipated to be completed in one phase, with buildout occurring in 2025.

The Subject Property is designated Village within the Rural Transect of the City of Ottawa Official Plan (2021). The Subject Property is designated Mixed Residential-Commercial in the Village of Manotick Secondary Plan. The property is zoned Development Review Zone 1 (DR1) in the City of Ottawa Zoning By-law 2008-250.

The conclusions and recommendations of this TIA can be summarized as follows:

Forecasting

- The proposed development is projected to generate 43 person/vehicle trips during the AM peak hour and 55 person/vehicle trips during the PM peak hour.

- Due to existing queueing along Bankfield Road the proponent plans to instruct all employees travelling westbound to use the Elijah Court access and travel to Bankfield Road via First Line Road. To account for this, 50% of outbound trips traveling towards the Bankfield Road/Prince of Wales Drive intersection have been assigned to the Bankfield Road/First Line Road intersection.

Boundary Streets

- Both boundary streets do not meet the target pedestrian level of service (PLOS).

- Both boundary streets do not meet the target bicycle level of service (BLOS).

- No target transit level of service (TLOS) has been identified for either boundary street however both streets achieve a TLOS of D.

- Bankfield Road meets the target truck level of service (TkLOS) and no target TkLOS has been identified for Elijah Court, however Elijah Court achieves a LOS F.

- Both sides of Bankfield Road do not meet the target PLOS C. As part of the recent resurfacing of Bankfield Avenue, the City implemented a depressed curb and a paved

shoulder along the site frontage. Given the rural context of Bankfield Road, no further modifications are recommended as part of the proposed development.

- Both sides of Elijah Court do not meet the target PLOS C. Elijah Court is currently a two-lane undivided rural roadway with a road platform width of approximately 6.5m that serves two single detached dwelling units that are to be removed as part of this application. As a new pedestrian facility along the site frontage will not provide system connectivity to the greater network, no recommendations are proposed as part of the proposed development.

- On Elijah Court a BLOS C can be achieved by reducing the operating speed to 40km/h. This is identified for the City's consideration.

Background Traffic Analysis

- Under 2030 background traffic conditions, all movements at traffic signal controlled intersections are anticipated to operate with a LOS D or better during AM and PM peak hour conditions.

Total Traffic Analysis

- The site traffic does not impact delays at any study area intersection and does not significantly impact the existing westbound queues at the Bankfield Road/Prince of Wales Drive intersection. The proposed development is expected to generate four outbound left turning vehicles at the site access during the AM peak hour and 12 outbound left turning vehicles at the site access during the PM peak hour. This equates to roughly one outbound left turning vehicle every 15 minutes in the AM peak hour and one outbound left turning vehicle every 5 minutes during the PM peak hour.

- The access to Bankfield Road is proposed as a full movement access but due to existing queuing issues along Bankfield Road the proponent plans on directing all westbound employees to travel through Bankfield Road/First Line Road intersection via Elijah Court. As the volumes of customers exiting the access are relatively low during the peak hours drivers may use courtesy from other drivers in order to access Bankfield Road or they may use Elijah Court and travel to the Bankfield Road/First Line Road intersection to gain access to Bankfield Road. It is assumed that the proposed access configuration will present an improvement to the study area as the development removes three accesses to five different properties that currently have access to Bankfield Road within the turn lane.

Based on the foregoing, the proposed development is recommended from a transportation perspective.

1.0 SCREENING

1.1 Introduction

This Transportation Impact Assessment (TIA) has been prepared in support of a Zoning By-law Amendment application for the commercial development at 1450-1468 Bankfield Road & 5479-5485 Elijah Court. The subject site is currently occupied by commercial and residential uses.

The subject site is located in the southeast corner of the Bankfield Road/Prince of Wales Drive intersection and is surrounded by the following:

- Bankfield Road followed by residential developments and farmlands to the north,
- Undeveloped lands followed by First Line Road to the east,
- Undeveloped lands followed by First Line Road/Elijah Court intersection to the south, and
- Elijah Court and Prince of Wales Drive to the west.

An aerial of the vicinity around the subject site is provided in **Figure 1**.

1.2 Proposed Development

The proposed development includes a 2,130m^2 automobile dealership with a drop-off vehicle service and approximately 440 vehicle parking spaces for purchasable vehicles and employees/visitors. Access to the development is proposed via two all-movement accesses to Bankfield Road and one all-movement access to Elijah Court. The proposed development is anticipated to be completed in one phase, with buildout occurring in 2025.

The Subject Property is designated Village within the Rural Transect of the City of Ottawa Official Plan (2021). The Subject Property is designated Mixed Residential-Commercial in the Village of Manotick Secondary Plan. The property is zoned Development Review Zone 1 (DR1) in the City of Ottawa Zoning By-law 2008-250.

A copy of the concept plan is included in **Appendix A**.

1.3 Screening Form

The City's *2023 TIA Guidelines* identify three triggers for completing a TIA report, including trip generation, location, and safety. The criteria for each trigger are outlined in the City's TIA Screening Form, which is included in **Appendix B**. The trigger results are as follows:

- Trip Generation Trigger – The development is not expected to generate a net additional 60 peak hour person trips; further assessment is **not required** based on this trigger.
- Location Triggers – The development is not located within a design priority area; further assessment is **not required** based on this trigger.
- Safety Triggers – The development proposes access to a roadway with vertical curvature limiting sight lines, is within 300m of a traffic signal, and proposes an access within the auxiliary lane of an intersection; further assessment is **required** based on this trigger.

Figure 1: View of the Subject Site

2.0 SCOPING

2.1 Existing Conditions

2.1.1 Roadways

All roadways within the study area fall under the jurisdiction of the City of Ottawa.

Bankfield Road is an arterial roadway that runs in an east-west direction between Highway 416 and Rideau Valley Drive. Bankfield Road is classified as a truck route allowing full loads. Within the study area it has a two-lane undivided rural cross-section. Mid-block between Prince of Wales Drive and First Line Road the posted speed limit transitions between 60km/h and 80km/h eastwards. Paved shoulders are provided on both sides of the roadway. Schedule C16 of the City of Ottawa's

Official Plan identifies a right-of-way protection requirement of 34m along Bankfield Road between Highway 416 and 100m west of Colony Heights. The Concept Plan in Appendix A shows the required road widening.

Prince of Wales Drive is an arterial roadway that runs in a north-south direction between Preston Street and Fourth Line Road. Prince of Wales Drive is classified as a truck route allowing full loads. Within the study area, it has a two-lane undivided rural cross-section with a posted speed limit of 80 km/h. Paved shoulders are provided on Prince of Wales Drive north of Bankfield Road.

First Line Road is a collector roadway that runs in a north-south direction between Bankfield Road and Roger Stevens Drive. First Line Road is classified as a truck route allowing full loads. It has a two-lane undivided rural cross-section with a posted regulatory speed limit of 60km/h.

Elijah Court is a local roadway that runs in a north-south direction that ends in a cul-de-sac to the north and First Line Road to the south. It has a two-lane undivided rural cross-section with an unposted regulatory speed limit of 50km/h.

2.1.2 Intersections

Prince of Wales Drive/Bankfied Road

- Four-legged signalized intersection
- Northbound Approach (Prince of Wales Drive): one left turn lane and one shared through/right turn lane
- Southbound Approach (Prince of Wales Drive): one left turn lane, one through lane, and one right turn lane
- Westbound Approach (Bankfield Road): one left turn lane and one shared through/right turn lane
- Eastbound Approach (Bankfield Road): one left turn lane and one shared through/right turn lane
- Standard pedestrian crossings on all approaches

Bankfield Road/First Line Road

- Three-legged signalized intersection
- Northbound Approach (First Line Road): one shared all-movement lane
- Westbound Approach (*Bankfield Road*): one left turn lane and one through lane
- Eastbound Approach (*Bankfield Road*): one shared all-movement lane
- Standard pedestrian crossings on all approaches

2.1.3 Driveways

A review of adjacent driveways along the boundary roads are provided as follows:

Bankfield Road, North Side:

- Three driveways to residences at 3690, 3680, and 3668 Bankfield Road

Elijah Court, East Side

- Two driveways to residences at 5479 and 5485 Elijah Court
- One access to undeveloped property located between 5485 Elijah Court and 5500 Elijah Court

Bankfield Road, South Side:

- Three driveways to residences at 1468, 1464, 1458, 1454, and 1450 Bankfield Road

Elijah Court, West Side

- None

It is noteworthy that the existing driveways on the south side of Bankfield Road and the east side of Elijah Court will be removed as part of this application.

2.1.4 Pedestrian and Cycling Facilities

Paved shoulders are provided on Bankfield Road and on Prince of Wales Drive to the north of Bankfield Road. Concrete sidewalks are provided on all corners of the signalized intersections within the study area.

2.1.5 Transit

There are no OC Transpo bus stops in proximity of the subject site and the closest bus stops are located roughly 2km away in the Manotick town centre.

2.1.6 Area Traffic Management

There are no Area Traffic Management (ATM) studies within the study area that have been completed or are currently in progress.

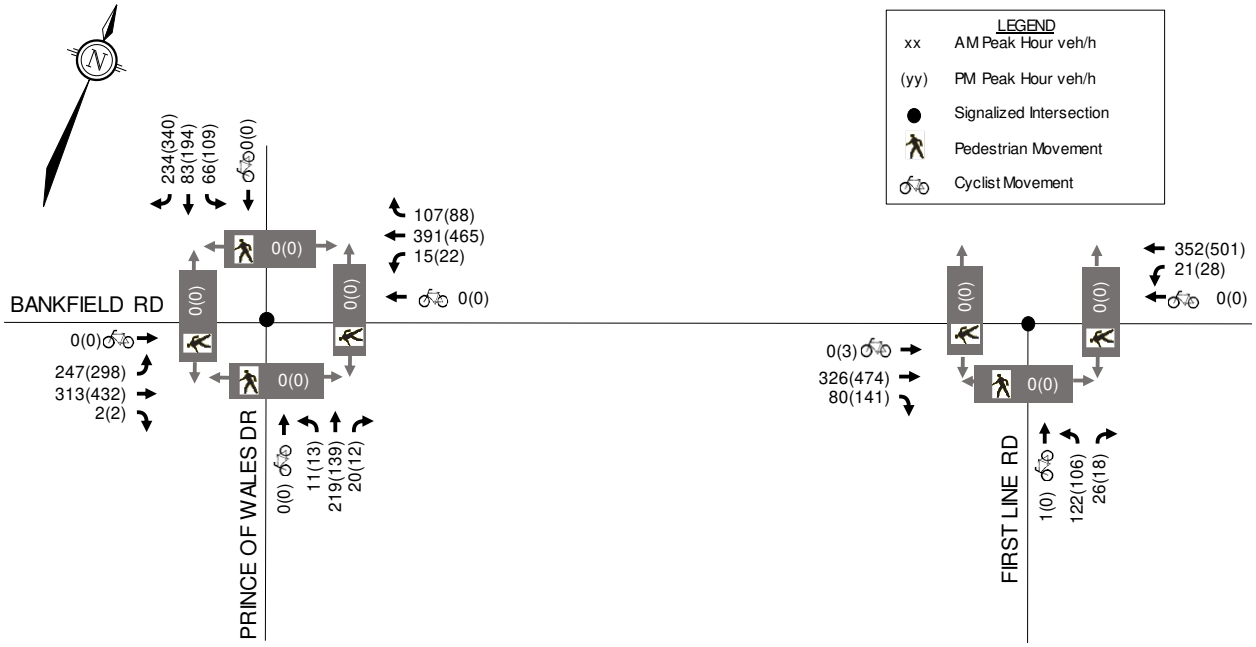
2.1.7 Existing Traffic Volumes

Weekday traffic counts were obtained from the City of Ottawa to determine existing pedestrian, cyclist, and vehicular traffic volumes at the study area intersections. These counts were completed on the following dates:

- Bankfield Road/First Line Road July 5, 2023
- Prince of Wales Drive/Bankfield Road November 23, 2023

All traffic count data is included in **Appendix C**. Traffic volumes within the study area are shown in **Figure 2**.

Figure 2: Existing Traffic Volumes



2.1.8 Collision Records

Historical collision data from the last five years was obtained from the City's Public Works and Service Department for the study area intersections and road segments between intersections. Copies of the collision summary reports are included in **Appendix D**.

The collision data has been evaluated to determine if there are any identifiable collision patterns, defined in the *2017 TIA Guidelines* as 'more than six collisions in five years' for any one movement. The number of collisions at each intersection from January 1, 2017 to December 31, 2021 is summarized in **Table 1**.

Table 1: Reported Collisions

Location	Impact Types						Total
	Approach	Angle	Rear End	Sideswipe	Turning Mvmt	SMV[1]/ Other	
Bankfield Road/Prince of Wales Drive	-	2	21	1	5	-	**29**
Bankfield Road/First Line Road	-	-	-	-	-	-	**0**
Bankfield Road between Prince of Wales Drive and Frist Line Road	1	-	2	1	-	3	**7**

1. SMV = Single Motor Vehicle

Bankfield Road/Prince of Wales Drive

A total of 29 collisions were reported at this intersection over the last five years, of which there was two angle impacts, 21 rear-end impacts, one sideswipe impacts, and five turning movement impacts. Six collisions resulted in injuries, but none caused fatalities. None of the collisions involved cyclists or pedestrians.

Of the 29 collisions at this location, three of them occurred during rain conditions, for all other collisions weather was not a factor. Additionally, of the 29 collisions, 23 of them occurred during daylight hours.

Of the 21 rear end collisions, six involved northbound vehicles, two involved southbound vehicles, nine involved eastbound vehicles, and four involved westbound vehicles. The eastbound rear end collision pattern at this location are anticipated to be attributed to high traffic volumes and high speeds. The northbound rear end collision pattern at this location are anticipated to be attributed to high speeds.

Calculations of the intersection collision rate per Million Entering Vehicles (MEV) for all collision types across the five-year study period showed an intersection collision rate of 0.75/MEV. Based on this analysis, Bankfield Road/Prince of Wales Drive does not experience an abnormally high rate of collisions.

Bankfield Road/First Line Road

No collisions were reported at the Bankfield Road/First Line Road intersection in the last five years of available data.

Bankfield Road between Prince of Wales Drive and First Line Road

A total of seven collisions were reported within this roadway segment over the last five years, of which there was one approaching impact, two rear-end impacts, one sideswipe impact, and three single motor vehicle impacts. All collisions resulted in property damage only with no injuries. None of the collisions involved cyclists or pedestrians.

Of the seven collisions at this location, three of them occurred during snow conditions, for all other collisions weather was not a factor. Additionally, of the seven collisions, five of them occurred during daylight hours. Of the seven collisions at this location, four involved westbound vehicles, two involved eastbound vehicles, and one involved eastbound and westbound vehicles.

As there are less than six collisions of any given type there is no discernible collision pattern at this location.

Calculations of the segment collision rate per Million Entering Vehicles (MEV) for all collision types across the five-year study period showed an intersection collision rate of 0.32/MEV. Based on this

analysis, Bankfield Road between Prince of Wales Drive and Frist Line Road does not experience an abnormally high rate of collisions.

2.2 Planned Conditions

2.2.1 Planned Roadway and Transit Projects

The City of Ottawa's Draft 2023 Transportation Master Plan proposes paved shoulders along Prince of Wales Drive, Bankfield Road and First Line Road in its Rural Active Transportation Network. This is consistent with the Manotick Secondary Plan within Volume 2B of the City of Ottawa's Official Plan which identifies proposed cycling routes along Prince of Wales Road, Bankfield Road, and First Line Road. The Manotick Secondary Plan also identifies proposed sidewalks on both sides of First Line Road and on Bankfield Road east of Prince of Wales Drive.

It is understood that a roundabout is planned at the Prince of Wales Drive/Bankfied Road intersection. The roundabout will have two approach lanes on all legs, as well as an eastbound right turn by-pass lane. Based on the City's 2013 TMP, this project is not part of the 2031 Affordable Road Network and does not have a timeline for implementation.

2.2.2 Other Area Developments

In proximity to the proposed development, the Stinson Farms Subdivision at 4386 Rideau Valley Drive has been identified as a development in the study area.

A TIA was prepared by Novatech in October 2022, in support of a development including 62 single detached houses, 14 semi-detached houses, and 72 townhouses. The TIA identified a buildout year of 2028.

Excerpts from relevant transportation studies have been attached in **Appendix E**.

2.3 Study Area and Time Periods

The study area for this report includes the boundary roadways Bankfield Road and Elijah Court, as well as the following intersections:

- Bankfield Road/Prince of Wales Drive; and
- Bankfield Road/First Line Road.

Analysis will be completed for the weekday AM and PM peak hours, as this represents the worst-case combination of site generated traffic and adjacent street traffic.

2.4 Development Generated Traffic

2.4.1 Site Generated Traffic Volumes

The proposed development is a 2,130m^2 automobile dealership and 441 vehicle parking spaces for vehicle storage and employees/visitors. Person trips for the commercial uses have been estimated using Land Use Code 840: Automobile Sales (New) rates from the Institute of Transportation Engineer's (ITE) *Trip Generation Manual, 11th Edition*. Due to the location and nature of the business, vehicle trips from ITE are assumed to equal person trips. The estimated trip generation is summarized in **Table 2**.

Table 2: Person Trip Generation

Land Use	ITE Code	GFA	AM Peak Hour (pph[1])			PM Peak Hour (pph)		
			IN	OUT	TOT	IN	OUT	TOT
Automobile Sales	840	22,900ft^2	31	12	*43*	22	33	*55*

1. pph: peak person trips per hour

From the previous table, the proposed development is projected to generate 43 person/vehicle trips during the AM peak hour and 55 person/vehicle trips during the PM peak hour.

2.4.2 Trip Distribution

The assumed distribution of trips generated by the proposed development have been derived based on existing traffic patterns and local area knowledge. The assumed distribution is summarized as follows:

- 45% to/from the west via Bankfield Road
- 30% to/from the east via Bankfield Road
- 20% to/from the north via Prince of Wales Drive
- 5% to/from the south via Prince of Wales Drive

Based on the site layout and surrounding traffic patterns it is assumed the western access along Bankfield Road will serve as the primary access and serve most incoming traffic to the subject site. The eastern access is anticipated to be primarily used for vehicle storage. Due to existing queueing along Bankfield Road the proponent plans to instruct all employees travelling westbound to use the Elijah Court access and travel to Bankfield Road via First Line Road. To account for this, 50% of outbound trips traveling towards the Bankfield Road/Prince of Wales Drive intersection have been assigned to the Bankfield Road/First Line Road intersection.

2.5 Access Location

This section provides a preliminary review of the proposed access design presented within the Concept Plan. The access design has been reviewed with respect to relevant requirements of the City's *Private Approach By-Law* (PABL), *Zoning By-law* (ZBL) and the Transportation Association of Canada (TAC) *Geometric Design Guidelines for Canadian Roads*. However, the final access design will be confirmed as part of the future Site Plan Control application.

Section 25(a) of the PABL identifies that a property with 46-150m of frontage may have a maximum of two two-way private approaches. This requirement is met, as the subject site has approximately 130m of frontage to Bankfield Road and is proposing two two-way accesses. It has roughly 70m of frontage to Elijah Court and is proposing one full movement access.

Section 25(c) of the PABL identifies a maximum width requirement of 9.0m for any two-way private approach, as measured at the street line. Since the proposed accesses are approximately 9.0m in width, this requirement is met.

Section 25(m) of the PABL identifies a minimum space requirement of 18m for a private approach and the nearest intersecting street line and 15m between a two-way private approach and any other private approach. As the western proposed access along Bankfield Road is roughly 100m from the nearest intersecting street line and the two accesses along Bankfield Road are spaced roughly 58m from each other this requirement is met.

Section 25(p) of the PABL identifies a minimum separation requirement of 3.0m between the nearest edge of a private approach and the closest property line, as measured at the street line. Since the nearest edge of the access is proposed to be approximately 8.0m from the eastern property line, this requirement is met.

Section 25(u) of the PABL identifies a maximum driveway grade of 2% for a distance of 9m within the property, for driveways serving more than 50 parking spaces. The site grading is not finalized at this time and will be confirmed as part of the future Site Plan Application.

Intersection sight distance (ISD) at the proposed accesses have been determined using the TAC *Geometric Design Guidelines for Canadian Roads.* The ISD requirements for the Bankfield Road access, based on a design speed of 70km/h, is as follows:

- Left Turn from Minor Road 130 metres
- Right Turn from Minor Road 110 metres

As the access meets Bankfield Road at a perpendicular angle and no sightline obstruction has been identified based on a desktop review, available sightlines are within recommended guidelines to allow safe all directional access to the development.

The TAC Geometric Design Guide for Canadian Roads identifies minimum clear throat lengths based on road classification and land use. For a light industrial land use under 10,000m^2 or a shopping centre under 25,000m^2 a minimum clear throat length of 15m is required for both land uses on arterial roads. Based on the concept plan, the clear throat length is approximately 12m and just short of the TAC requirements. Opportunities to improve the clear throat length to the TAC thresholds will be reviewed and the clear throat length will be confirmed as part of a subsequent Site Plan Control application.

The TAC Geometric Design Guide for Canadian Roads identifies a minimum corner clearance distance of 70m for an access downstream of a signal on an undivided arterial road. As the nearest access is roughly 100m away this requirement is met. The available corner clearance will be confirmed as part of the final TIA report once the Site Plan is finalized.

Based on the assumed distribution presented in Section 2.4.2 it is estimated that 4-12 vehicles will perform a westbound left turn at the proposed access during the AM and PM peak hours. The expected left turn volumes would equate to 1-2% of the existing advancing volumes. It is assumed that the proposed access configuration will present an improvement to the study area as the development removes three accesses to five different properties that currently have access to Bankfield Road within the turn lane. As no collision history exists within the study area and the assumed left turn volumes do not project to be a significant amount of through traffic the access configuration is recommended.

A detailed review of access operations and queuing from adjacent traffic signals is conducted in Section 4.9.

2.6 Exemptions Review

This module reviews possible exemptions from the final Transportation Impact Assessment, as outlined in the *2017 TIA Guidelines*. The applicable exemptions for this site are shown in **Table 3**.

Table 3: TIA Exemptions

Module	Element	Exemption Criteria	Exemption Status
4.1 Development Design	*4.1.2* Circulation and Access	• Only required for Site Plan and Zoning By-law Applications	Not Exempt
	4.1.3 New Street Networks	• Only required for plans of subdivision	Exempt
4.2 Parking	*4.2.1* Parking Supply	• Only required for Site Plan and Zoning By-law Applications	Not Exempt
4.6 Neighbourhood Traffic Management	*4.6.1* Adjacent Neighbourhoods	• If the development meets all of the following criteria along the route(s) site generated traffic is expected to utilize between arterial road and the site's access: 1. Access to a Collector or Local; 2. "Significant sensitive land use presence" exists where there is at least two of the following adjacent to the subject street segment (School, Park, Retirement/Older Adult Facility, Licenced Child Care Centre, Community Centre, or 50% or greater of the property is occupied by residential land uses) 3. Application is for Zoning By-Law Amendment or Draft Plan of Subdivision 4. At least 75 site generated auto trips 5. Site Trip Infiltration expected	Exempt
4.7 Transit	*4.7.1 Transit Route Capacity*	• Greater than 75 site transit trips	Exempt
	4.7.2 Transit Priority Requirements	• Greater than 75 site auto trips	Exempt
4.8 Network Concept	*All elements*	• Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by the established zoning	Exempt
4.9 Intersection Design	*4.9.1 Intersection Controls*	• Greater than 75 site auto trips	Exempt
	4.9.2 Intersection Design	• Greater than 75 site auto trips	Exempt

Given the high traffic volumes along Bankfield Road and the proposed access configuration, City staff have requested a review of intersection operations within the area. Therefore, the following modules will be included in the TIA report:

- Module 4.1: Development Design
- Module 4.2: Parking
- Module 4.3: Boundary Streets
- Module 4.5: Transportation Demand Management
- Module 4.9: Intersection Design

Intersection capacity analysis will be completed in order to confirm if queuing from either study intersection will have an impact on the proposed accesses to Bankfield Road.

3.0 FORECASTING

3.1 Background Traffic

3.1.1 Other Area Developments

Buildout of the Stinson Farms Subdivision is anticipated by 2028. Traffic generated by this development has been added to the 2030 horizon year, using the distribution as outlined in the 2022 TIS. Relevant excerpts from the TIS are included in **Appendix E**.

3.1.2 General Background Growth Rate

Based on snapshots of the City's long-range model a growth rate of roughly 2% is expected on Bankfield Road to the east of Prince of Wales Drive and a 0%-1% growth rate is expected on Prince of Wales Drive and Bankfield Road to the west of Prince of Wales Drive.

An annual growth rate of 1.5% has been applied to Bankfield Road and Prince of Wales Drive in order to match the growth rate used within the TIA report for the Stinson Farms Subdivision.

3.2 Future Traffic Conditions

The figures listed below present the following future traffic conditions:

- Proposed site-generated traffic volumes in 2025 are shown in **Figure 3**;
- Background traffic volumes in 2025 are shown in **Figure 4**;
- Background traffic volumes in 2030 are shown in **Figure 5**;
- Total traffic volumes in 2025 are shown in **Figure 6**;
- Total traffic volumes in 2030 are shown in **Figure 7**.

Figure 3: Site-Generated Volumes

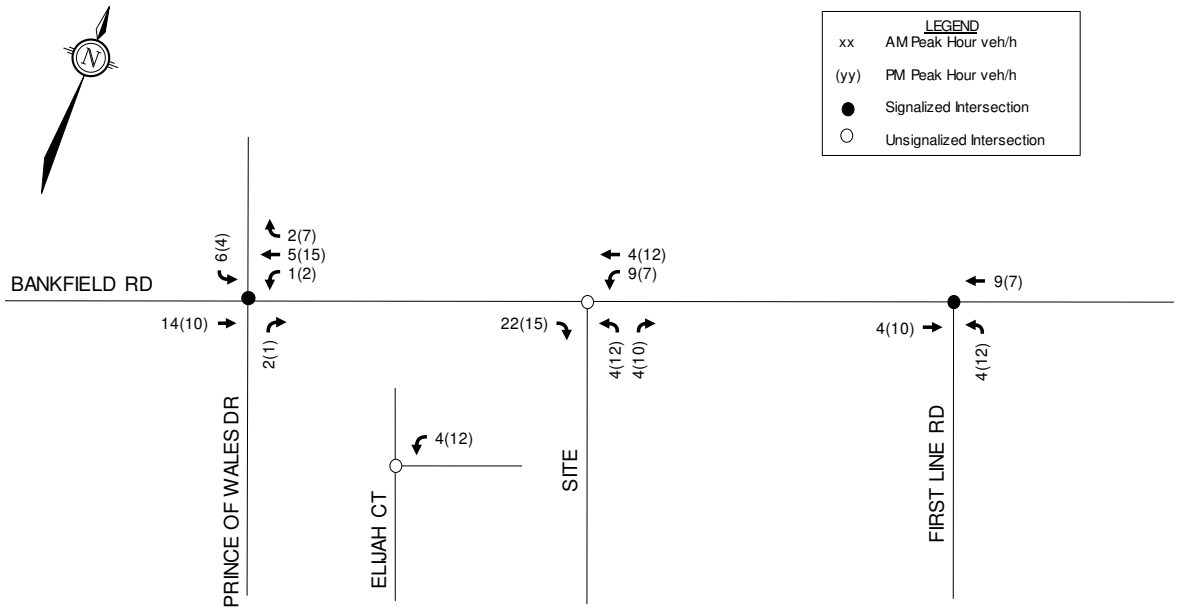


Figure 4: 2025 Background Traffic

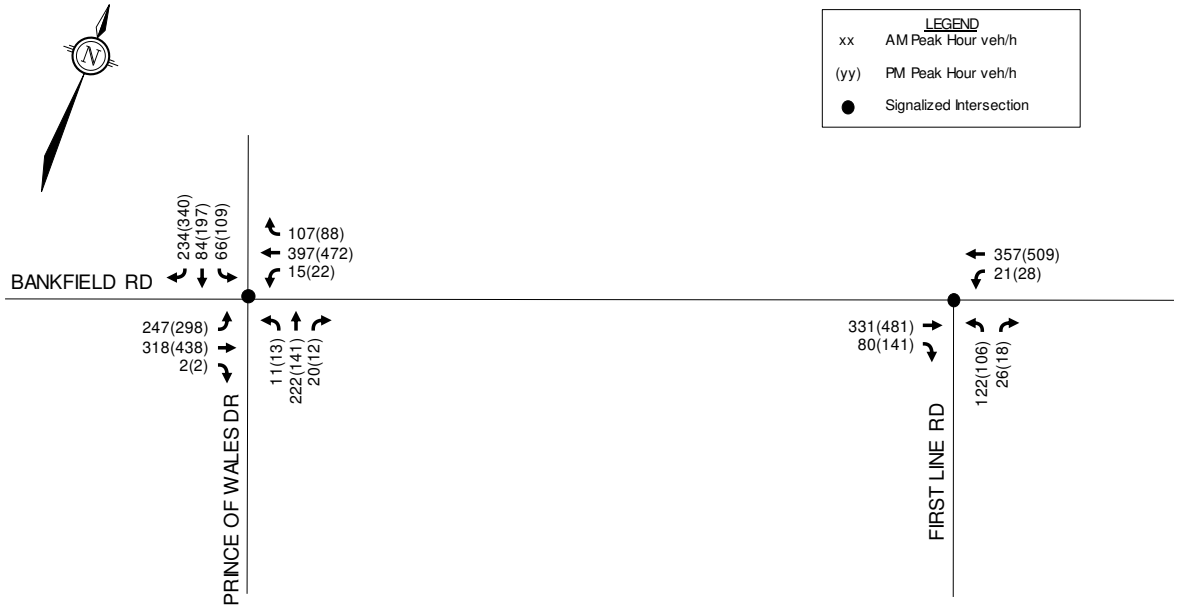


Figure 5: 2030 Background Traffic

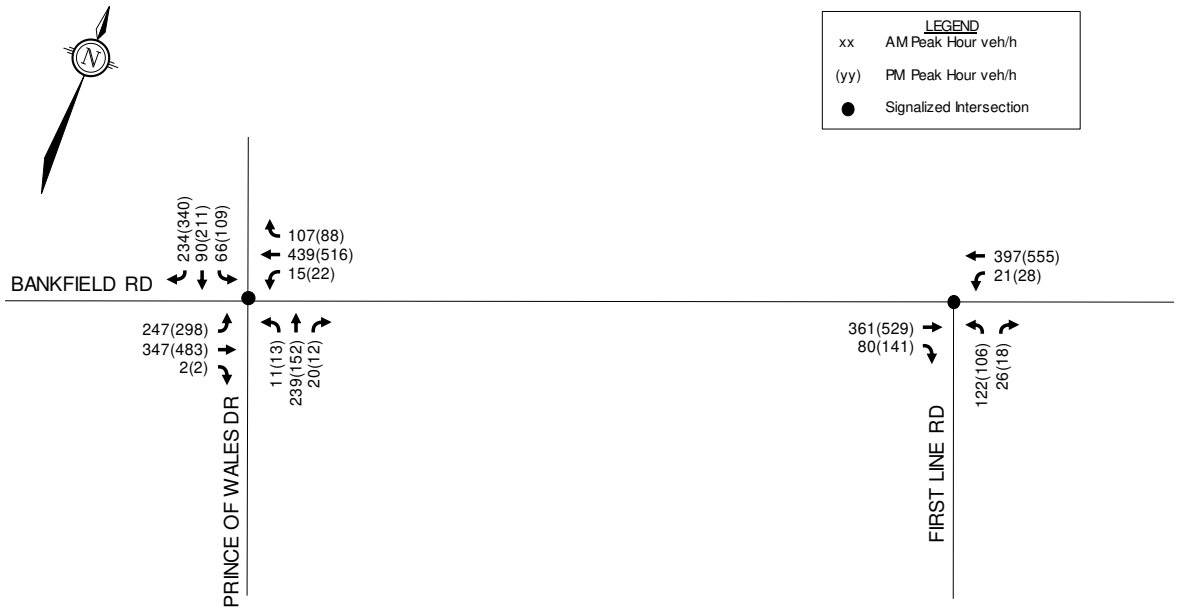


Figure 6: 2025 Total Traffic

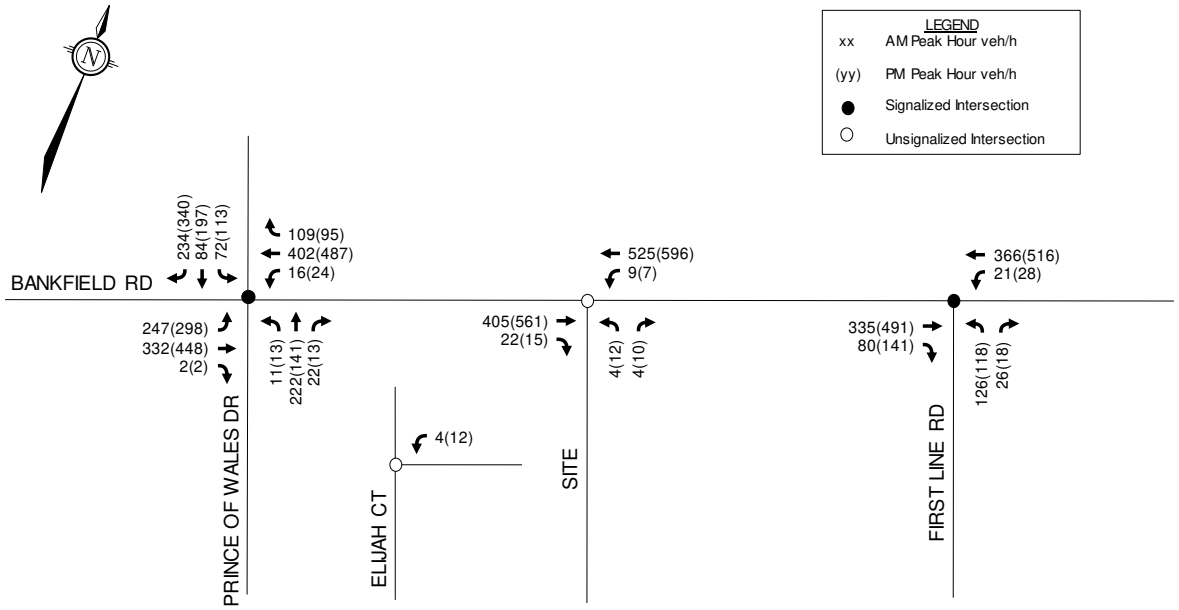
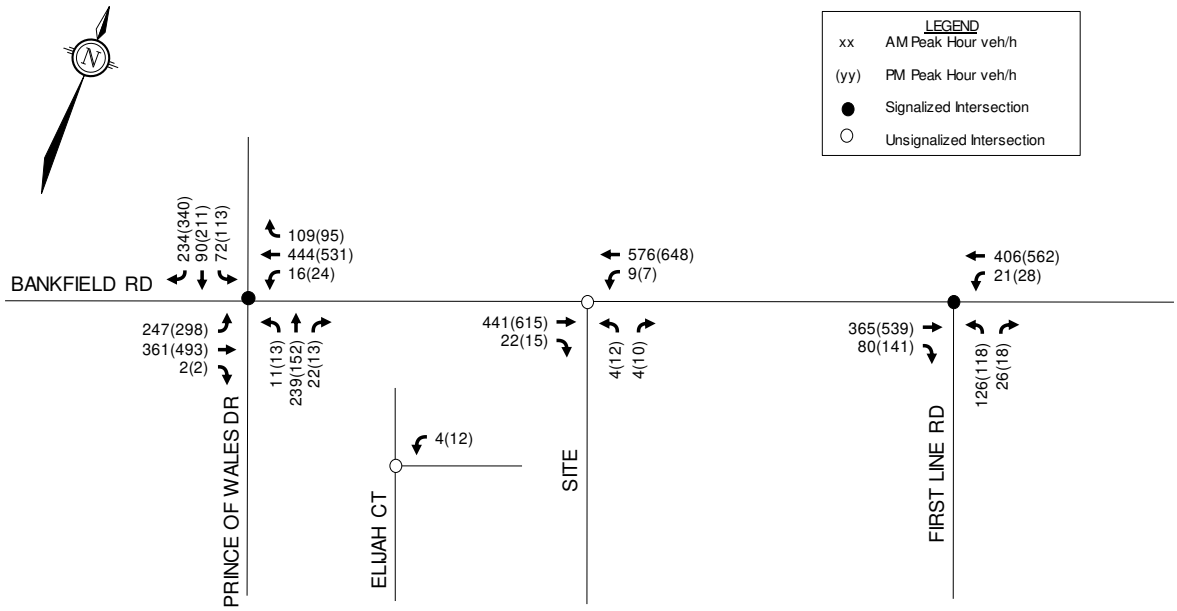


Figure 7: 2030 Total Traffic



3.3 Demand Rationalization

A review of the existing intersection operations has been conducted to determine if queues from the study area intersections impede movements to/from the proposed accesses. The intersection parameters used in the analysis are consistent with the *2017 TIA Guidelines* (Saturated Flow Rate: 1,800 vphpl, Peak Hour Factor: 0.9 in existing conditions and 1.0 in future conditions).

Signal timing plans were obtained from the City, and are included in **Appendix H**.

3.3.1 Existing Intersection Operations

Intersection Capacity analysis has been conducted for the existing traffic conditions. The results of the analysis are summarized in **Table 4** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix I**.

Table 4: Existing Traffic Operations

Intersection	Mvmt	Storage/ Spacing[1]	AM Peak			PM Peak		
			v/c [LOS]	50th % Queue (m)	95th % Queue (m)	v/c [LOS]	50th % Queue (m)	95th % Queue (m)
Bankfield Road/Prince of Wales Drive	NBL	60m	0.05 [A]	2	8	0.08 [A]	3	10
	NBT/R	-	0.70 [B]	55	85	0.59 [A]	42	68
	SBL	80m	0.28 [A]	11	21	0.40 [A]	25	40
	SBT	-	0.16 [A]	14	26	0.40 [A]	46	69
	SBR	240m	0.30 [A]	10	23	0.45 [A]	36	61
	EBL	180m	0.82 [D]	33	#92	**0.92 [E]**	56	#126
	EBT/R	-	0.35 [A]	41	75	0.45 [A]	67	106
	WBL	170m	0.05 [A]	2	8	0.07 [A]	4	11
	WBT/R	380m	0.88 [D]	111	#205	0.88 [D]	148	#238
	NB	-	0.43 [A]	11	24	0.39 [A]	9	28
	EB	380m	0.49 [A]	20	45	0.70 [B]	38	85
	WBL	180m	0.05 [A]	1	4	0.10 [A]	1	5

Intersection	Mvmt	Storage/ Spacing(1)	AM Peak			PM Peak		
			v/c [LOS]	50th % Queue (m)	95th % Queue (m)	v/c [LOS]	50th % Queue (m)	95th % Queue (m)
Bankfield Road/First Line Road	WBT	-	0.42 [A]	18	38	0.56 [A]	28	62

#: volume for the 95th percentile cycle exceeds capacity

Under existing traffic conditions, all movements at the Bankfield Road/First Line Road intersection are currently operating with a LOS of B or better during AM and PM peak hour conditions. The eastbound left turn movement at the Bankfield Road/Prince of Wales Drive intersection operates with a LOS D during AM peak hour and a LOS E during the PM peak hour. The westbound through/right turn movement operates with a LOS D during the AM and PM peak hours. All other movements at the Bankfield Road/Prince of Wales Drive intersection operate with a LOS B or better.

The westbound 95th percentile queue lengths at the Bankfield Road/Prince of Wales Drive intersection currently extends past the proposed site accesses during the AM and PM peak hours.

3.3.2 2025 Background Traffic Conditions

Operating conditions at study area intersections are summarized in **Table 5** for the 2025 weekday AM and PM peak periods. Detailed reports are included in **Appendix I**.

Table 5: 2025 Background Traffic Operations

Intersection	Mvmt	Storage/ Spacing(1)	AM Peak			PM Peak		
			v/c [LOS]	50th % Queue (m)	95th % Queue (m)	v/c [LOS]	50th % Queue (m)	95th % Queue (m)
Bankfield Road/Prince of Wales Drive	NBL	60m	0.04 [A]	2	7	0.07 [A]	3	10
	NBT/R	-	0.63 [B]	49	78	0.51 [A]	35	62
	SBL	80m	0.23 [A]	10	20	0.33 [A]	21	37
	SBT	-	0.14 [A]	13	24	0.35 [A]	39	63
	SBR	240m	0.26 [A]	4	15	0.38 [A]	21	45
	EBL	180m	0.68 [B]	27	#63	0.79 [C]	41	#94
	EBT/R	-	0.33 [A]	36	65	0.43 [A]	58	90
	WBL	170m	0.04 [A]	2	8	0.07 [A]	4	10
	WBT/R	380m	0.85 [D]	96	#171	0.88 [D]	127	187
Bankfield Road/First Line Road	NB	-	0.41 [A]	10	22	0.33 [A]	8	23
	EB	380m	0.44 [A]	18	37	0.57 [A]	32	68
	WBL	180m	0.04 [A]	1	3	0.07 [A]	1	4
	WBT	-	0.38 [A]	16	32	0.46 [A]	25	51

#: volume for the 95th percentile cycle exceeds capacity

Under 2025 background traffic conditions, all movements at the Bankfield Road/First Line Road intersection operate with a LOS of A during AM and PM peak hour conditions. All movements at the Bankfield Road/Prince of Wales Drive intersection operate with a LOS D or better. The westbound 95th percentile queue lengths at the Bankfield Road/Prince of Wales Drive intersection is anticipated to extend past the proposed site accesses during the AM and PM peak hours.

3.3.3 2030 Background Traffic Conditions

Operating conditions at study area intersections are summarized in **Table 6** for the 2030 weekday AM and PM peak periods. Detailed reports are included in **Appendix I**.

Table 6: 2030 Background Traffic Operations

Intersection	Mvmt	Storage/ Spacing(1)	AM Peak			PM Peak		
			v/c [LOS]	50th % Queue (m)	95th % Queue (m)	v/c [LOS]	50th % Queue (m)	95th % Queue (m)
Bankfield Road/Prince of Wales Drive	NBL	60m	0.04 [A]	2	7	0.07 [A]	3	10
	NBT/R	-	0.69 [B]	53	83	0.57 [A]	41	66
	SBL	80m	0.25 [A]	10	20	0.36 [A]	22	37
	SBT	-	0.16 [A]	14	25	0.39 [A]	45	68
	SBR	240m	0.27 [A]	8	19	0.41 [A]	29	51
	EBL	180m	0.72 [C]	27	#71	0.82 [D]	44	#99
	EBT/R	-	0.35 [A]	40	74	0.45 [A]	66	104
	WBL	170m	0.04 [A]	2	8	0.06 [A]	4	10
	WBT/R	380m	0.86 [D]	108	#198	0.87 [D]	142	#226
Bankfield Road/First Line Road	NB	-	0.41 [A]	10	21	0.34 [A]	8	25
	EB	380m	0.47 [A]	20	42	0.61 [B]	36	79
	WBL	180m	0.05 [A]	1	3	0.08 [A]	1	4
	WBT	-	0.42 [A]	18	37	0.49 [A]	28	59

#: volume for the 95th percentile cycle exceeds capacity

Under 2030 background traffic conditions, all movements at the Bankfield Road/First Line Road intersection operate with a LOS of B or better during AM and PM peak hour conditions. All movements at the Bankfield Road/Prince of Wales Drive intersection operate with a LOS D or better. The westbound 95th percentile queue lengths at the Bankfield Road/Prince of Wales Drive intersection is anticipated to extend past the proposed site accesses during the AM and PM peak hours.

4.0 ANALYSIS

4.1 Development Design

As the concept plan is preliminary at this time, a detailed review of the development design will be conducted as part of the future Site Plan Control application when the final plan is prepared.

4.2 Parking

As the concept plan is preliminary at this time, a detailed review of the on-site parking provisions will be conducted as part of the future Site Plan Control application when the final plan is prepared.

4.3 Boundary Street Design

This section provides a review of the boundary streets Bankfield Road and Elijah Court using complete streets principles. The Multi-Modal Level of Service (MMLOS) Guidelines, produced by IBI Group in October 2015, were used to evaluate the levels of service for each alternative mode of transportation on the boundary streets. The subject site is located within a Village Area (per Schedule A of the City's previous Official Plan, which is referenced by the MMLOS Guidelines).

A detailed segment MMLOS review of the boundary streets is included in **Appendix H**. A summary of the segment MMLOS analysis is provided below in **Table 7**.

Table 7: Segment MMLOS Summary

Segment	PLOS		BLOS		TLOS		TkLOS	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Bankfield Road	**F**	C	**E**	D	D	-	D	D
Elijah Court	**F**	C	**F**	D	D	-	F	-

The results of the segment MMLOS analysis can be summarized as follows:

- Both boundary streets do not meet the target pedestrian level of service (PLOS);
- Both boundary streets do not meet the target bicycle level of service (BLOS);
- No target transit level of service (TLOS) has been identified for either boundary street however both streets achieve a TLOS of D; and
- Bankfield Road meets the target truck level of service (TkLOS) and no target TkLOS has been identified for Elijah Court, however Elijah Court achieves a LOS F.

Pedestrian Level of Service

Both sides of Bankfield Road do not meet the target PLOS C. As part of the recent resurfacing of Bankfield Avenue, the City implemented a depressed curb and a paved shoulder along the site frontage. Given the rural context of Bankfield Road, no further modifications are recommended as part of the proposed development.

Both sides of Elijah Court do not meet the target PLOS C. Elijah Court is currently a two-lane undivided rural roadway with a road platform width of approximately 6.5m that serves two single detached dwelling units that are to be removed as part of this application. As a new pedestrian facility along the site frontage will not provide system connectivity to the greater network, no recommendations are proposed as part of the proposed development.

Bicycle Level of Service

Within the study area neither boundary road meets the target BLOS. On Bankfield Road a BLOS D can be achieved by either reducing the operating speed to 60km/h or implementing a separated cycling facility. This is identified for the City's consideration.

On Elijah Court a BLOS C can be achieved by reducing the operating speed to 40km/h. This is identified for the City's consideration.

4.4 Transportation Demand Management

A detailed review of Transportation Demand Management initiatives will be conducted as part of the future Site Plan Control application.

4.5 Intersection Design

4.5.1 2025 Total Intersection Operations

Intersection capacity analysis has been conducted for the 2025 total traffic conditions. The results of the analysis are summarized in **Table 8** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix I**.

Table 8: 2025 Total Traffic Operations

Intersection	Mvmt	Storage/ Spacing(1)	AM Peak			PM Peak		
			v/c [LOS]	50th % Queue (m)	95th % Queue (m)	v/c [LOS]	50th % Queue (m)	95th % Queue (m)
Bankfield Road/Prince of Wales Drive	NBL	60m	0.04 [A]	2	7	0.07 [A]	3	10
	NBT/R	-	0.64 [B]	50	78	0.53 [A]	37	62
	SBL	80m	0.26 [A]	11	21	0.35 [A]	23	38
	SBT	-	0.14 [A]	13	24	0.36 [A]	41	63
	SBR	240m	0.26 [A]	4	16	0.39 [A]	25	47
	EBL	180m	0.69 [B]	27	#65	0.80 [C]	43	#97
	EBT/R	-	0.34 [A]	38	69	0.43 [A]	60	94
	WBL	170m	0.05 [A]	2	8	0.07 [A]	4	11
	WBT/R	380m	0.85 [D]	98	**#177**	0.87 [D]	**135**	**#211**
Bankfield Road/First Line Road	NB	-	0.41 [A]	10	22	0.36 [A]	9	26
	EB	380m	0.45 [A]	18	38	0.58 [A]	33	72
	WBL	180m	0.04 [A]	1	3	0.07 [A]	1	4
	WBT	-	0.39 [A]	16	34	0.46 [A]	25	54
Bankfield Road/Access	NB	15m	14 sec [B]	-	0	15 sec [B]	-	1
	EB	100m	0 sec [A]	-	0	0 sec [A]	-	0
	WBL	25m	8 sec [A]	-	0	9 sec [A]	-	0
	WBT	280m	0 sec [A]	-	0	0 sec [A]	-	0

#: volume for the 95th percentile cycle exceeds capacity

Compared to the 2025 background traffic conditions, site-generated traffic is anticipated to have marginal impacts on traffic operations within the study area.

The 95th percentile queues from westbound traffic at the Bankfield Road/Prince of Wales Drive intersection is expected to extend past the proposed Bankfield Road access during the AM and PM peak hours.

4.5.2 2030 Total Intersection Operations

Intersection capacity analysis has been conducted for the 2030 total traffic conditions. The results of the analysis are summarized in **Table 9** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix I**.

Table 9: 2030 Total Traffic Operations

Intersection	Mvmt	Storage/ Spacing(1)	AM Peak			PM Peak		
			v/c [LOS]	50th % Queue (m)	95th % Queue (m)	v/c [LOS]	50th % Queue (m)	95th % Queue (m)
Bankfield Road/Prince of Wales Drive	NBL	60m	0.04 [A]	2	7	0.07 [A]	3	10
	NBT/R	-	0.69 [B]	54	84	0.58 [A]	41	66
	SBL	80m	0.27 [A]	11	21	0.38 [A]	23	38
	SBT	-	0.16 [A]	14	25	0.40 [A]	45	68
	SBR	240m	0.27 [A]	8	20	0.41 [A]	30	53
	EBL	180m	0.73 [C]	27	#75	0.84 [D]	47	#104
	EBT/R	-	0.37 [A]	43	78	0.46 [A]	68	108
	WBL	170m	0.05 [A]	2	8	0.07 [A]	4	11
	WBT/R	380m	0.88 [D]	**111**	**#204**	0.88 [D]	**151**	**#242**
Bankfield Road/First Line Road	NB	-	0.41 [A]	10	22	0.36 [A]	9	28
	EB	380m	0.48 [A]	20	43	0.61 [B]	37	84
	WBL	180m	0.05 [A]	1	3	0.08 [A]	1	5
	WBT	-	0.43 [A]	18	39	0.50 [A]	29	62

Intersection	Mvmt	Storage/ Spacing(1)	AM Peak			PM Peak		
			v/c [LOS]	50th % Queue (m)	95th % Queue (m)	v/c [LOS]	50th % Queue (m)	95th % Queue (m)
Bankfield Road/Access	NB	15m	14 sec [B]	-	1	15 sec [C]	-	1
	EB	100m	0 sec [A]	-	0	0 sec [A]	-	0
	WBL	25m	8 sec [A]	-	0	9 sec [A]	-	0
	WBT	280m	0 sec [A]	-	0	0 sec [A]	-	0

#: volume for the 95th percentile cycle exceeds capacity

Compared to the 2030 background traffic conditions, site-generated traffic is anticipated to have marginal impacts on traffic operations within the study area.

The 95th percentile queues from westbound traffic at the Bankfield Road/Prince of Wales Drive intersection is expected to extend past the proposed Bankfield Road access during the AM and PM peak hours.

The site traffic does not impact delays at any study area intersection and does not significantly impact the existing westbound queues at the Bankfield Road/Prince of Wales Drive intersection. The proposed development is expected to generate four outbound left turning vehicles at the Bankfield Road site access during the AM peak hour and 12 outbound left turning vehicles during the PM peak hour. This equates to roughly one outbound left turning vehicle every 15 minutes in the AM peak hour and one outbound left turning vehicle every 5 minutes during the PM peak hour.

The access to Bankfield Road is proposed as a full movement access but due to existing queuing issues along Bankfield Road the proponent plans on directing all westbound employees to travel through Bankfield Road/First Line Road intersection via Elijah Court. As the volumes of customers exiting the access are relatively low during the peak hours drivers may use courtesy from other drivers in order to access Bankfield Road or they may use Elijah Court and travel to the Bankfield Road/First Line Road intersection to gain access to Bankfield Road. As previously stated in Section 2.5, it is assumed that the proposed access configuration will present an improvement to the study area as the development removes three accesses to five different properties that currently have access to Bankfield Road within the turn lane.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the foregoing, the conclusions and recommendations of this TIA can be summarized as follows:

Forecasting

- The proposed development is projected to generate 43 person/vehicle trips during the AM peak hour and 55 person/vehicle trips during the PM peak hour.

- Due to existing queueing along Bankfield Road the proponent plans to instruct all employees travelling westbound to use the Elijah Court access and travel to Bankfield Road via First Line Road. To account for this, 50% of outbound trips traveling towards the Bankfield Road/Prince of Wales Drive intersection have been assigned to the Bankfield Road/First Line Road intersection.

Boundary Streets

- Both boundary streets do not meet the target pedestrian level of service (PLOS).

- Both boundary streets do not meet the target bicycle level of service (BLOS).

- No target transit level of service (TLOS) has been identified for either boundary street however both streets achieve a TLOS of D.

- Bankfield Road meets the target truck level of service (TkLOS) and no target TkLOS has been identified for Elijah Court, however Elijah Court achieves a LOS F.

- Both sides of Bankfield Road do not meet the target PLOS C. As part of the recent resurfacing of Bankfield Avenue, the City implemented a depressed curb and a paved shoulder along the site frontage. Given the rural context of Bankfield Road, no further modifications are recommended as part of the proposed development.

- Both sides of Elijah Court do not meet the target PLOS C. Elijah Court is currently a two-lane undivided rural roadway with a road platform width of approximately 6.5m that serves two single detached dwelling units that are to be removed as part of this application. As a new pedestrian facility along the site frontage will not provide system connectivity to the greater network, no recommendations are proposed as part of the proposed development.

- On Elijah Court a BLOS C can be achieved by reducing the operating speed to 40km/h. This is identified for the City's consideration.

Background Traffic Analysis

- Under 2030 background traffic conditions, all movements at traffic signal controlled intersections are anticipated to operate with a LOS D or better during AM and PM peak hour conditions.

Total Traffic Analysis

- The site traffic does not impact delays at any study area intersection and does not significantly impact the existing westbound queues at the Bankfield Road/Prince of Wales Drive intersection. The proposed development is expected to generate four outbound left turning vehicles at the Bankfield Road site access during the AM peak hour and 12 outbound left turning vehicles during the PM peak hour. This equates to roughly one outbound left turning vehicle every 15 minutes in the AM peak hour and one outbound left turning vehicle every 5 minutes during the PM peak hour.

- The access to Bankfield Road is proposed as a full movement access but due to existing queuing issues along Bankfield Road the proponent plans on directing all westbound employees to travel through Bankfield Road/First Line Road intersection via Elijah Court. As the volumes of customers exiting the access are relatively low during the peak hours drivers may use courtesy from other drivers in order to access Bankfield Road or they may use Elijah Court and travel to the Bankfield Road/First Line Road intersection to gain access to Bankfield Road. It is assumed that the proposed access configuration will present an improvement to the study area as the development removes three accesses to five different properties that currently have access to Bankfield Road within the turn lane.

Based on the foregoing, the proposed development is recommended from a transportation perspective.

NOVATECH

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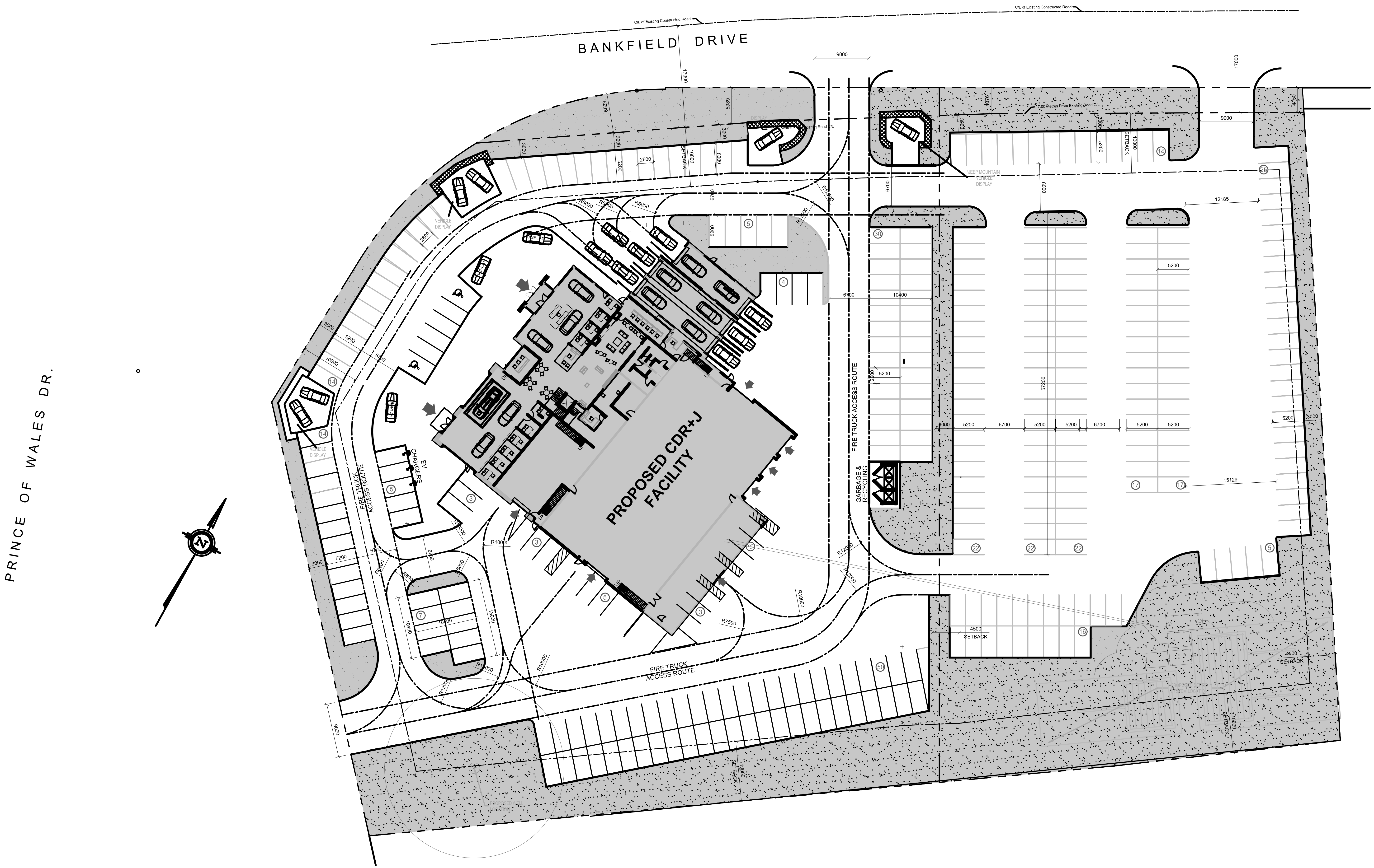
Reviewed by:

Brad Byvelds, P.Eng.
Project Manager | Transportation

APPENDIX A

Preliminary Concept Plan



BANKFIELD DRIVE
PRINCE OF WALES DR.
PROPOSED CDR+J FACILITY
FIRE TRUCK ACCESS ROUTE
EV CHARGERS
GARBAGE & RECYCLING
VEHICLE DISPLAY
SETBACK

APPENDIX B

TIA Screening Form

City of Ottawa 2017 TIA Guidelines TIA Screening

1. Description of Proposed Development

Municipal Address	1450, 1454, 1458, 1464, & 1468 Bankfield Rd, and 5479 & 5485 Elijah Crt,
Description of Location	Southeast corner of Bankfield Rd/Prince of Wales Dr
Land Use Classification	Automobile Sales
Development Size (units)	
Development Size square metre (m^2)	2,130
Number of Accesses and Locations	Two to Bankfield Rd, One to Elijah Crt
Phase of Development	One
Buildout Year	2024

If available, please attach a sketch of the development or site plan to this form.

2. Trip Generation Trigger

Considering the Development's Land Use type and Size (as filled out in the previous section), please refer to the Trip Generation Trigger checks below.

Table notes:

1. Table 2, Table 3 & Table 4 TRANS Trip Generation Manual
2. Institute of Transportation Engineers (ITE) Trip Generation Manual 11.1 Ed.

Land Use Type	Minimum Development Size
Single-family homes	**60 units**
Multi-Use Family (Low-Rise)[1]	**90 units**
Multi-Use Family (High-Rise)[1]	**150 units**
Office[2]	**1,400 m^2**
Industrial[2]	**7,000 m^2**
Fast-food restaurant or coffee shop[2]	**110 m^2**
Destination retail[2]	**1,800 m^2**
Gas station or convenience market[2]	**90 m^2**

If the proposed development size is equal to or greater than the sizes identified above, the Trip Generation Trigger is satisfied.

3. Location Triggers

	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the Transit Priority Network, Rapid Transit network or Cross-Town Bikeways?	☐	☑
Is the development in a Hub, a Protected Major Transit Station Area (PMTSA), or a Design Priority Area (DPA)?[2]	☐	☑

If any of the above questions were answered with 'Yes,' the Location Trigger is satisfied.

4. Safety Triggers

	Yes	No
Are posted speed limits on a boundary street are 80 kilometers per hour (km/h) or greater?	☐	☑
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	☑	☐
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 metre [m] of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?	☑	☐
Is the proposed driveway within auxiliary lanes of an intersection?	☑	☐
Does the proposed driveway make use of an existing median break that serves an existing site?	☐	☑

[2] Hubs are identified in Schedules B1 to B8 of the City of Ottawa Official Plan. PMTSAs are identified in Schedule C1 of the Official Plan. DPAs are identified in Schedule C7A and C7B of the Official. See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA.

	Yes	No
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	☐	☑
Does the development include a drive-thru facility?	☐	☑

If any of the above questions were answered with 'Yes,' the Safety Trigger is satisfied.

5. Summary

Results of Screening	Yes	No
Does the development satisfy the Trip Generation Trigger?	☐	☑
Does the development satisfy the Location Trigger?	☐	☑
Does the development satisfy the Safety Trigger?	☑	☐

If none of the triggers are satisfied, the TIA Study is complete. If one or more of the triggers is satisfied, the TIA Study must continue into the next stage (Screening and Scoping).

APPENDIX C

Traffic Count Data

Peak Hour Diagram

Specified Period
From: 07:00:00
To: 10:00:00

One Hour Peak
From: 07:30:00
To: 08:30:00

Intersection: Prince of Wales Dr & Bankfield Rd
Site Code: 2337700001
Count Date: Nov 23, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Bankfield Rd runs E/W

North Approach

	Out	In	Total
Cars	368	549	917
Trucks	15	24	39
Bicycles	0	0	0
	383	**573**	**956**

Prince of Wales

Bicycles	0	0	0	0
Trucks	7	2	6	0
Cars	227	81	60	0
Totals	**234**	**83**	**66**	**0**

East Approach

	Out	In	Total
Cars	445	347	792
Trucks	68	52	120
Bicycles	0	0	0
	513	**399**	**912**

Peds: 0

Bankfield Rd

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	12	235	**247**
0	44	269	**313**
0	0	2	**2**

Peds: 0

Peds: 0

Bankfield Rd

Totals	Cars	Trucks	Bicycles
0	0	0	0
107	100	7	0
391	333	58	0
15	12	3	0

Peds: 0

West Approach

	Out	In	Total
Cars	506	570	1076
Trucks	56	66	122
Bicycles	0	0	0
	562	**636**	**1198**

Prince of Wales

Totals	**11**	**219**	**20**	**0**
Cars	10	214	18	0
Trucks	1	5	2	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	242	95	337
Trucks	8	5	13
Bicycles	0	0	0
	250	**100**	**350**

Cars - Trucks - Bicycles

Comments

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period		One Hour Peak	
From:	11:30:00	From:	11:30:00
To:	13:30:00	To:	12:30:00

Intersection: Prince of Wales Dr & Bankfield Rd
Site Code: 2337700001
Count Date: Nov 23, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Bankfield Rd runs E/W

North Approach

	Out	In	Total
Cars	294	280	574
Trucks	17	16	33
Bicycles	0	0	0
	311	**296**	**607**

Prince of Wales

Bicycles	0	0	0	0
Trucks	16	0	1	0
Cars	144	86	64	0
Totals	**160**	**86**	**65**	**0**

Peds: 0

East Approach

	Out	In	Total
Cars	315	282	597
Trucks	31	42	73
Bicycles	0	0	0
	346	**324**	**670**

Bankfield Rd

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	13	113	**126**	
0	39	202	**241**	
0	0	1	**1**	

Peds: 0

Peds: 0

Bankfield Rd

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	73	70	3	0
	258	230	28	0
	15	15	0	0

Peds: 0

West Approach

	Out	In	Total
Cars	316	378	694
Trucks	52	44	96
Bicycles	0	0	0
	368	**422**	**790**

Prince of Wales

Totals	**4**	**97**	**18**	**0**
Cars	4	97	16	0
Trucks	0	0	2	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	117	102	219
Trucks	2	0	2
Bicycles	0	0	0
	119	**102**	**221**

Cars - Trucks - Bicycles

Comments

Peak Hour Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Intersection: Prince of Wales Dr & Bankfield Rd
Site Code: 2337700001
Count Date: Nov 23, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Bankfield Rd runs E/W

North Approach

	Out	In	Total
Cars	626	508	1134
Trucks	17	17	34
Bicycles	0	0	0
	643	**525**	**1168**

Prince of Wales

Bicycles	0	0	0	0
Trucks	14	2	1	0
Cars	326	192	108	0
Totals	**340**	**194**	**109**	**0**

East Approach

	Out	In	Total
Cars	522	513	1035
Trucks	53	40	93
Bicycles	0	0	0
	575	**553**	**1128**

Peds: 0

Bankfield Rd

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	7	291	**298**
0	39	393	**432**
0	1	1	**2**

Peds: 0

Peds: 0

Bankfield Rd

Totals	Cars	Trucks	Bicycles
0	0	0	0
88	86	2	0
465	414	51	0
22	22	0	0

Peds: 0

West Approach

	Out	In	Total
Cars	685	752	1437
Trucks	47	66	113
Bicycles	0	0	0
	732	**818**	**1550**

Prince of Wales

Totals	**13**	**139**	**12**	**0**
Cars	12	131	12	0
Trucks	1	8	0	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	155	215	370
Trucks	9	3	12
Bicycles	0	0	0
	164	**218**	**382**

Cars - Trucks - Bicycles

Comments

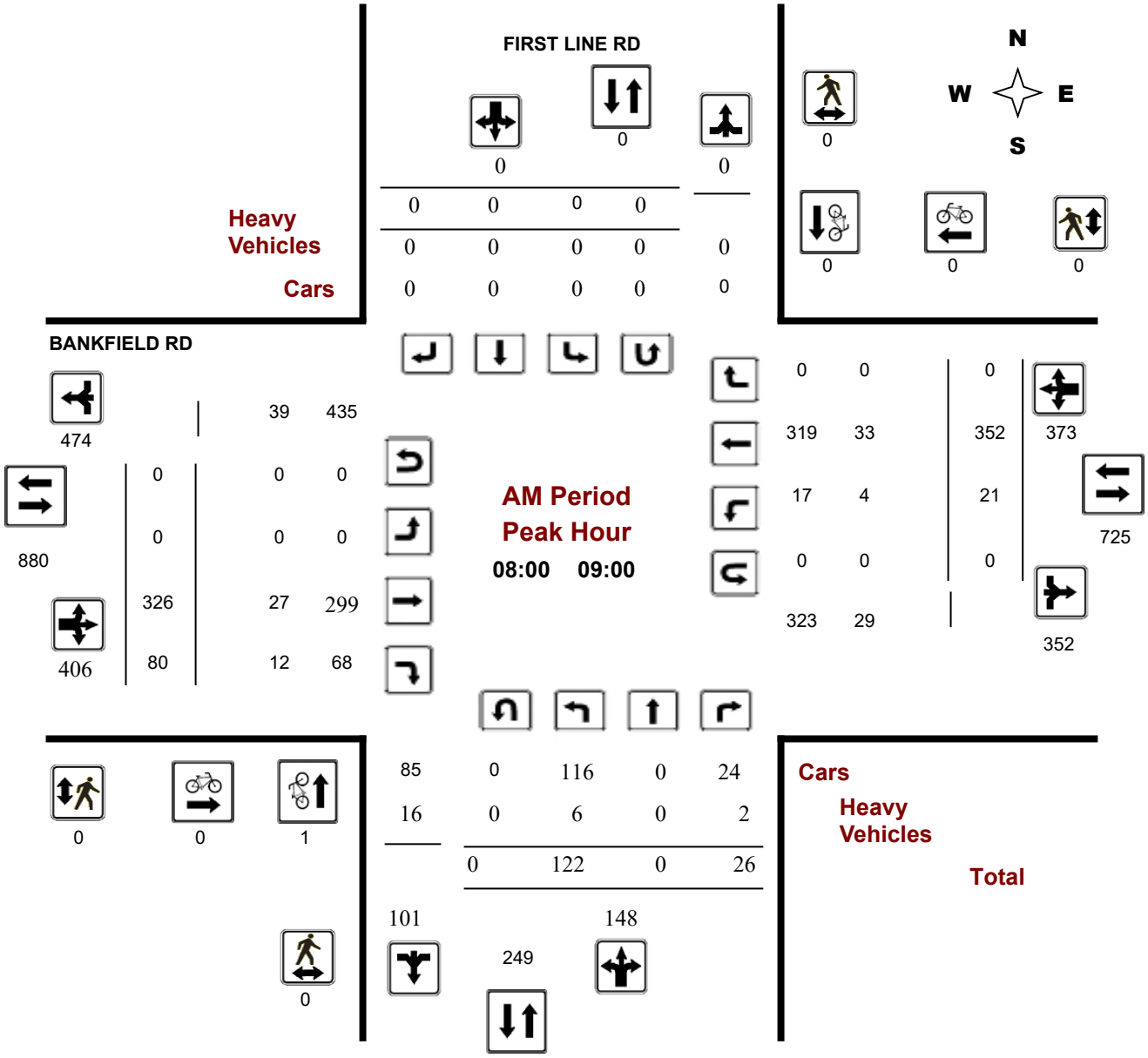
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANKFIELD RD @ FIRST LINE RD

Survey Date: Wednesday, July 05, 2023 **WO No:** 41023

Start Time: 07:00 **Device:** Miovision



Comments

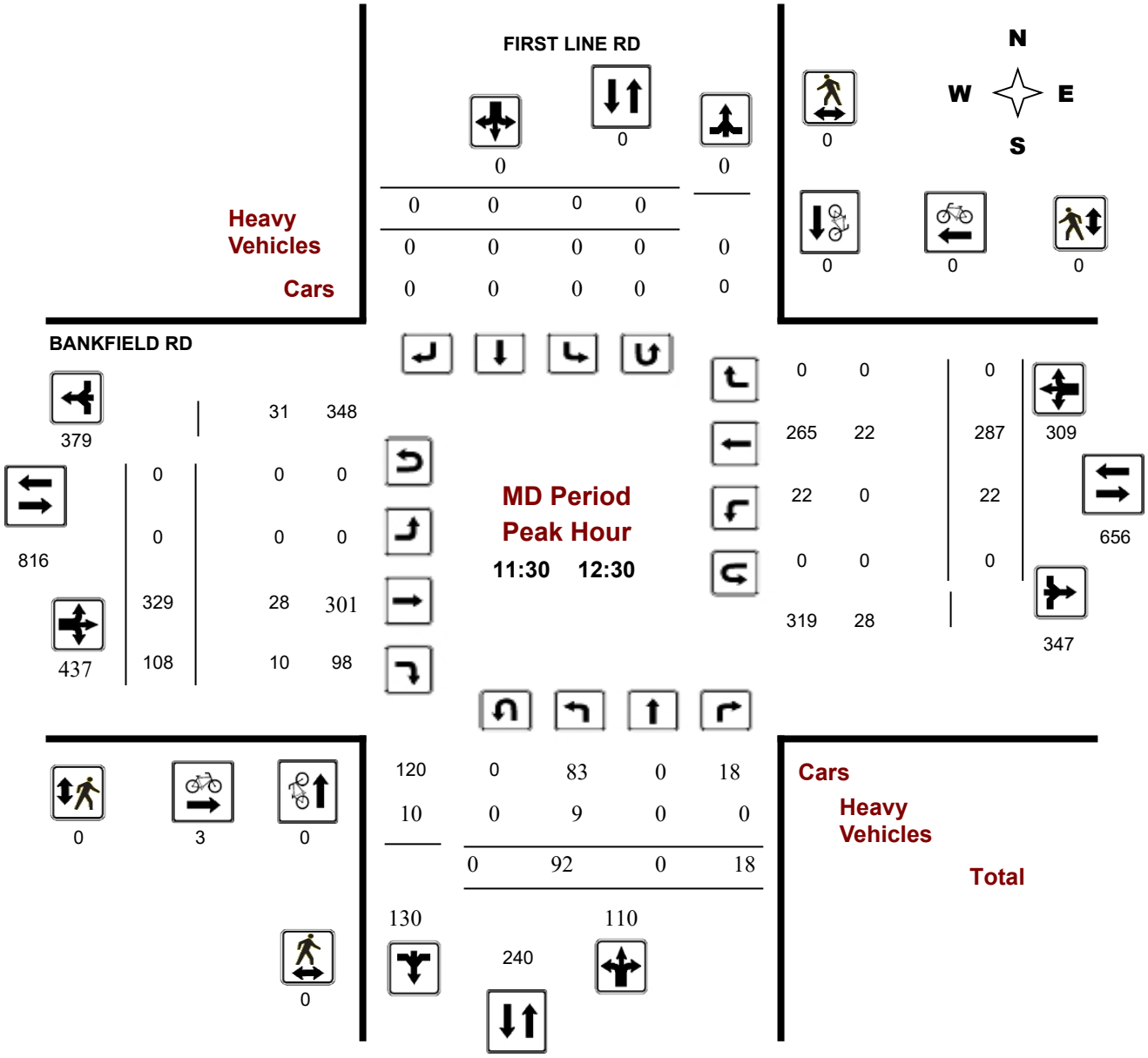
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANKFIELD RD @ FIRST LINE RD

Survey Date: Wednesday, July 05, 2023
Start Time: 07:00

WO No: 41023
Device: Miovision



Comments

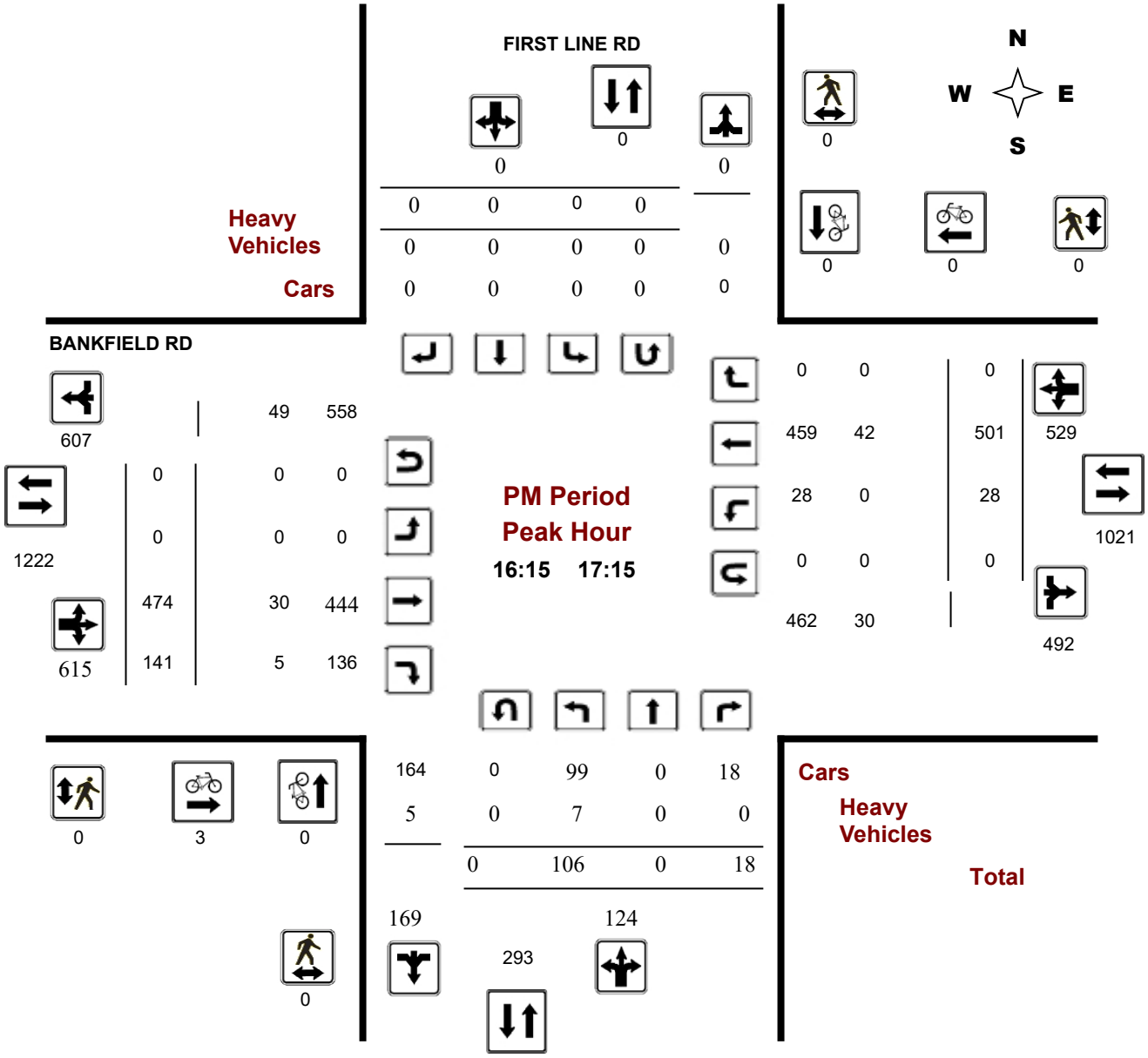
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANKFIELD RD @ FIRST LINE RD

Survey Date: Wednesday, July 05, 2023 **WO No:** 41023

Start Time: 07:00 **Device:** Miovision



Comments

APPENDIX D

Collision Records

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2017 **To:** December 31, 2021

Location: BANKFIELD RD @ PRINCE OF WALES DR

Traffic Control: Traffic signal **Total Collisions:** 29

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Jan-11, Wed,15:38	Clear	Rear end	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Mar-30, Thu,14:20	Clear	Angle	P.D. only	Dry	South	Unknown	Unknown	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2017-Apr-27, Thu,16:04	Clear	Rear end	P.D. only	Dry	South	Going ahead	Delivery van	Other motor vehicle	0
					South	Slowing or stopping	Pick-up truck	Other motor vehicle	
					South	Stopped	Passenger van	Other motor vehicle	
2017-May-29, Mon,08:55	Rain	Turning movement	Non-fatal injury	Wet	North	Turning left	Passenger van	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Jun-11, Sun,08:15	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Jul-14, Fri,12:59	Rain	Rear end	P.D. only	Wet	North	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2017-Aug-08, Tue,15:57	Clear	Rear end	P.D. only	Dry	West	Going ahead	Truck - dump	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2017-Sep-02, Sat,14:30	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2017-Oct-01, Sun,13:27	Clear	Rear end	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Nov-27, Mon,16:01	Clear	Rear end	P.D. only	Ice	East	Stopped	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Pick-up truck	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2017 **To:** December 31, 2021

Location: BANKFIELD RD @ PRINCE OF WALES DR

Traffic Control: Traffic signal **Total Collisions:** 29

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Dec-27, Wed,15:24	Clear	Rear end	P.D. only	Ice	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Feb-20, Tue,13:18	Rain	Turning movement	P.D. only	Wet	South	Overtaking	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Truck - tractor	Other motor vehicle	
2018-Feb-25, Sun,17:30	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jul-06, Fri,13:57	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Aug-02, Thu,08:00	Clear	Sideswipe	P.D. only	Dry	East	Overtaking	Unknown	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Sep-13, Thu,06:26	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2018-Oct-26, Fri,17:03	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Apr-25, Thu,17:46	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Oct-07, Mon,14:50	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Truck and trailer	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Oct-20, Sun,17:00	Clear	Rear end	Non-fatal injury	Ice	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Dec-03, Tue,06:45	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2017 **To:** December 31, 2021

Location: BANKFIELD RD @ PRINCE OF WALES DR

Traffic Control: Traffic signal **Total Collisions:** 29

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2020-Jan-03, Fri,19:16	Clear	Rear end	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2020-Feb-20, Thu,08:50	Clear	Rear end	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2020-Jul-09, Thu,06:16	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2020-Sep-25, Fri,12:02	Clear	Rear end	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	0
					North	Slowing or stopping	Pick-up truck	Other motor vehicle	
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2020-Dec-04, Fri,16:15	Clear	Rear end	P.D. only	Dry	North	Unknown	Unknown	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2021-Aug-17, Tue,13:02	Clear	Rear end	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2021-Aug-26, Thu,16:37	Clear	Angle	Non-fatal injury	Dry	North	Turning right	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Truck and trailer	Other motor vehicle	
2021-Sep-30, Thu,08:45	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2017 **To:** December 31, 2021

Location: BANKFIELD RD btwn PRINCE OF WALES DR & FIRST LINE RD

Traffic Control: No control **Total Collisions:** 7

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Mar-14, Tue,16:35	Snow	Approaching	P.D. only	Loose snow	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2018-Feb-02, Fri,16:44	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
					West	Stopped	Delivery van	Other motor vehicle	
2018-Feb-05, Mon,15:37	Snow	SMV other	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Ran off road	0
2018-Aug-28, Tue,17:38	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Jan-20, Sun,21:01	Snow	SMV other	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Ran off road	0
2020-Jul-04, Sat,18:10	Clear	SMV other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Animal - wild	0
2021-Jul-30, Fri,07:45	Clear	Sideswipe	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2017 **To:** December 31, 2021

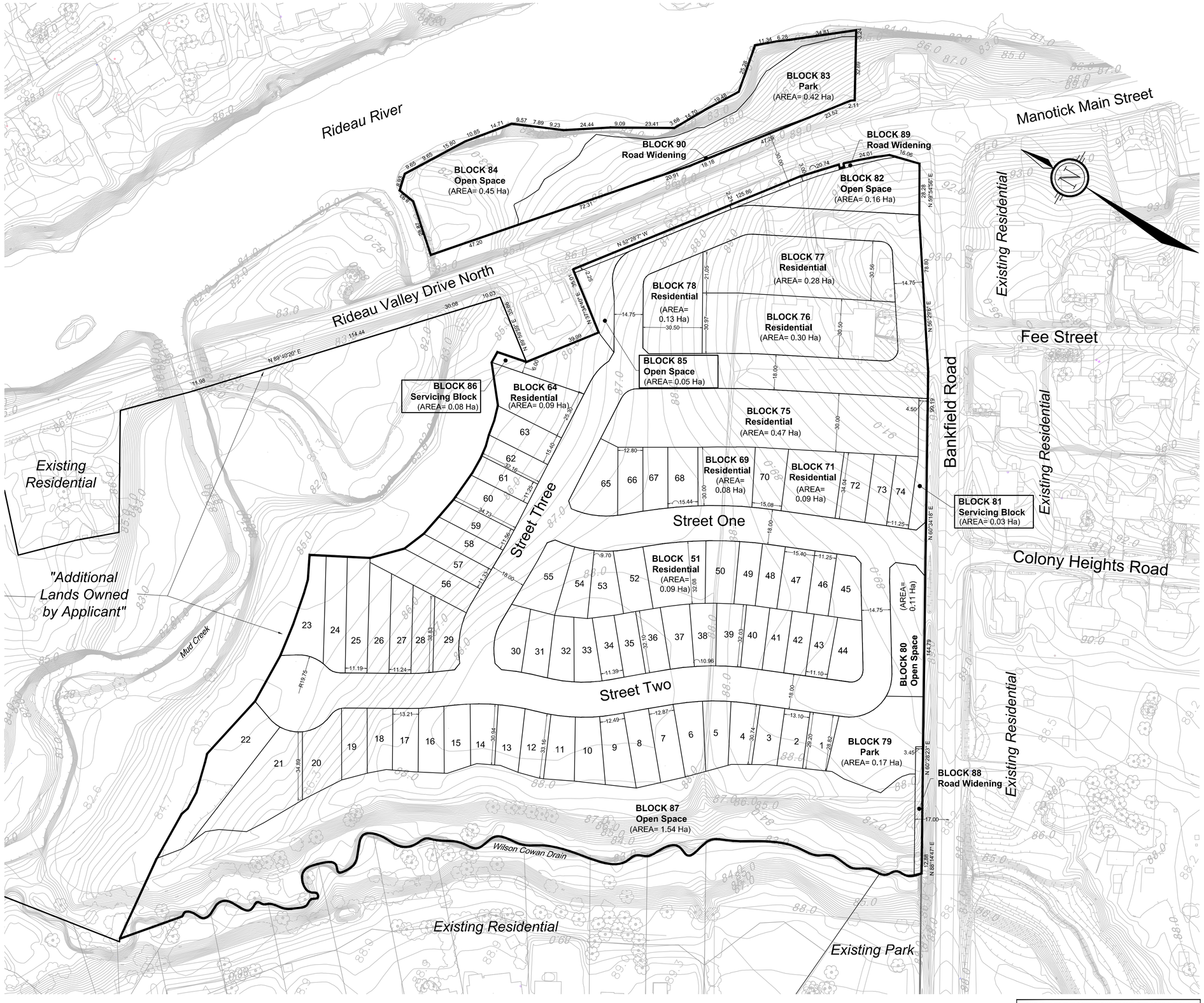
Location: FIRST LINE RD btwn ELIJAH CRT & BANKFIELD RD

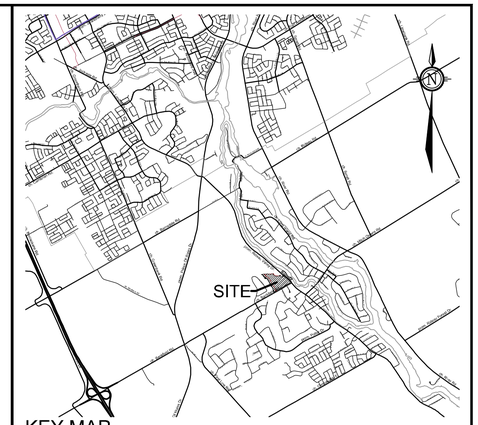
Traffic Control: No control **Total Collisions:** 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Feb-23, Fri,22:15	Freezing Rain	SMV other	P.D. only	Packed snow	South	Going ahead	Passenger van	Skidding/sliding	0

APPENDIX E

Other Area Developments





METRIC : MEASUREMENTS SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

DRAFT PLAN OF SUBDIVISION OF
PART OF LOT 1
CONCESSION 1 & 2 (RIDEAU FRONT)
Geographic Township of Nepean
CITY OF OTTAWA

SCALE:
1 : 1000

DATE: AUGUST, 2022

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJOINING LANDS ARE CORRECTLY SHOWN.

DATED _____

_____
E. H. Herweyer
ONTARIO LAND SURVEYOR

ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
ONTARIO LAND SURVEYORS 22459-21

OWNER'S CERTIFICATE

WE, UNIFORM URBAN DEVELOPMENTS, BEING THE REGISTERED OWNER(S), HEREBY AUTHORIZE NOVATECH TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE CITY OF OTTAWA FOR REVIEW AND APPROVAL.

DATED _____

_____
John MacDougall
Uniform Urban Developments

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51 (17) OF THE PLANNING ACT.

A) The boundaries of the land proposed to be subdivided, certified by an Ontario land Surveyor;
As shown on Draft Plan

B) The locations, widths & names of the proposed highways within the proposed subdivision & of existing highways on which the proposed subdivision abuts;
As shown on Draft Plan

C) On a small keyplan, on a scale of not less than 1cm to 100m, all of the land adjacent to the proposed subdivision that is owned by the applicant or in which the applicant has an interest, every subdivision adjacent to the proposed subdivision & the relationship of the boundaries of the land to be subdivided to the boundaries of the township lot of other original grant of which the land forms the whole part;
As Shown on Draft Plan

D) The purpose for which the proposed lots are to be used;
Residential, Open Space, and Park shown on Draft Plan

E) The existing uses of all adjoining lands;
Residential, Open Space, and Park shown on Draft Plan

F) The approximate dimensions & layout of the proposed lots;
As shown on Draft Plan

G) Natural & artificial features such as buildings or other structures or installations, railways, highways, watercourses, drainage ditches, wetlands & wooded areas within or adjacent to the land proposed to be subdivided;
As shown on Draft Plan

H) The availability and nature of domestic water supplies;
Development will be supplied with full municipal piped water service

I) The nature & porosity of the soil;
xxx

J) Existing contours or elevations as may be required to determine the grade of the highways and the drainage of the land proposed to be subdivided;
Contours shown on Draft Plan

K) The municipal services available or to be available to the land proposed to be subdivided;
Development will be supplied with full sanitary and storm water sewer services.

L) The nature & extent of any restrictions affecting the land proposed to be subdivided, including restrictive covenants or easements. 1994, c. 23, s. 30; 1996, c. 4, s. 29 (3);.
As shown on Draft Plan.

4386 RIDEAU VALLEY DRIVE

SUBJECT TO THE CONDITIONS, IF ANY, SET FORTH IN OUR LETTER DATED _____, THIS DRAFT PLAN IS APPROVED BY THE CITY OF OTTAWA UNDER SECTION 51 OF THE PLANNING ACT THIS _____ DAY OF _____, 20____

_____
ADAM BROWN, MANAGER
DEVELOPMENT REVIEW RURAL ,
PLANNING, INFRASTRUCTURE AND ECONOMIC
DEVELOPMENT DEPARTMENT , CITY OF OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

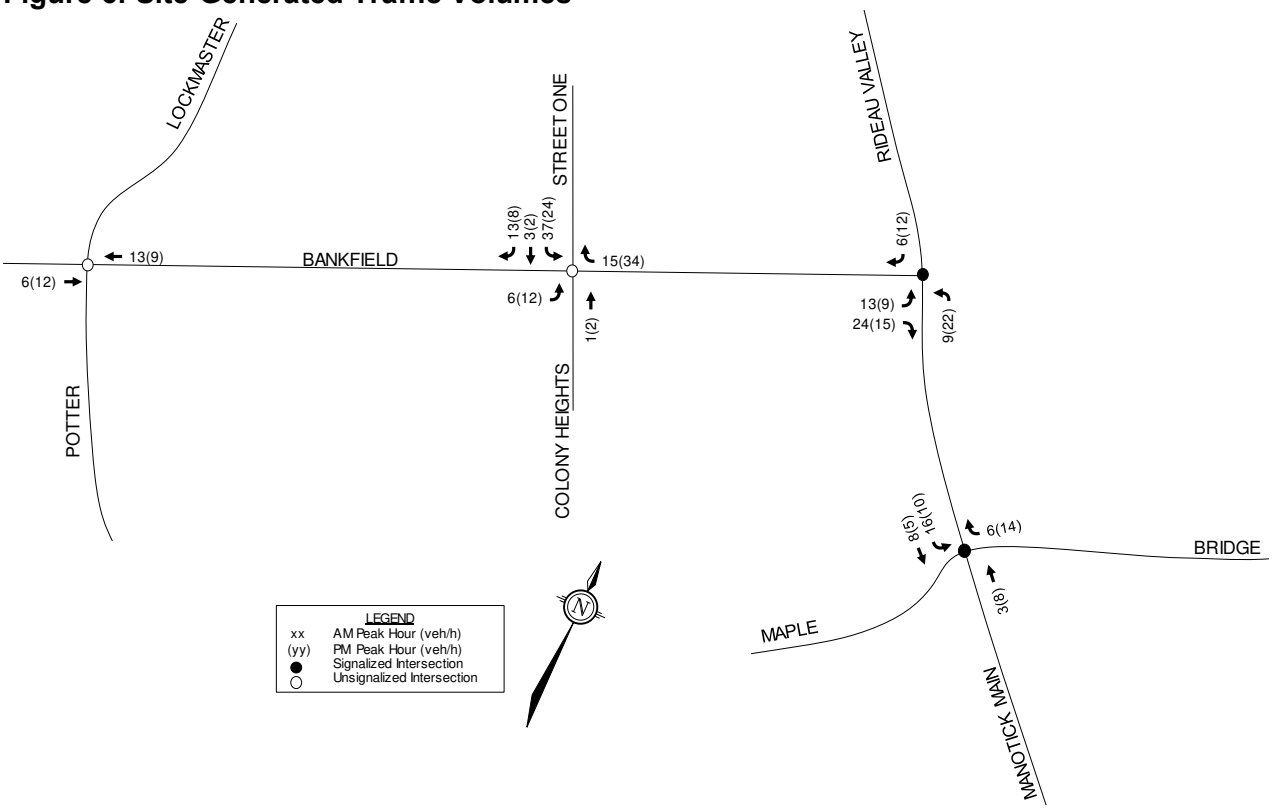
PROJECT No. 121153

M:\2021\121153\CAD\Planning\Draft Plans\121153-DP.dwg, DP-A1, Aug 26, 2022 - 2:10pm, wellos

Dxx-xx-xx-xxxx

#xxxxx

Figure 6: Site-Generated Traffic Volumes



5.2 Background Traffic

5.2.1 Other Area Developments

A description of other study area development is included in Section 4.2.

Buildout of Stage 2 of the Minto Mahogany Subdivision is anticipated by 2027. Traffic generated by this development has been added to the 2028 buildout and 2033 horizon years, using the distribution as outlined in the 2017 TIS. Relevant excerpts from the TIS for Stage 2 of the Minto Mahogany Subdivision are included in **Appendix F**.

A review of available documents on the City's Development Application search tool suggests that traffic generated by the following developments is expected to have a negligible impact on the adjacent roadways:

- The residential redevelopment at 5497 Manotick Main Street
- The residential development at 1164-1166 Highcroft Drive
- The retail/office development at 5514 Manotick Main Street

As the trip generation trigger for these developments was not met, traffic generated by these developments has been considered negligible and has not been explicitly added to background traffic.

APPENDIX F

Signal Timing Plans

Traffic Signal Timing

City of Ottawa, Public Works Department

Traffic Signal Operations Unit

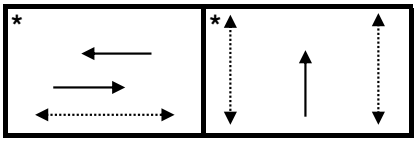
Intersection:	***Main:*** Bankfield	***Side:***	First Line
Controller:	**MS 3200**	**TSD:**	**5926**
Author:	Matthew Anderson	**Date:**	24-Mar-2022

Existing Timing Plans†

	Plan					**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	***Walk***	***DW***	***A+R***
Cycle	Free	Free	Free	Free	Free			
Offset	-	-	-	-	-			
EB Thru	max=66.5	max=66.5	max=66.5	max=51.5	max=66.5	7	17	4.6+1.9
WB Thru	max=66.5	max=66.5	max=66.5	max=51.5	max=66.5	7	17	4.6+1.9
NB Thru	max=36	max=36	max=36	max=21	max=36	7	12	3.7+2.3
SB Thru	max=36	max=36	max=36	max=21	max=36	7	12	3.7+2.3

Phasing Sequence‡

Plan: All



Notes: 1) The EW movements have a min recall of 24s

Schedule

Weekday

Time	Plan
0:15	4
6:30	1
9:30	2
15:00	3
18:30	2
22:00	4

Weekend

Time	Plan
0:15	4
9:00	5
21:30	4

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $62.38 ($55.20 + HST)

Traffic Signal Timing

City of Ottawa, Public Works Department

Traffic Signal Operations Unit

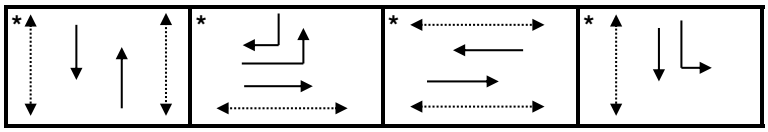
Intersection:	***Main:*** Prince of Wales	***Side:***	Bankfield
Controller:	**ATC 3**	**TSD:**	**6375**
Author:	Matthew Anderson	**Date:**	17-Nov-2023

Existing Timing Plans†

	Plan					**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	***Walk***	***DW***	***A+R***
Cycle	Free	Free	Free	Free	Free			
Offset	-	-	-	-	-			
NB Thru	max=41.5	max=41.5	max=41.5	max=41.5	max=41.5	7	14	4.6+1.9
SB Thru	max=56.5	max=56.5	max=61.5	max=56.5	max=56.5	7	14	4.6+1.9
EB Left	max=21.9	max=21.9	max=26.9	max=21.9	max=21.9	-	-	3.7+3.2
SB Right	max=21.9	max=21.9	max=26.9	max=21.9	max=21.9	-	-	3.7+3.2
EB Thru	max=61.9	max=61.9	max=81.9	max=61.9	max=61.9	7	23	3.7+3.2
WB Thru	max=46.9	max=46.9	max=61.9	max=46.9	max=46.9	7	23	3.7+3.2
SB Left	max=21.5	max=21.5	max=26.5	max=21.5	max=21.5	-	-	4.6+1.9

Phasing Sequence‡

Plan: All



Notes: 1) The NS movements have a min recall of 21s

Schedule

Weekday

Time	Plan
0:10	4
6:00	1
9:30	2
15:00	3
18:30	2
23:00	4

Weekend

Time	Plan
0:10	4
8:00	5
23:00	4

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $62.38 ($55.20 + HST)

APPENDIX G

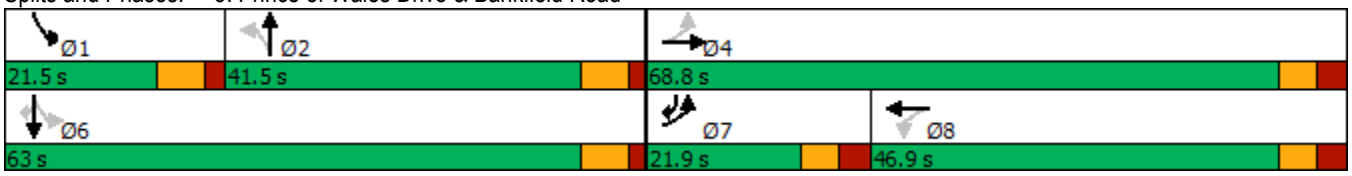
Detailed Analysis Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	313	2	15	391	107	11	219	20	66	83	234
Future Volume (vph)	247	313	2	15	391	107	11	219	20	66	83	234
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	180.0		0.0	200.0		0.0	100.0		0.0	80.0		240.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. 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
Frt		0.999			0.968			0.988				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1783	0	1695	1727	0	1695	1763	0	1695	1784	1517
Flt Permitted	0.143			0.551			0.697			0.294		
Satd. Flow (perm)	255	1783	0	983	1727	0	1244	1763	0	525	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					11			3				167
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		564.6			423.2			424.0			477.4	
Travel Time (s)		33.9			25.4			19.1			21.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	274	348	2	17	434	119	12	243	22	73	92	260
Shared Lane Traffic (%)												
Lane Group Flow (vph)	274	350	0	17	553	0	12	265	0	73	92	260
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	7	4			8			2		1	6	7
Permitted Phases	4			8			2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		21.0	21.0		5.0	21.0	5.0
Minimum Split (s)	11.9	36.9		36.9	36.9		27.5	27.5		11.5	27.5	11.9
Total Split (s)	21.9	68.8		46.9	46.9		41.5	41.5		21.5	63.0	21.9
Total Split (%)	16.6%	52.2%		35.6%	35.6%		31.5%	31.5%		16.3%	47.8%	16.6%
Maximum Green (s)	15.0	61.9		40.0	40.0		35.0	35.0		15.0	56.5	15.0
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6		4.6	4.6	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		1.9	1.9		1.9	1.9	3.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.5	6.5		6.5	6.5	6.9
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		23.0		23.0	23.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	62.4	62.4		40.3	40.3		24.0	24.0		36.3	36.3	58.0
Actuated g/C Ratio	0.56	0.56		0.36	0.36		0.21	0.21		0.32	0.32	0.52
v/c Ratio	0.82	0.35		0.05	0.88		0.05	0.70		0.28	0.16	0.30
Control Delay	40.5	16.7		27.7	51.8		36.7	52.0		28.2	26.5	6.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	40.5	16.7		27.7	51.8		36.7	52.0		28.2	26.5	6.0
LOS	D	B		C	D		D	D		C	C	A
Approach Delay		27.2			51.1			51.3			14.3	
Approach LOS		C			D			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 131.8			
Actuated Cycle Length: 112.2			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 35.0		Intersection LOS: D	
Intersection Capacity Utilization 100.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Prince of Wales Drive & Bankfield Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	326	80	21	352	122	26
Future Volume (vph)	326	80	21	352	122	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	180.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			100.0		7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.973				0.976	
Flt Protected			0.950		0.960	
Satd. Flow (prot)	1736	0	1695	1784	1672	0
Flt Permitted			0.477		0.960	
Satd. Flow (perm)	1736	0	851	1784	1672	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	21				11	
Link Speed (k/h)	60			60	60	
Link Distance (m)	423.2			465.4	562.9	
Travel Time (s)	25.4			27.9	33.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	362	89	23	391	136	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	451	0	23	391	165	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	24.0		24.0	24.0	10.0	
Minimum Split (s)	30.5		30.5	30.5	25.0	
Total Split (s)	66.5		66.5	66.5	36.0	
Total Split (%)	64.9%		64.9%	64.9%	35.1%	
Maximum Green (s)	60.0		60.0	60.0	30.0	
Yellow Time (s)	4.6		4.6	4.6	3.7	
All-Red Time (s)	1.9		1.9	1.9	2.3	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.5		6.5	6.5	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Min		Min	Min	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	17.0		17.0	17.0	12.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	25.3		25.3	25.3	10.8	
Actuated g/C Ratio	0.52		0.52	0.52	0.22	
v/c Ratio	0.49		0.05	0.42	0.43	
Control Delay	9.9		6.9	9.3	18.6	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	9.9		6.9	9.3	18.6	
LOS	A		A	A	B	
Approach Delay	9.9			9.2	18.6	
Approach LOS	A			A	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 102.5			
Actuated Cycle Length: 48.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 11.0		Intersection LOS: B	
Intersection Capacity Utilization 42.5%		ICU Level of Service A	
Analysis Period (min) 15			

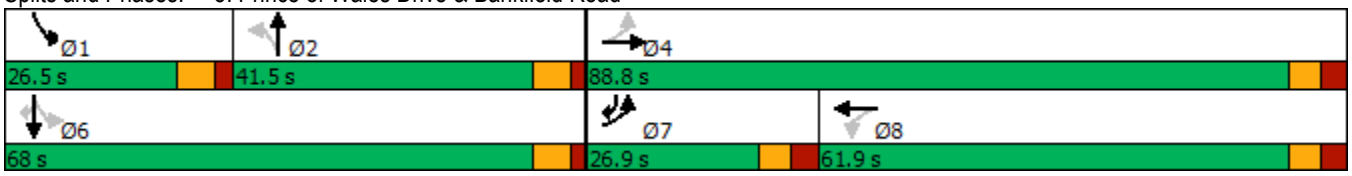
Splits and Phases: 7: First Line Road & Bankfield Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	298	432	2	22	465	88	13	139	12	109	194	340
Future Volume (vph)	298	432	2	22	465	88	13	139	12	109	194	340
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	180.0		0.0	200.0		0.0	100.0		0.0	80.0		240.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. 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
Frt		0.999			0.976			0.988				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1783	0	1695	1741	0	1695	1763	0	1695	1784	1517
Flt Permitted	0.135			0.488			0.623			0.383		
Satd. Flow (perm)	241	1783	0	871	1741	0	1112	1763	0	683	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7			2				157
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		564.6			423.2			424.0			477.4	
Travel Time (s)		33.9			25.4			19.1			21.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	331	480	2	24	517	98	14	154	13	121	216	378
Shared Lane Traffic (%)												
Lane Group Flow (vph)	331	482	0	24	615	0	14	167	0	121	216	378
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	7	4			8			2		1	6	7
Permitted Phases	4			8			2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		21.0	21.0		5.0	21.0	5.0
Minimum Split (s)	11.9	36.9		36.9	36.9		27.5	27.5		11.5	27.5	11.9
Total Split (s)	26.9	88.8		61.9	61.9		41.5	41.5		26.5	68.0	26.9
Total Split (%)	17.2%	56.6%		39.5%	39.5%		26.5%	26.5%		16.9%	43.4%	17.2%
Maximum Green (s)	20.0	81.9		55.0	55.0		35.0	35.0		20.0	61.5	20.0
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6		4.6	4.6	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		1.9	1.9		1.9	1.9	3.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.5	6.5		6.5	6.5	6.9
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		23.0		23.0	23.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	81.4	81.4		54.5	54.5		21.8	21.8		41.1	41.1	67.6
Actuated g/C Ratio	0.60	0.60		0.40	0.40		0.16	0.16		0.30	0.30	0.50
v/c Ratio	0.92	0.45		0.07	0.88		0.08	0.59		0.40	0.40	0.45
Control Delay	58.8	17.2		27.3	52.6		51.2	62.2		39.7	40.1	14.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	58.8	17.2		27.3	52.6		51.2	62.2		39.7	40.1	14.1
LOS	E	B		C	D		D	E		D	D	B
Approach Delay		34.1			51.7			61.4			26.3	
Approach LOS		C			D			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 156.8			
Actuated Cycle Length: 135.9			
Natural Cycle: 110			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 38.6		Intersection LOS: D	
Intersection Capacity Utilization 106.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Prince of Wales Drive & Bankfield Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	474	141	28	501	106	18
Future Volume (vph)	474	141	28	501	106	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	180.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			100.0		7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.969				0.980	
Flt Protected			0.950		0.959	
Satd. Flow (prot)	1729	0	1695	1784	1677	0
Flt Permitted			0.297		0.959	
Satd. Flow (perm)	1729	0	530	1784	1677	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	25				8	
Link Speed (k/h)	60			60	60	
Link Distance (m)	423.2			465.4	562.9	
Travel Time (s)	25.4			27.9	33.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	527	157	31	557	118	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	684	0	31	557	138	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	24.0		24.0	24.0	10.0	
Minimum Split (s)	30.5		30.5	30.5	25.0	
Total Split (s)	66.5		66.5	66.5	36.0	
Total Split (%)	64.9%		64.9%	64.9%	35.1%	
Maximum Green (s)	60.0		60.0	60.0	30.0	
Yellow Time (s)	4.6		4.6	4.6	3.7	
All-Red Time (s)	1.9		1.9	1.9	2.3	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.5		6.5	6.5	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Min		Min	Min	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	17.0		17.0	17.0	12.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	31.1		31.1	31.1	11.6	
Actuated g/C Ratio	0.56		0.56	0.56	0.21	
v/c Ratio	0.70		0.10	0.56	0.39	
Control Delay	13.3		7.1	10.6	21.6	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	13.3		7.1	10.6	21.6	
LOS	B		A	B	C	
Approach Delay	13.3			10.4	21.6	
Approach LOS	B			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 102.5			
Actuated Cycle Length: 55.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 12.9		Intersection LOS: B	
Intersection Capacity Utilization 54.1%		ICU Level of Service A	
Analysis Period (min) 15			

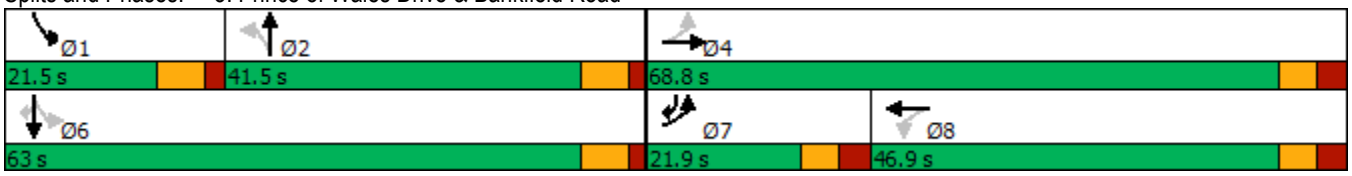
Splits and Phases: 7: First Line Road & Bankfield Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	318	2	15	397	107	11	222	20	66	84	234
Future Volume (vph)	247	318	2	15	397	107	11	222	20	66	84	234
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	180.0		0.0	200.0		0.0	100.0		0.0	80.0		240.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. 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
Frt		0.999			0.968			0.988				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1783	0	1695	1727	0	1695	1763	0	1695	1784	1517
Flt Permitted	0.169			0.567			0.702			0.336		
Satd. Flow (perm)	302	1783	0	1012	1727	0	1253	1763	0	600	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					11			3				197
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		564.6			423.2			424.0			477.4	
Travel Time (s)		33.9			25.4			19.1			21.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	247	318	2	15	397	107	11	222	20	66	84	234
Shared Lane Traffic (%)												
Lane Group Flow (vph)	247	320	0	15	504	0	11	242	0	66	84	234
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	7	4			8			2		1	6	7
Permitted Phases	4			8			2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		21.0	21.0		5.0	21.0	5.0
Minimum Split (s)	11.9	36.9		36.9	36.9		27.5	27.5		11.5	27.5	11.9
Total Split (s)	21.9	68.8		46.9	46.9		41.5	41.5		21.5	63.0	21.9
Total Split (%)	16.6%	52.2%		35.6%	35.6%		31.5%	31.5%		16.3%	47.8%	16.6%
Maximum Green (s)	15.0	61.9		40.0	40.0		35.0	35.0		15.0	56.5	15.0
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6		4.6	4.6	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		1.9	1.9		1.9	1.9	3.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.5	6.5		6.5	6.5	6.9
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		23.0		23.0	23.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	58.6	58.6		36.3	36.3		23.2	23.2		35.0	35.0	56.9
Actuated g/C Ratio	0.55	0.55		0.34	0.34		0.22	0.22		0.33	0.33	0.53
v/c Ratio	0.68	0.33		0.04	0.85		0.04	0.63		0.23	0.14	0.26
Control Delay	26.0	15.8		26.6	48.3		37.0	48.2		27.6	26.3	3.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	26.0	15.8		26.6	48.3		37.0	48.2		27.6	26.3	3.8
LOS	C	B		C	D		D	D		C	C	A
Approach Delay		20.3			47.7			47.7			12.8	
Approach LOS		C			D			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 131.8			
Actuated Cycle Length: 107.3			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 30.9		Intersection LOS: C	
Intersection Capacity Utilization 100.7%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Prince of Wales Drive & Bankfield Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	331	80	21	357	122	26
Future Volume (vph)	331	80	21	357	122	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	180.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			100.0		7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.974				0.976	
Flt Protected			0.950		0.960	
Satd. Flow (prot)	1738	0	1695	1784	1672	0
Flt Permitted			0.515		0.960	
Satd. Flow (perm)	1738	0	919	1784	1672	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	20				11	
Link Speed (k/h)	60			60	60	
Link Distance (m)	423.2			465.4	562.9	
Travel Time (s)	25.4			27.9	33.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	331	80	21	357	122	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	411	0	21	357	148	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	24.0		24.0	24.0	10.0	
Minimum Split (s)	30.5		30.5	30.5	25.0	
Total Split (s)	66.5		66.5	66.5	36.0	
Total Split (%)	64.9%		64.9%	64.9%	35.1%	
Maximum Green (s)	60.0		60.0	60.0	30.0	
Yellow Time (s)	4.6		4.6	4.6	3.7	
All-Red Time (s)	1.9		1.9	1.9	2.3	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.5		6.5	6.5	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Min		Min	Min	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	17.0		17.0	17.0	12.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	26.5		26.5	26.5	10.5	
Actuated g/C Ratio	0.53		0.53	0.53	0.21	
v/c Ratio	0.44		0.04	0.38	0.41	
Control Delay	8.8		6.4	8.5	18.3	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	8.8		6.4	8.5	18.3	
LOS	A		A	A	B	
Approach Delay	8.8			8.4	18.3	
Approach LOS	A			A	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 102.5			
Actuated Cycle Length: 49.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 10.2		Intersection LOS: B	
Intersection Capacity Utilization 42.7%		ICU Level of Service A	
Analysis Period (min) 15			

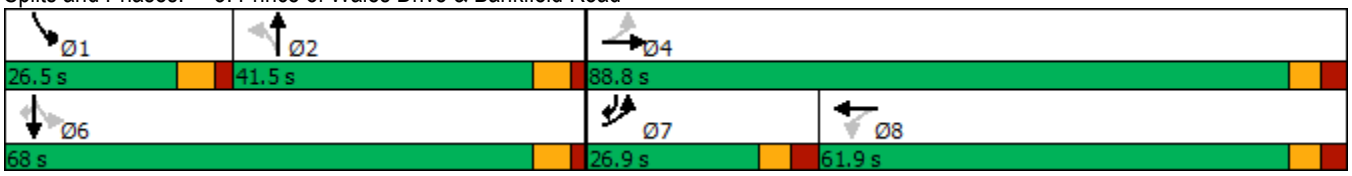
Splits and Phases: 7: First Line Road & Bankfield Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	298	438	2	22	472	88	13	141	12	109	197	340
Future Volume (vph)	298	438	2	22	472	88	13	141	12	109	197	340
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	180.0		0.0	200.0		0.0	100.0		0.0	80.0		240.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. 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
Frt		0.999			0.976			0.988				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1783	0	1695	1741	0	1695	1763	0	1695	1784	1517
Flt Permitted	0.145			0.507			0.634			0.430		
Satd. Flow (perm)	259	1783	0	905	1741	0	1131	1763	0	767	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7			3				187
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		564.6			423.2			424.0			477.4	
Travel Time (s)		33.9			25.4			19.1			21.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	298	438	2	22	472	88	13	141	12	109	197	340
Shared Lane Traffic (%)												
Lane Group Flow (vph)	298	440	0	22	560	0	13	153	0	109	197	340
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	7	4			8			2		1	6	7
Permitted Phases	4			8			2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		21.0	21.0		5.0	21.0	5.0
Minimum Split (s)	11.9	36.9		36.9	36.9		27.5	27.5		11.5	27.5	11.9
Total Split (s)	26.9	88.8		61.9	61.9		41.5	41.5		26.5	68.0	26.9
Total Split (%)	17.2%	56.6%		39.5%	39.5%		26.5%	26.5%		16.9%	43.4%	17.2%
Maximum Green (s)	20.0	81.9		55.0	55.0		35.0	35.0		20.0	61.5	20.0
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6		4.6	4.6	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		1.9	1.9		1.9	1.9	3.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.5	6.5		6.5	6.5	6.9
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		23.0		23.0	23.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	73.6	73.6		46.4	46.4		21.6	21.6		39.9	39.9	66.7
Actuated g/C Ratio	0.58	0.58		0.37	0.37		0.17	0.17		0.31	0.31	0.53
v/c Ratio	0.79	0.43		0.07	0.88		0.07	0.51		0.33	0.35	0.38
Control Delay	37.7	16.6		26.9	53.0		49.9	56.0		36.5	37.0	9.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	37.7	16.6		26.9	53.0		49.9	56.0		36.5	37.0	9.6
LOS	D	B		C	D		D	E		D	D	A
Approach Delay		25.1			52.0			55.5			22.5	
Approach LOS		C			D			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 156.8			
Actuated Cycle Length: 127			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 34.0		Intersection LOS: C	
Intersection Capacity Utilization 106.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Prince of Wales Drive & Bankfield Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	481	141	28	509	106	18
Future Volume (vph)	481	141	28	509	106	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	180.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			100.0		7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.969				0.980	
Flt Protected			0.950		0.959	
Satd. Flow (prot)	1729	0	1695	1784	1677	0
Flt Permitted			0.360		0.959	
Satd. Flow (perm)	1729	0	642	1784	1677	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	25				8	
Link Speed (k/h)	60			60	60	
Link Distance (m)	423.2			465.4	562.9	
Travel Time (s)	25.4			27.9	33.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	481	141	28	509	106	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	622	0	28	509	124	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	24.0		24.0	24.0	10.0	
Minimum Split (s)	30.5		30.5	30.5	25.0	
Total Split (s)	66.5		66.5	66.5	36.0	
Total Split (%)	64.9%		64.9%	64.9%	35.1%	
Maximum Green (s)	60.0		60.0	60.0	30.0	
Yellow Time (s)	4.6		4.6	4.6	3.7	
All-Red Time (s)	1.9		1.9	1.9	2.3	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.5		6.5	6.5	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Min		Min	Min	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	17.0		17.0	17.0	12.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	30.7		30.7	30.7	10.8	
Actuated g/C Ratio	0.62		0.62	0.62	0.22	
v/c Ratio	0.57		0.07	0.46	0.33	
Control Delay	10.3		6.6	8.9	19.0	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	10.3		6.6	8.9	19.0	
LOS	B		A	A	B	
Approach Delay	10.3			8.8	19.0	
Approach LOS	B			A	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 102.5			
Actuated Cycle Length: 49.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 54.5%		ICU Level of Service A	
Analysis Period (min) 15			

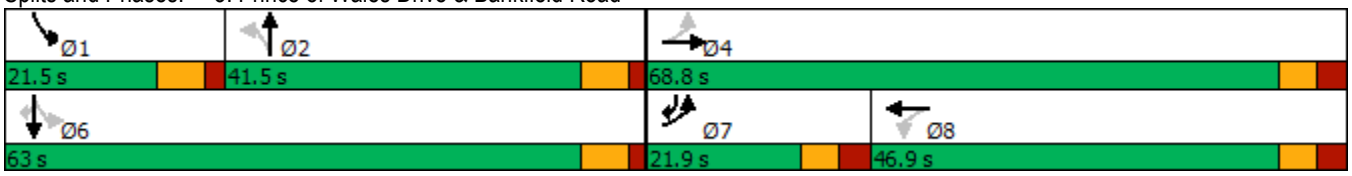
Splits and Phases: 7: First Line Road & Bankfield Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	347	2	15	439	107	11	239	20	66	90	234
Future Volume (vph)	247	347	2	15	439	107	11	239	20	66	90	234
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	180.0		0.0	200.0		0.0	100.0		0.0	80.0		240.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. 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
Frt		0.999			0.971			0.988				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1783	0	1695	1733	0	1695	1763	0	1695	1784	1517
Flt Permitted	0.152			0.552			0.699			0.300		
Satd. Flow (perm)	271	1783	0	985	1733	0	1247	1763	0	535	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					10			3				163
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		564.6			423.2			424.0			477.4	
Travel Time (s)		33.9			25.4			19.1			21.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	247	347	2	15	439	107	11	239	20	66	90	234
Shared Lane Traffic (%)												
Lane Group Flow (vph)	247	349	0	15	546	0	11	259	0	66	90	234
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	7	4			8			2		1	6	7
Permitted Phases	4			8			2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		21.0	21.0		5.0	21.0	5.0
Minimum Split (s)	11.9	36.9		36.9	36.9		27.5	27.5		11.5	27.5	11.9
Total Split (s)	21.9	68.8		46.9	46.9		41.5	41.5		21.5	63.0	21.9
Total Split (%)	16.6%	52.2%		35.6%	35.6%		31.5%	31.5%		16.3%	47.8%	16.6%
Maximum Green (s)	15.0	61.9		40.0	40.0		35.0	35.0		15.0	56.5	15.0
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6		4.6	4.6	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		1.9	1.9		1.9	1.9	3.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.5	6.5		6.5	6.5	6.9
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		23.0		23.0	23.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	62.3	62.3		40.3	40.3		23.6	23.6		35.7	35.7	57.3
Actuated g/C Ratio	0.56	0.56		0.36	0.36		0.21	0.21		0.32	0.32	0.51
v/c Ratio	0.72	0.35		0.04	0.86		0.04	0.69		0.25	0.16	0.27
Control Delay	30.0	16.3		27.1	49.5		36.6	51.5		28.0	26.7	5.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	30.0	16.3		27.1	49.5		36.6	51.5		28.0	26.7	5.3
LOS	C	B		C	D		D	D		C	C	A
Approach Delay		22.0			48.9			50.9			14.1	
Approach LOS		C			D			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 131.8			
Actuated Cycle Length: 111.5			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 32.9		Intersection LOS: C	
Intersection Capacity Utilization 103.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Prince of Wales Drive & Bankfield Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	361	80	21	397	122	26
Future Volume (vph)	361	80	21	397	122	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	180.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			100.0		7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.976				0.976	
Flt Protected			0.950		0.960	
Satd. Flow (prot)	1741	0	1695	1784	1672	0
Flt Permitted			0.488		0.960	
Satd. Flow (perm)	1741	0	871	1784	1672	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	19				11	
Link Speed (k/h)	60			60	60	
Link Distance (m)	423.2			465.4	562.9	
Travel Time (s)	25.4			27.9	33.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	361	80	21	397	122	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	441	0	21	397	148	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	24.0		24.0	24.0	10.0	
Minimum Split (s)	30.5		30.5	30.5	25.0	
Total Split (s)	66.5		66.5	66.5	36.0	
Total Split (%)	64.9%		64.9%	64.9%	35.1%	
Maximum Green (s)	60.0		60.0	60.0	30.0	
Yellow Time (s)	4.6		4.6	4.6	3.7	
All-Red Time (s)	1.9		1.9	1.9	2.3	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.5		6.5	6.5	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Min		Min	Min	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	17.0		17.0	17.0	12.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	26.5		26.5	26.5	10.6	
Actuated g/C Ratio	0.53		0.53	0.53	0.21	
v/c Ratio	0.47		0.05	0.42	0.41	
Control Delay	9.3		6.5	9.0	18.2	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	9.3		6.5	9.0	18.2	
LOS	A		A	A	B	
Approach Delay	9.3			8.9	18.2	
Approach LOS	A			A	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 102.5			
Actuated Cycle Length: 49.8			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 44.4%		ICU Level of Service A	
Analysis Period (min) 15			

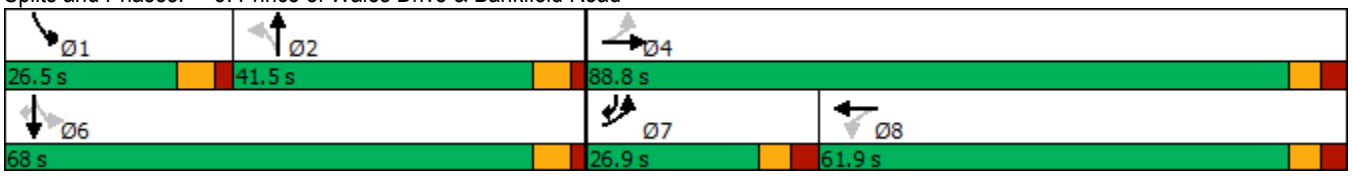
Splits and Phases: 7: First Line Road & Bankfield Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	298	483	2	22	516	88	13	152	12	109	211	340
Future Volume (vph)	298	483	2	22	516	88	13	152	12	109	211	340
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	180.0		0.0	200.0		0.0	100.0		0.0	80.0		240.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. 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
Frt		0.999			0.978			0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1783	0	1695	1745	0	1695	1765	0	1695	1784	1517
Flt Permitted	0.139			0.487			0.626			0.394		
Satd. Flow (perm)	248	1783	0	869	1745	0	1117	1765	0	703	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					6			2				158
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		564.6			423.2			424.0			477.4	
Travel Time (s)		33.9			25.4			19.1			21.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	298	483	2	22	516	88	13	152	12	109	211	340
Shared Lane Traffic (%)												
Lane Group Flow (vph)	298	485	0	22	604	0	13	164	0	109	211	340
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	7	4			8			2		1	6	7
Permitted Phases	4			8			2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		21.0	21.0		5.0	21.0	5.0
Minimum Split (s)	11.9	36.9		36.9	36.9		27.5	27.5		11.5	27.5	11.9
Total Split (s)	26.9	88.8		61.9	61.9		41.5	41.5		26.5	68.0	26.9
Total Split (%)	17.2%	56.6%		39.5%	39.5%		26.5%	26.5%		16.9%	43.4%	17.2%
Maximum Green (s)	20.0	81.9		55.0	55.0		35.0	35.0		20.0	61.5	20.0
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6		4.6	4.6	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		1.9	1.9		1.9	1.9	3.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.5	6.5		6.5	6.5	6.9
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		23.0		23.0	23.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	79.9	79.9		52.9	52.9		21.7	21.7		40.2	40.2	66.8
Actuated g/C Ratio	0.60	0.60		0.40	0.40		0.16	0.16		0.30	0.30	0.50
v/c Ratio	0.82	0.45		0.06	0.87		0.07	0.57		0.36	0.39	0.41
Control Delay	41.1	16.9		26.8	51.6		50.6	60.6		38.8	39.7	12.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	41.1	16.9		26.8	51.6		50.6	60.6		38.8	39.7	12.3
LOS	D	B		C	D		D	E		D	D	B
Approach Delay		26.1			50.8			59.8			25.4	
Approach LOS		C			D			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 156.8			
Actuated Cycle Length: 133.5			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 35.4		Intersection LOS: D	
Intersection Capacity Utilization 109.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 3: Prince of Wales Drive & Bankfield Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	529	141	28	555	106	18
Future Volume (vph)	529	141	28	555	106	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	180.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			100.0		7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.972				0.980	
Flt Protected			0.950		0.959	
Satd. Flow (prot)	1734	0	1695	1784	1677	0
Flt Permitted			0.328		0.959	
Satd. Flow (perm)	1734	0	585	1784	1677	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	23				8	
Link Speed (k/h)	60			60	60	
Link Distance (m)	423.2			465.4	562.9	
Travel Time (s)	25.4			27.9	33.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	529	141	28	555	106	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	670	0	28	555	124	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	24.0		24.0	24.0	10.0	
Minimum Split (s)	30.5		30.5	30.5	25.0	
Total Split (s)	66.5		66.5	66.5	36.0	
Total Split (%)	64.9%		64.9%	64.9%	35.1%	
Maximum Green (s)	60.0		60.0	60.0	30.0	
Yellow Time (s)	4.6		4.6	4.6	3.7	
All-Red Time (s)	1.9		1.9	1.9	2.3	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.5		6.5	6.5	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Min		Min	Min	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	17.0		17.0	17.0	12.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	32.3		32.3	32.3	11.1	
Actuated g/C Ratio	0.63		0.63	0.63	0.22	
v/c Ratio	0.61		0.08	0.49	0.34	
Control Delay	10.9		6.5	9.2	20.3	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	10.9		6.5	9.2	20.3	
LOS	B		A	A	C	
Approach Delay	10.9			9.1	20.3	
Approach LOS	B			A	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 102.5			
Actuated Cycle Length: 51.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 11.0		Intersection LOS: B	
Intersection Capacity Utilization 57.2%		ICU Level of Service B	
Analysis Period (min) 15			

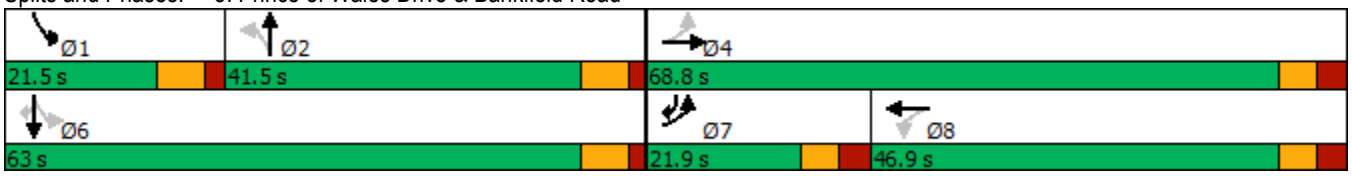
Splits and Phases: 7: First Line Road & Bankfield Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	332	2	16	402	109	11	222	22	72	84	234
Future Volume (vph)	247	332	2	16	402	109	11	222	22	72	84	234
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	180.0		0.0	200.0		0.0	100.0		0.0	80.0		240.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. 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
Frt		0.999			0.968			0.986				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1783	0	1695	1727	0	1695	1759	0	1695	1784	1517
Flt Permitted	0.166			0.559			0.702			0.330		
Satd. Flow (perm)	296	1783	0	997	1727	0	1253	1759	0	589	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					11			4				192
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		564.6			143.8			424.0			477.4	
Travel Time (s)		33.9			8.6			19.1			21.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	247	332	2	16	402	109	11	222	22	72	84	234
Shared Lane Traffic (%)												
Lane Group Flow (vph)	247	334	0	16	511	0	11	244	0	72	84	234
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	7	4			8			2		1	6	7
Permitted Phases	4			8			2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		21.0	21.0		5.0	21.0	5.0
Minimum Split (s)	11.9	36.9		36.9	36.9		27.5	27.5		11.5	27.5	11.9
Total Split (s)	21.9	68.8		46.9	46.9		41.5	41.5		21.5	63.0	21.9
Total Split (%)	16.6%	52.2%		35.6%	35.6%		31.5%	31.5%		16.3%	47.8%	16.6%
Maximum Green (s)	15.0	61.9		40.0	40.0		35.0	35.0		15.0	56.5	15.0
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6		4.6	4.6	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		1.9	1.9		1.9	1.9	3.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.5	6.5		6.5	6.5	6.9
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		23.0		23.0	23.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	59.4	59.4		37.1	37.1		23.2	23.2		35.4	35.4	57.2
Actuated g/C Ratio	0.55	0.55		0.34	0.34		0.21	0.21		0.33	0.33	0.53
v/c Ratio	0.69	0.34		0.05	0.85		0.04	0.64		0.26	0.14	0.26
Control Delay	26.7	16.2		26.9	48.6		37.2	48.7		27.9	26.4	3.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	26.7	16.2		26.9	48.6		37.2	48.7		27.9	26.4	3.9
LOS	C	B		C	D		D	D		C	C	A
Approach Delay		20.7			47.9			48.2			13.2	
Approach LOS		C			D			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 131.8			
Actuated Cycle Length: 108.4			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 31.2		Intersection LOS: C	
Intersection Capacity Utilization 101.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Prince of Wales Drive & Bankfield Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	335	80	21	366	126	26
Future Volume (vph)	335	80	21	366	126	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	180.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			100.0		7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.974				0.977	
Flt Protected			0.950		0.960	
Satd. Flow (prot)	1738	0	1695	1784	1674	0
Flt Permitted			0.511		0.960	
Satd. Flow (perm)	1738	0	912	1784	1674	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	20				10	
Link Speed (k/h)	60			60	60	
Link Distance (m)	279.4			465.4	562.9	
Travel Time (s)	16.8			27.9	33.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	335	80	21	366	126	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	415	0	21	366	152	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	24.0		24.0	24.0	10.0	
Minimum Split (s)	30.5		30.5	30.5	25.0	
Total Split (s)	66.5		66.5	66.5	36.0	
Total Split (%)	64.9%		64.9%	64.9%	35.1%	
Maximum Green (s)	60.0		60.0	60.0	30.0	
Yellow Time (s)	4.6		4.6	4.6	3.7	
All-Red Time (s)	1.9		1.9	1.9	2.3	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.5		6.5	6.5	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Min		Min	Min	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	17.0		17.0	17.0	12.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	26.3		26.3	26.3	10.6	
Actuated g/C Ratio	0.53		0.53	0.53	0.21	
v/c Ratio	0.45		0.04	0.39	0.41	
Control Delay	9.0		6.5	8.7	18.5	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	9.0		6.5	8.7	18.5	
LOS	A		A	A	B	
Approach Delay	9.0			8.6	18.5	
Approach LOS	A			A	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 102.5			
Actuated Cycle Length: 49.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.45			
Intersection Signal Delay: 10.3		Intersection LOS: B	
Intersection Capacity Utilization 43.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 7: First Line Road & Bankfield Road

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	405	22	9	525	4	4
Future Volume (Veh/h)	405	22	9	525	4	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	405	22	9	525	4	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	144			280		
pX, platoon unblocked			0.90		0.91	0.90
vC, conflicting volume			427		959	416
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			301		833	289
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	99
cM capacity (veh/h)			1128		305	671

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	427	9	525	8
Volume Left	0	9	0	4
Volume Right	22	0	0	4
cSH	1700	1128	1700	420
Volume to Capacity	0.25	0.01	0.31	0.02
Queue Length 95th (m)	0.0	0.2	0.0	0.4
Control Delay (s)	0.0	8.2	0.0	13.7
Lane LOS		A		B
Approach Delay (s)	0.0	0.1		13.7
Approach LOS				B

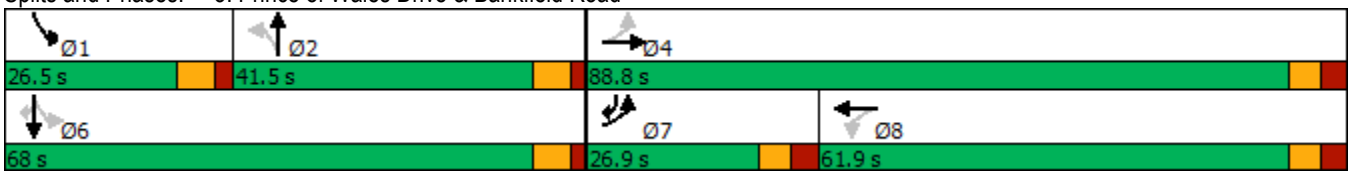
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	298	448	2	24	487	95	13	141	13	113	197	340
Future Volume (vph)	298	448	2	24	487	95	13	141	13	113	197	340
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	180.0		0.0	200.0		0.0	100.0		0.0	80.0		240.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. 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
Frt		0.999			0.976			0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1783	0	1695	1741	0	1695	1761	0	1695	1784	1517
Flt Permitted	0.142			0.503			0.634			0.421		
Satd. Flow (perm)	253	1783	0	898	1741	0	1131	1761	0	751	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7			3				176
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		564.6			143.8			424.0			477.4	
Travel Time (s)		33.9			8.6			19.1			21.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	298	448	2	24	487	95	13	141	13	113	197	340
Shared Lane Traffic (%)												
Lane Group Flow (vph)	298	450	0	24	582	0	13	154	0	113	197	340
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	7	4			8			2		1	6	7
Permitted Phases	4			8			2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		21.0	21.0		5.0	21.0	5.0
Minimum Split (s)	11.9	36.9		36.9	36.9		27.5	27.5		11.5	27.5	11.9
Total Split (s)	26.9	88.8		61.9	61.9		41.5	41.5		26.5	68.0	26.9
Total Split (%)	17.2%	56.6%		39.5%	39.5%		26.5%	26.5%		16.9%	43.4%	17.2%
Maximum Green (s)	20.0	81.9		55.0	55.0		35.0	35.0		20.0	61.5	20.0
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6		4.6	4.6	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		1.9	1.9		1.9	1.9	3.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.5	6.5		6.5	6.5	6.9
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		23.0		23.0	23.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	76.7	76.7		49.6	49.6		21.6	21.6		40.2	40.2	66.9
Actuated g/C Ratio	0.59	0.59		0.38	0.38		0.17	0.17		0.31	0.31	0.51
v/c Ratio	0.80	0.43		0.07	0.87		0.07	0.53		0.35	0.36	0.39
Control Delay	39.5	16.6		26.9	52.4		50.7	57.9		37.8	38.1	10.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	39.5	16.6		26.9	52.4		50.7	57.9		37.8	38.1	10.7
LOS	D	B		C	D		D	E		D	D	B
Approach Delay		25.7			51.4			57.3			23.7	
Approach LOS		C			D			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 156.8			
Actuated Cycle Length: 130.4			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 34.7		Intersection LOS: C	
Intersection Capacity Utilization 107.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Prince of Wales Drive & Bankfield Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	491	141	28	516	118	18
Future Volume (vph)	491	141	28	516	118	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	180.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			100.0		7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.970				0.982	
Flt Protected			0.950		0.958	
Satd. Flow (prot)	1731	0	1695	1784	1679	0
Flt Permitted			0.353		0.958	
Satd. Flow (perm)	1731	0	630	1784	1679	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	24				8	
Link Speed (k/h)	60			60	60	
Link Distance (m)	279.4			465.4	562.9	
Travel Time (s)	16.8			27.9	33.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	491	141	28	516	118	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	632	0	28	516	136	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	24.0		24.0	24.0	10.0	
Minimum Split (s)	30.5		30.5	30.5	25.0	
Total Split (s)	66.5		66.5	66.5	36.0	
Total Split (%)	64.9%		64.9%	64.9%	35.1%	
Maximum Green (s)	60.0		60.0	60.0	30.0	
Yellow Time (s)	4.6		4.6	4.6	3.7	
All-Red Time (s)	1.9		1.9	1.9	2.3	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.5		6.5	6.5	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Min		Min	Min	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	17.0		17.0	17.0	12.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	31.5		31.5	31.5	11.1	
Actuated g/C Ratio	0.63		0.63	0.63	0.22	
v/c Ratio	0.58		0.07	0.46	0.36	
Control Delay	10.6		6.6	9.1	19.8	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	10.6		6.6	9.1	19.8	
LOS	B		A	A	B	
Approach Delay	10.6			9.0	19.8	
Approach LOS	B			A	B	

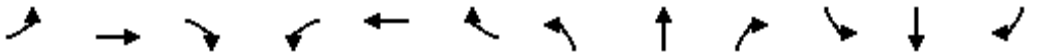
Intersection Summary			
Area Type:	Other		
Cycle Length: 102.5			
Actuated Cycle Length: 50.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 10.9		Intersection LOS: B	
Intersection Capacity Utilization 55.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: First Line Road & Bankfield Road

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	561	15	7	596	12	10
Future Volume (Veh/h)	561	15	7	596	12	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	561	15	7	596	12	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	144			280		
pX, platoon unblocked			0.82		0.89	0.82
vC, conflicting volume			576		1178	568
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			374		807	365
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		96	98
cM capacity (veh/h)			972		309	558

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	576	7	596	22
Volume Left	0	7	0	12
Volume Right	15	0	0	10
cSH	1700	972	1700	387
Volume to Capacity	0.34	0.01	0.35	0.06
Queue Length 95th (m)	0.0	0.2	0.0	1.4
Control Delay (s)	0.0	8.7	0.0	14.9
Lane LOS		A		B
Approach Delay (s)	0.0	0.1		14.9
Approach LOS				B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

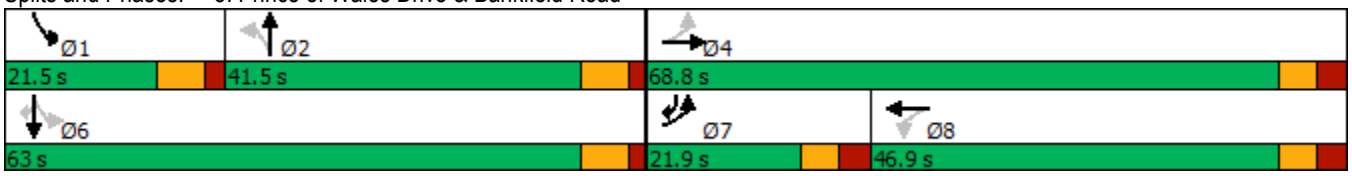


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	361	2	16	444	109	11	239	22	72	90	234
Future Volume (vph)	247	361	2	16	444	109	11	239	22	72	90	234
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	180.0		0.0	200.0		0.0	100.0		0.0	80.0		240.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. 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
Frt		0.999			0.970			0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1783	0	1695	1731	0	1695	1761	0	1695	1784	1517
Flt Permitted	0.144			0.545			0.699			0.298		
Satd. Flow (perm)	257	1783	0	972	1731	0	1247	1761	0	532	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					10			3				159
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		564.6			143.8			424.0			477.4	
Travel Time (s)		33.9			8.6			19.1			21.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	247	361	2	16	444	109	11	239	22	72	90	234
Shared Lane Traffic (%)												
Lane Group Flow (vph)	247	363	0	16	553	0	11	261	0	72	90	234
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	7	4			8			2		1	6	7
Permitted Phases	4			8			2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		21.0	21.0		5.0	21.0	5.0
Minimum Split (s)	11.9	36.9		36.9	36.9		27.5	27.5		11.5	27.5	11.9
Total Split (s)	21.9	68.8		46.9	46.9		41.5	41.5		21.5	63.0	21.9
Total Split (%)	16.6%	52.2%		35.6%	35.6%		31.5%	31.5%		16.3%	47.8%	16.6%
Maximum Green (s)	15.0	61.9		40.0	40.0		35.0	35.0		15.0	56.5	15.0
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6		4.6	4.6	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		1.9	1.9		1.9	1.9	3.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.5	6.5		6.5	6.5	6.9
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		23.0		23.0	23.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	62.4	62.4		40.3	40.3		23.8	23.8		36.1	36.1	57.8
Actuated g/C Ratio	0.56	0.56		0.36	0.36		0.21	0.21		0.32	0.32	0.52
v/c Ratio	0.73	0.37		0.05	0.88		0.04	0.69		0.27	0.16	0.27
Control Delay	32.1	16.8		27.5	51.4		36.7	51.8		28.2	26.6	5.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	32.1	16.8		27.5	51.4		36.7	51.8		28.2	26.6	5.5
LOS	C	B		C	D		D	D		C	C	A
Approach Delay		23.0			50.8			51.2			14.4	
Approach LOS		C			D			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 131.8			
Actuated Cycle Length: 112			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 33.9		Intersection LOS: C	
Intersection Capacity Utilization 103.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Prince of Wales Drive & Bankfield Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	365	80	21	406	126	26
Future Volume (vph)	365	80	21	406	126	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	180.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			100.0		7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.976				0.977	
Flt Protected			0.950		0.960	
Satd. Flow (prot)	1741	0	1695	1784	1674	0
Flt Permitted			0.484		0.960	
Satd. Flow (perm)	1741	0	864	1784	1674	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	19				10	
Link Speed (k/h)	60			60	60	
Link Distance (m)	279.4			465.4	562.9	
Travel Time (s)	16.8			27.9	33.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	365	80	21	406	126	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	445	0	21	406	152	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	24.0		24.0	24.0	10.0	
Minimum Split (s)	30.5		30.5	30.5	25.0	
Total Split (s)	66.5		66.5	66.5	36.0	
Total Split (%)	64.9%		64.9%	64.9%	35.1%	
Maximum Green (s)	60.0		60.0	60.0	30.0	
Yellow Time (s)	4.6		4.6	4.6	3.7	
All-Red Time (s)	1.9		1.9	1.9	2.3	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.5		6.5	6.5	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Min		Min	Min	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	17.0		17.0	17.0	12.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	26.3		26.3	26.3	10.7	
Actuated g/C Ratio	0.53		0.53	0.53	0.22	
v/c Ratio	0.48		0.05	0.43	0.41	
Control Delay	9.5		6.6	9.2	18.4	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	9.5		6.6	9.2	18.4	
LOS	A		A	A	B	
Approach Delay	9.5			9.1	18.4	
Approach LOS	A			A	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 102.5			
Actuated Cycle Length: 49.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay: 10.7		Intersection LOS: B	
Intersection Capacity Utilization 44.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 7: First Line Road & Bankfield Road

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	441	22	9	576	4	4
Future Volume (Veh/h)	441	22	9	576	4	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	441	22	9	576	4	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	144			280		
pX, platoon unblocked			0.88		0.91	0.88
vC, conflicting volume			463		1046	452
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			325		847	313
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	99
cM capacity (veh/h)			1090		301	642

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	463	9	576	8
Volume Left	0	9	0	4
Volume Right	22	0	0	4
cSH	1700	1090	1700	410
Volume to Capacity	0.27	0.01	0.34	0.02
Queue Length 95th (m)	0.0	0.2	0.0	0.5
Control Delay (s)	0.0	8.3	0.0	14.0
Lane LOS		A		B
Approach Delay (s)	0.0	0.1		14.0
Approach LOS				B

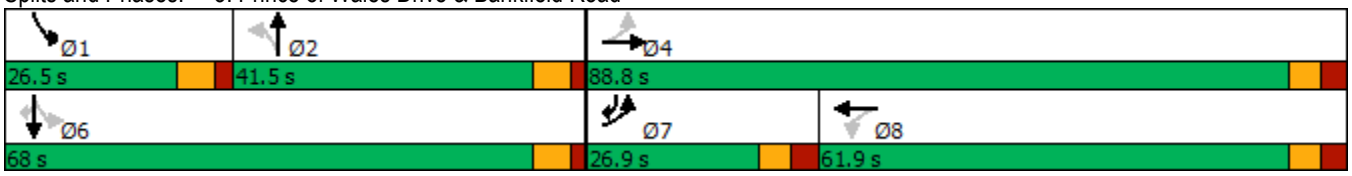
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	298	493	2	24	531	95	13	152	13	113	211	340
Future Volume (vph)	298	493	2	24	531	95	13	152	13	113	211	340
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	180.0		0.0	200.0		0.0	100.0		0.0	80.0		240.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. 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
Frt		0.999			0.977			0.988				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1783	0	1695	1743	0	1695	1763	0	1695	1784	1517
Flt Permitted	0.130			0.482			0.626			0.387		
Satd. Flow (perm)	232	1783	0	860	1743	0	1117	1763	0	691	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					6			3				149
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		564.6			143.8			424.0			477.4	
Travel Time (s)		33.9			8.6			19.1			21.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	298	493	2	24	531	95	13	152	13	113	211	340
Shared Lane Traffic (%)												
Lane Group Flow (vph)	298	495	0	24	626	0	13	165	0	113	211	340
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	7	4			8			2		1	6	7
Permitted Phases	4			8			2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		21.0	21.0		5.0	21.0	5.0
Minimum Split (s)	11.9	36.9		36.9	36.9		27.5	27.5		11.5	27.5	11.9
Total Split (s)	26.9	88.8		61.9	61.9		41.5	41.5		26.5	68.0	26.9
Total Split (%)	17.2%	56.6%		39.5%	39.5%		26.5%	26.5%		16.9%	43.4%	17.2%
Maximum Green (s)	20.0	81.9		55.0	55.0		35.0	35.0		20.0	61.5	20.0
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6		4.6	4.6	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		1.9	1.9		1.9	1.9	3.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9		6.9	6.9		6.5	6.5		6.5	6.5	6.9
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		23.0		23.0	23.0		14.0	14.0			14.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	81.9	81.9		55.0	55.0		21.7	21.7		40.4	40.4	67.0
Actuated g/C Ratio	0.60	0.60		0.41	0.41		0.16	0.16		0.30	0.30	0.49
v/c Ratio	0.84	0.46		0.07	0.88		0.07	0.58		0.38	0.40	0.41
Control Delay	45.5	17.1		27.0	52.9		50.8	61.4		39.5	40.3	13.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	45.5	17.1		27.0	52.9		50.8	61.4		39.5	40.3	13.1
LOS	D	B		C	D		D	E		D	D	B
Approach Delay		27.8			52.0			60.6			26.3	
Approach LOS		C			D			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 156.8			
Actuated Cycle Length: 135.8			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 36.8		Intersection LOS: D	
Intersection Capacity Utilization 110.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 3: Prince of Wales Drive & Bankfield Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	539	141	28	562	118	18
Future Volume (vph)	539	141	28	562	118	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	180.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			100.0		7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.972				0.982	
Flt Protected			0.950		0.958	
Satd. Flow (prot)	1734	0	1695	1784	1679	0
Flt Permitted			0.321		0.958	
Satd. Flow (perm)	1734	0	573	1784	1679	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	22				8	
Link Speed (k/h)	60			60	60	
Link Distance (m)	279.4			465.4	562.9	
Travel Time (s)	16.8			27.9	33.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	539	141	28	562	118	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	680	0	28	562	136	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	24.0		24.0	24.0	10.0	
Minimum Split (s)	30.5		30.5	30.5	25.0	
Total Split (s)	66.5		66.5	66.5	36.0	
Total Split (%)	64.9%		64.9%	64.9%	35.1%	
Maximum Green (s)	60.0		60.0	60.0	30.0	
Yellow Time (s)	4.6		4.6	4.6	3.7	
All-Red Time (s)	1.9		1.9	1.9	2.3	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.5		6.5	6.5	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Min		Min	Min	None	
Walk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	17.0		17.0	17.0	12.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	32.9		32.9	32.9	11.4	
Actuated g/C Ratio	0.63		0.63	0.63	0.22	
v/c Ratio	0.61		0.08	0.50	0.36	
Control Delay	11.2		6.7	9.4	21.0	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	11.2		6.7	9.4	21.0	
LOS	B		A	A	C	
Approach Delay	11.2			9.3	21.0	
Approach LOS	B			A	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 102.5			
Actuated Cycle Length: 52			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 11.3		Intersection LOS: B	
Intersection Capacity Utilization 57.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: First Line Road & Bankfield Road

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	615	15	7	648	12	10
Future Volume (Veh/h)	615	15	7	648	12	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	615	15	7	648	12	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	144			280		
pX, platoon unblocked			0.80		0.89	0.80
vC, conflicting volume			630		1284	622
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			418		838	409
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		96	98
cM capacity (veh/h)			918		296	517

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	630	7	648	22
Volume Left	0	7	0	12
Volume Right	15	0	0	10
cSH	1700	918	1700	367
Volume to Capacity	0.37	0.01	0.38	0.06
Queue Length 95th (m)	0.0	0.2	0.0	1.4
Control Delay (s)	0.0	9.0	0.0	15.4
Lane LOS		A		C
Approach Delay (s)	0.0	0.1		15.4
Approach LOS				C

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX H

MMLOS Review

Segment MMLOS Analysis

This section provides a review of the boundary streets Bankfield Road and Elijah Court using complete streets principles. The *Multi-Modal Level of Service (MMLOS) Guidelines*, produced by IBI Group in October 2015, were used to evaluate the levels of service for each alternative mode of transportation on Bankfield Road and Elijah Court, based on the targets for areas within 'Village' OP Designation/Policy Areas. Segments have been analyzed based on existing conditions.

Exhibit 4 of the *MMLOS Guidelines* has been used to evaluate the segment pedestrian level of service (PLOS) of Bankfield Road and Elijah Court. Exhibit 22 suggests a target PLOS C for all roadways within village areas. The results of the segment PLOS analysis are summarized in **Table 1**.

Exhibit 11 of the *MMLOS Guidelines* has been used to evaluate the segment bicycle level of service (BLOS) of Bankfield Road and Elijah Court. Within village areas, Exhibit 22 suggests a target BLOS D for roadways with no bike route designation. The results of the segment BLOS analysis are summarized in **Table 2**.

Exhibit 15 of the *MMLOS Guidelines* has been used to evaluate the segment transit level of service (TLOS) of Bankfield Road and Elijah Court. Within village areas, Exhibit 22 does not identify a target TLOS for any roadways.

Exhibit 20 of the *MMLOS Guidelines* has been used to evaluate the segment truck level of service (TkLOS) of Bankfield Road and Elijah Court. Within village areas, Exhibit 22 suggests a target TkLOS D for arterial roadways with a truck route designation (Bankfield Road) and no target TkLOS for local roadways with no truck route designation (Elijah Court). The results of the segment TkLOS analysis are summarized in **Table 3**.

Table 1: PLOS Segment Analysis

Sidewalk Width	Boulevard Width	Avg. Daily Curb Lane Traffic Volume	Presence of On-Street Parking	Operating Speed[1]	PLOS
Bankfield Road (north side, Prince of Wales Drive to First Line Road)					
2.0m[2]	0m	> 3,000 vpd	No	70 km/h	F
Bankfield Road (south side, Prince of Wales Drive to First Line Road)					
2.0m[2]	0m	> 3,000 vpd	No	70 km/h	F
Elijah Court (east side, cul-de-sac to First Line Road)					
No Sidewalk	N/A	N/A	N/A	60 km/h	F
Elijah Court (west side, cul-de-sac to First Line Road)					
No Sidewalk	N/A	N/A	N/A	60 km/h	F

1. Operating speed taken as the speed limit plus 10 km/h.
2. Paved shoulder treated as sidewalk in rural context with PLOS grade adjusted one grade lower if necessary

Table 2: BLOS Segment Analysis

Road Class	Type of Route	Type of Bikeway	Travel Lanes	Operating Speed	BLOS
Bankfield Road (both sides, Prince of Wales Drive to First Line Road)					
Arterial	N/A	Bike Lane	2	70 km/h	E
Elijah Court (both sides, cul-de-sac to First Line Road)					
Local	N/A	Mixed Traffic	2	60 km/h	F

Table 3: TkLOS Segment Analysis

Curb Lane Width	Number of Travel Lanes Per Direction	TkLOS
Bankfield Road (both sides, Prince of Wales Drive to First Line Road)		
≤ 3.3m	2	D
Elijah Court (both sides, cul-de-sac to First Line Road)		
≤ 3.0m	2	F