

Stittsville South (W-4) Expansion Lands Transportation Report

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1 Introduction

Caivan Stittsville West Ltd is seeking to develop lands in the Stittsville South area of the City of Ottawa. The subject lands are identified as W-4 Urban Expansion Area Lands (W-4 Lands) on the City's Official Plan Schedule C17. The lands are classified as Category 1 lands through the Official Plan and identified for urban expansion through the Future Neighbourhood Overlay.

To remove the Future Neighbourhood Overlay, an Official Plan Amendment and a Concept Plan process were proposed and confirmed by the City. The Concept Plan process will satisfy the Official Plan policies, and meet the standard subdivision submission requirements, with the addition of a design concept evaluation for a land use concept for the W-4 Lands.

To support this Concept Plan process and Official Plan Amendment, the City of Ottawa supplied a Terms of Reference (ToR) for the transportation related work, refining the process for the W-4 Context through the Transportation Working Group meetings. This report conforms to the structure of the ToR.

1.1 W-4 Lands Area Context

The W-4 Lands are located at the northwest corner of Shea Road at Flewellyn Road intersection, which is bounded by Shea Road, Flewellyn Road, a separated conclave along Poplarwood Avenue, and the existing community south of Hickstead Way. The lands encompass 6070 Fernbank Road, and 5971, 6015, 6025, 2035, 2070, 6115, 6141 and 6159 Flewellyn Road, the hydro corridor, Faulkner Drain, and stormwater maintenance ponds. The W-4 Lands are specifically located at 5993, 6115 Flewellyn Road and 6070 Fernbank Road. The current zoning is Rural (RU). It is expected that these lands could support up to 1,809 new residential homes, including park/open space. The anticipated build-out would be beyond 2030.

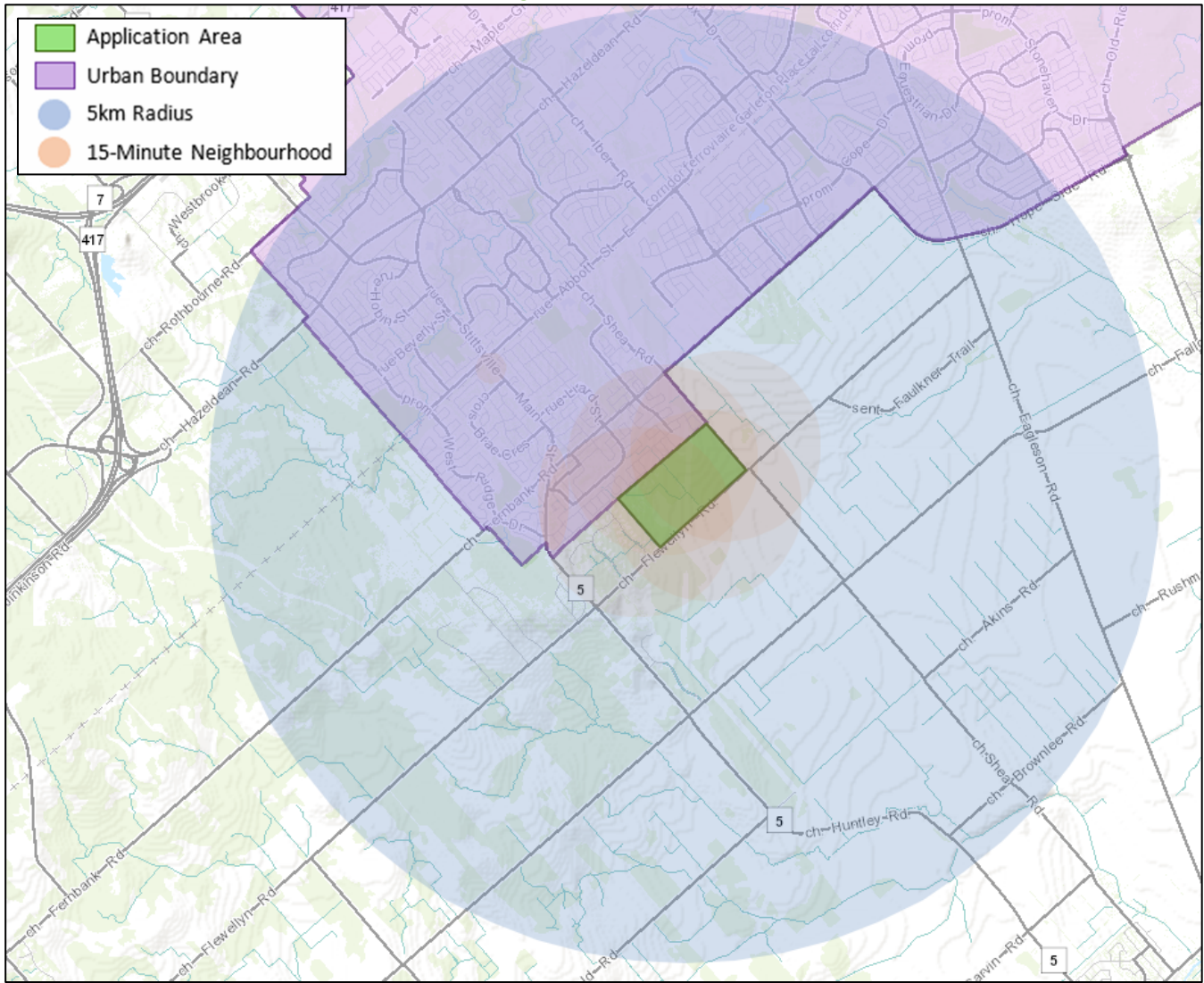
Situated south of the City of Ottawa's urban boundary, the W-4 Lands have been designated as Category 1 and have been placed under a Future Neighbourhood Overlay in the Official Plan. The W-4 Lands were originally identified as a rural transect policy area, these lands will undergo a reclassification and be brought within the suburban transect policy area through the Official Plan Amendment and Concept Plan process. The W-4 Lands are required to have a minimum density of 36 units per net hectare and permit density increases through intensification and accessory dwelling units.

The suburban transect features low- to mid-density development, with low-rise residential being predominant in the vicinity of the W-4 Lands. Diverse dwelling unit sizes and focus on active transportation connectivity are envisioned for neighbourhoods away from transit stations. The improved mobility and shortcuts to street transit stops are supported by neighbourhood corridors and connect to the surrounding community. The evolution of the surrounding community will be a gradual process and prioritized through City strategic planning.

The greenfield development of the W-4 Lands will contribute to the goals of a 15-minute Neighbourhoods through grid network with short block lengths, parks and greenspaces, active transportation linkages to natural amenities and transit, tree streets, and active frontage of residential dwellings onto the roadways. According to the Official Plan and the Transportation Master Plan – Part 1, the 15-minute walking distance is equivalent to a radius of 900 metres or 1,500-metre along pedestrian facilities. Given these distances, the study area for 15-minute Neighbourhoods is determined by the greater of a 1.5-kilometre walking distance or a radius of one kilometre from the boundaries of the W-4 lands.

Figure 1 illustrates the area context for both the urban boundary and W-4 expansion area, with a five-kilometre radius from the centroid of the W-4 lands and the 15-minute Neighbourhoods.

Figure 1: Area Context



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: April 2, 2024

Suburban transect policy statements regarding Hubs, mid-rise and high-rise features are not applicable to the W-4 Lands, as it would be more suitable to Stittsville Main Street and the core of Stittsville.

2 Planning and Development

2.1 City Projects

2.1.1 Robert Grant Avenue - Between Palladium Drive and Fernbank Road

Robert Grant Avenue is a 2-lane arterial roadway between Abbott Street and Fernbank Road and is being extended to northwards from Abbott Street to Hazeldean Road. The ultimate configuration of Robert Grant Avenue will be a 4-lane roadway, supporting rapid transit, cycling facilities and pedestrian facilities between Palladium Drive and Fernbank Road. The nature of this corridor will evolve from the previously completed environmental assessment study, as City standards and guidelines have advanced during the intervening time. A transit station and park and ride facility are identified at the intersection of Robert Grant Avenue at Fernbank Road and Abbott Street at

Hazeldean Road as part of the affordable network. The City's Affordable Network only identifies this corridor as a 2-lane roadway.

2.1.2 Isolated Transit Priority Measures

Transit priority measures in the Transportation Master Plan (2013) are identified in the network concept as a loop along Fernbank Road from the future Fernbank transit station at Robert Grant Avenue to Stittsville Main Street, Hazeldean Road and back to Robert Grant Avenue. The affordable network only contains transit priority measures along Hazeldean Road and Robert Grant Avenue.

It is anticipated that the transit priority network will be updated in the 2023 Transportation Master Plan – Part 2.

2.1.3 Fernbank Road Widening

Fernbank Road widening from two to four lanes between Stittsville Main Street and Terry Fox Drive is identified in the Transportation Master Plan (2013) in the network concept; however, it is not in the 2031 affordable network concept. Since the timeline for this project is unknown, it is assumed that this project will be completed beyond 2031 and will not be included in the analysis. It is assumed that the widening will incorporate sidewalks, cycletracks and possible transit priority measures into the design once initiated by the City.

2.1.4 Terry Fox Drive Widening

Terry Fox Drive widening from two to four lanes between Winchester Drive and Eagleson Road, assumed to continue the existing four lane cross-section. The widening is identified in the Transportation Master Plan (2013) in the network concept; however, it is not in the 2031 affordable network concept. Since the timeline for this project is unknown, it is assumed that this project will be completed beyond 2031 and will not be included in the analysis. Subject to the City standards for arterial roads and protected intersections, it is assumed that the pedestrian and cycling facilities will be extended and connectivity at the intersections will be improved.

2.1.5 Eagleson Road at Flewellyn Road Intersection Improvements

The improvements for the intersection of Eagleson Road at Flewellyn Road may involve converting the intersection into a roundabout, and the improvements are assumed to be completed by 2030. No information has been provided by the City on the status or design of this network improvement.

2.2 Study Area Developments

Figure 2 illustrates all the developments noted in the larger Stittsville context and Table 1 summarizes the details of each development.

Figure 2: Area Developments

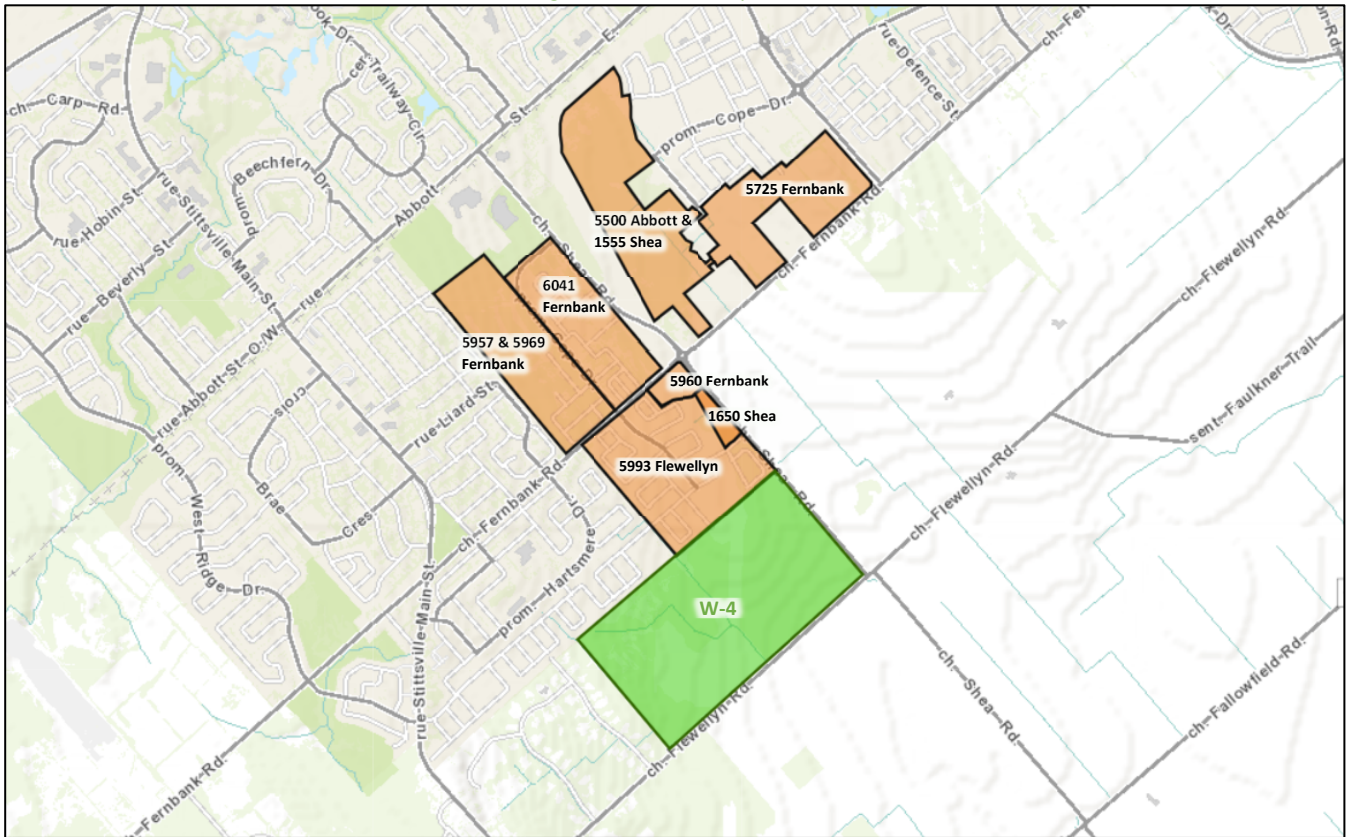


Table 1: Area Development Details

#	Address	Application Type	Size	Build-Out Date	Estimated Completion	TIA Author
1	5957 & 5969 Fernbank	<ul style="list-style-type: none"> PoS ZBA 	<ul style="list-style-type: none"> 98 single family homes 368 townhomes 	2025	0%	Parsons, 2018 Addendum, 2020
2	6041 Fernbank	<ul style="list-style-type: none"> PoS 	<ul style="list-style-type: none"> 234 single family homes 142 semi-detached homes 262 townhomes 	2023	0%	Delcan, 2013 IBI Group, Addendum, 2021
3	5993 Flewellyn (part of Area 6 lands)	<ul style="list-style-type: none"> PoS 	<ul style="list-style-type: none"> 329 single family homes 230 semi-detached homes 172 townhomes 	2025	95%	IBI Group, 2015
4	1650 Shea (part of 5993 Flewellyn)	<ul style="list-style-type: none"> SPA 	<ul style="list-style-type: none"> 13 low-rise buildings (a total of 116 units) 	2024	0%	TIA is not required
5	5960 Fernbank (part of Area 6 lands)	<ul style="list-style-type: none"> ZBA SPA 	<ul style="list-style-type: none"> 40,000 sq. ft. grocery store 19,250 sq. ft. retail 5,900 sq. ft. restaurant 	2024	0%	Parsons, 2016 Addendum, 2016
6	5500 Abbott & 1555 Shea	<ul style="list-style-type: none"> ZBA PoS 	<ul style="list-style-type: none"> 286 single family homes 324 townhomes 	2025	0%	IBI Group, 2022
7	5725 Fernbank	<ul style="list-style-type: none"> ZBA PoS 	<ul style="list-style-type: none"> 206 single family homes 391 townhomes 	2025	0%	IBI Group, 2021

3 Policy Review

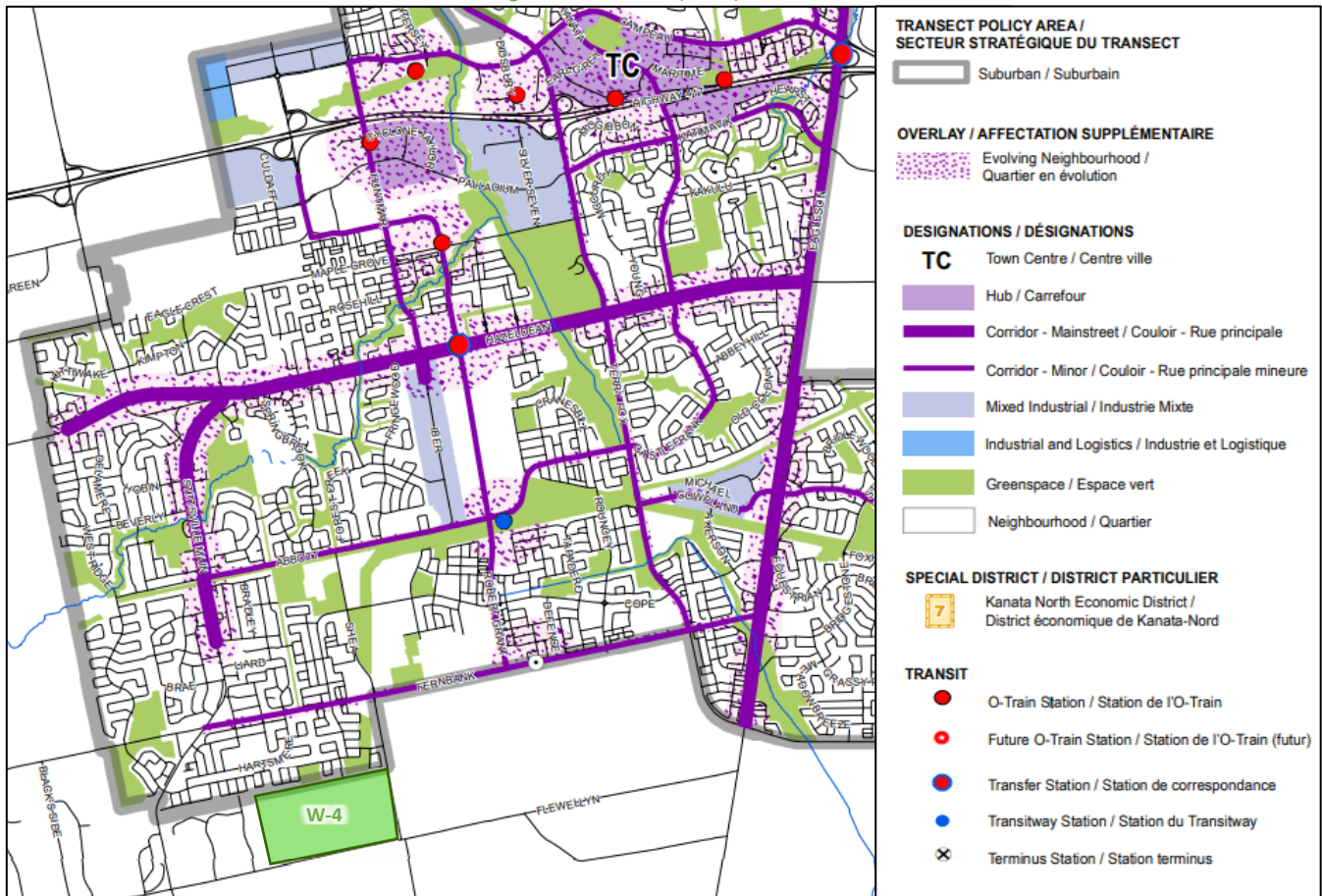
3.1 City of Ottawa Policy

3.1.1 Official Plan (2022)

The City of Ottawa Official Plan was approved by the Province of Ontario in November 2022, outlining how the city will evolve and providing policies for the development. The OP lays the groundwork for the City of Ottawa’s growth to horizon year 2046 at which time the population is expected to exceed 1.4 million people.

The policies related to urban expansion lands, focus on ensuring adequate infrastructure to surpass the new Official Plan's target of achieving an overall sustainable mode share across the City of 50% or higher by 2046. This involves promoting active transportation modes like walking and cycling, fostering multimodal travel, enhancing mobility options and street connectivity, advocating for 15-minute Neighbourhoods, emphasizing larger parks in the outer urban and suburban transect, designing parks that enhance quality of life and address climate change, and implementing stormwater management strategies to support sustainable development. This is discussed in Section 2.1 for the suburban transect. Figure 3 illustrates the suburban (West) transect.

Figure 3: Suburban (West) Transect



Source: City of Ottawa Official Plan (2022) - Schedule B5 Accessed: March 25, 2024

3.1.2 5 Big Moves (2019)

The 5 Big Moves sets a goal to make Ottawa the most liveable, mid-sized cities in North America. By promoting intensification over greenfield development, sustainable transportation such as walking and cycling, urban design,

resiliency in services, climate change awareness and sustainability, and economic prosperity, the 5 Big Moves aims to assist the city in adapting to change.

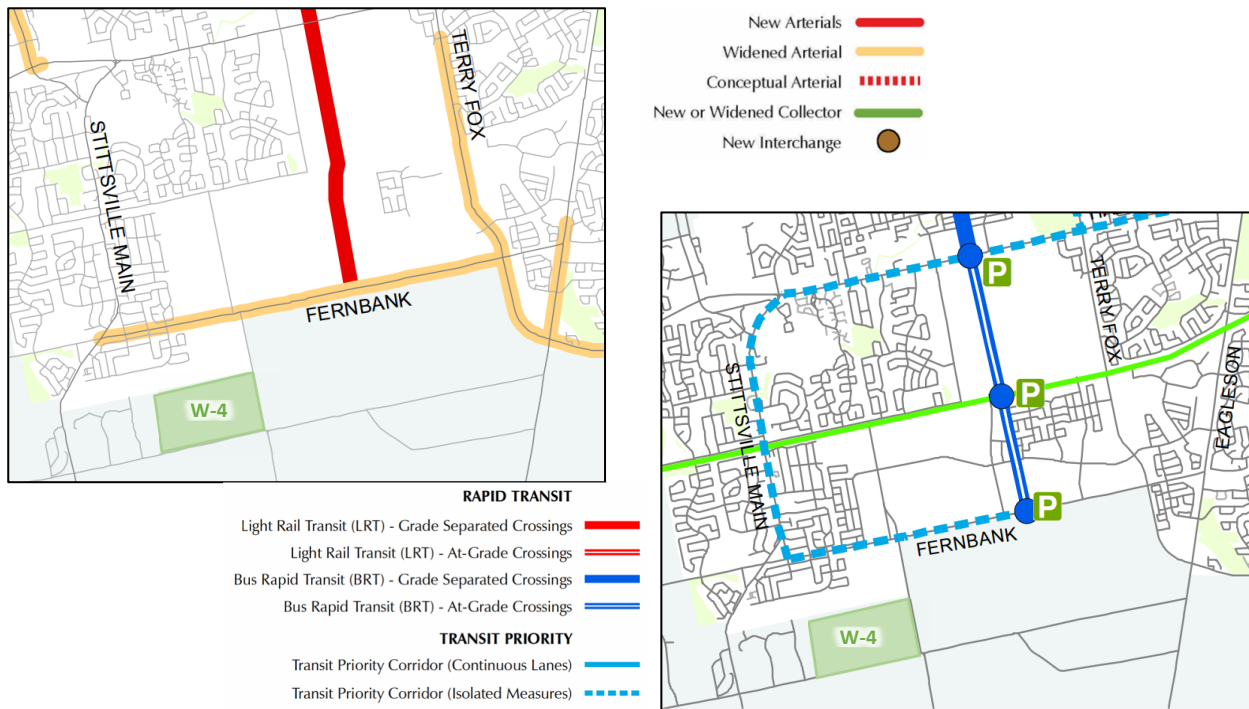
The urban expansion lands are greenfield developments and limit the applicability of the framework overall. The W-4 Lands will integrate the Move 2 – Mobility policies into the concept plan development, planning new street networks that support safe and convenient trips by walking, cycling, transit, and reducing the distance traveled and prioritizing active transportation.

3.1.3 Transportation Master Plan (2013)

The Transportation Master Plan (TMP) focuses on key themes derived from key stakeholders and resident consultation, and these key themes have been superseded by the guiding principles and policies of the 2023 TMP – Part 1.

As the TMP 2031 Road Network Concept and Transit Ultimate Network are not included in the 2023 TMP – Part 1, and are expected to be included in Part 2, the 2031 Road Network Concept and Transit Ultimate Network from the Transportation Master Plan (2013) is instructive to how the transportation facilities are planned for Stittsville and Kanata. Figure 4 illustrates the TMP context in the area.

Figure 4: TMP 2031 Road Network Concept and Transit Ultimate Network



3.1.4 2023 Transportation Master Plan – Part 1

The 2023 Transportation Master Plan – Part 1 focuses on key changes to Ottawa’s mobility landscape since the development of the previous plan in 2013. These changes include greater focus on the city’s population growth; climate change; technology and new mobility; health, equity and safety and lastly affordability.

The policies concerning urban expansion lands involve Mitigate the Effects of Extreme Heat on Transportation System Users (Policy 1-3), Continue the Transition to Clean Vehicle Technologies (1-6), Promote Healthy Communities Through Transportation Planning (2-2), Design Streets for All People including Equity-Deserving Groups (2-3), Adhere to Best Practices for Network Development (5-1), Encourage Sustainable Transportation

Through Community Planning and Design (5-3), Incorporate Official Plan “Transects” Into Transportation Planning (5-4), Address Accessibility Barriers and Advance Universal Design (6-1), Improve and Expand the Pedestrian Network (6-2), Make It Easier to Cross the Road (6-4), Invest in Neighbourhood “Shortcuts” (6-5), Improve the Quality, Security, and Vibrancy of the Pedestrian Environment (6-7), Provide Safe, Comfortable, Direct, and Connected Cycling Facilities and Routes (7-1), Plan for an Increase in E-Bikes, Cargo Bikes, E-Scooters, and Other Users (7-6), Implement “complete streets” to create streets for everyone (9-1), Minimize traffic impacts in neighbourhoods (9-7), and Reduce operating speeds through changes in street design (9-9).

The TMP Active Transportation Projects, including pedestrian and cycling projects, addressing critical missing links in the city’s active transportation networks, is expected to be implemented from 2025 onwards.

3.1.5 15-Minute Neighbourhoods (2021)

At the core of the 15-minute Neighbourhoods concept is to provide the opportunity to access daily and weekly needs within a 15-minute walk. It strives to provide a range of housing types, shops, services, local access to food, schools and daycare facilities, employment, greenspaces, parks and pathways. Healthy, walkable, 15-minute Neighbourhoods have various essential features, such as a mix of housing for different income levels and shaded, pedestrian-friendly pathways connecting residents to amenities without relying on cars. The neighbourhoods should offer safe spaces for children to play and for people to walk, cycle, or take transit to school. Human-scale urban design with vibrant public spaces, convenient transit access, and a public realm encouraging social connections are crucial. Public facilities like parks and pathway blocks reduce travel time and filtration of active modes through the neighbourhood.

3.1.6 Building Better and Smarter Suburbs (2015)

The primary principles of the Building Better and Smarter Suburbs consist of efficiently planning land development and integrating transportation modes to be naturally supportive of one another, making the individual transportation method of choice as convenient as possible. The strategy to achieve these goals involves planning new suburbs that are not just residential areas but complete and thriving communities. These communities will be designed to cater to people's everyday needs, providing schools, parks, community facilities, shops, services, and workspaces. Housing options will be diverse to accommodate a varied population. All streets and public spaces will prioritize safety and invite a sense of community. The design solutions will be practical, functional, and consider long-term operational and maintenance requirements.

The W-4 Lands will build upon the existing suburb and Stittsville area, linking to the adjacent community and providing the public realm and streets to connect to the supporting services for everyday needs.

3.2 City of Ottawa Design Guidance

3.2.1 Transportation Impact Assessment (TIA) Guidelines (2023)

The TIA Guidelines framework will be superseded by the Terms of Reference (January 2024) that were developed to support the Concept Plan process. Relevant sections and content of the TIA Guidelines will be considered and applied throughout the transportation review of existing conditions and then evaluation of the concept plans developed for the subject lands.

The contents of this existing conditions report will address the TIA requirements for Step 2 and a reduced process is expected to be completed to satisfy the Step 3 requirements once the Concept Plan process is finalized and the Official Plan Amendment approved. Dependent on development timelines, TIA reporting following the TIA Guidelines may be required for various phases of the subdivision.

3.2.2 Designing Neighbourhood Collector Streets (2019)

With complete streets in mind, the Designing Neighbourhood Collector Streets guideline illustrates the components needed to design and construct multimodal roadway facilities. At the core of this policy guidance is the intent to accommodate all users of all ages in a safe and predictable manner, contribute to environmental sustainability, affordability and support livable communities. The way this is achieved is by connecting land uses with facilities that promote safe travel between areas for all residents.

Within the context of the W-4 Lands, collector roadway connections between local roadways and to the arterial network will include dedicated facilities for walking, cycling and accessing transit will be provided. Another key component that will be incorporated into the collector roadway design will be the use of buffer zones to separate multimodal users as well as for ease of maintenance to provide space for snow management.

3.2.3 Local Residential Streets 30 km/h Design Toolbox (2021)

The Local Residential Streets 30 km/h Design toolbox includes numerous methods of calming vehicular speeds, both passively and physically, with the intent of making 30 km/h the comfortable speed at which to operate a vehicle on the local roadway network. This further supports Vision Zero and the Safer Roads Ottawa program by developing a roadway network at neighbourhood conception that provides the necessary friction to encourage a 30 km/h operating speed.

Within the context of the W-4 Lands, shorter block lengths with separating modes of travel (pedestrian and cyclist from the motor vehicle network) by way of utilizing greenspace, will facilitate achieving these targets. This includes providing measures as gateway features, at intersections and at midblock locations.

3.2.4 Traffic Calming Design Guidelines (2019)

Traffic calming concepts should be considered as part of the street designs as well as on existing streets to ensure operation as intended. Unintended inappropriate driver behaviour such as speeding can adversely affect the quality of life of a community and reduce walkability and cyclist travel. While usually an afterthought for new development, traffic management measures and considerations at the land use development phase can prevent future operational issues such as speeding from developing.

Once roadway network plans have been developed as part of the conceptual W-4 Lands, further examination into opportunities to design with passive traffic calming principles in mind will be considered, such as adding bump-outs to delineate parking areas and possible physical calming measures to prevent undesirable driver behaviour from developing.

3.2.5 Urban Design Guidelines for Greenfield Neighbourhoods (2007)

The Urban Design Guidelines for Greenfield Neighbourhoods illustrate the City's expectations during the development review process for greenfield neighbourhoods within the Urban Area of the City of Ottawa. These guidelines are to create a comfortable pedestrian and cycling environment and to establish a system of parks and greenspaces that are plentiful, accessible and connected to each other.

Within the context of the W-4 Lands, shorter block lengths will enhance pedestrian access to transit stops and other neighborhood amenities and facilities. Pathways and sidewalks will create a walkable neighborhood that connects to key destinations, and new streets connecting to existing streets in adjacent developments will provide alternate route choices.

3.2.6 Protected Intersection Design Guide (2021)

The Protected Intersection Design Guideline provides a framework for developing designs for protected intersections within the City of Ottawa. This guide offers an overview of guiding principles for designing protected

intersections and lists the detailed design requirements and constraints that need to be considered. These include road classification, planned facilities for all modes of transportation, existing right-of-way width, hydro poles, stormwater infrastructure, grading, and emergency vehicle or bus turning movements.

Additionally, the guide illustrates different corner radii and outlines the processes for determining corner types, such as standard protected corner, one-stage protected corner, hybrid protected corner, dedicated corner, partial protected corner, and smart channel protected corner.

Moreover, functional design elements such as pedestrian refuges, transit stops, and bicycle turning radius, as well as detailed design elements such as hazard warnings at intersections, elevations, and drainage, are considered in the design of a protected intersection.

4 Existing Conditions

The study area for the existing conditions review was confirmed with the W-4 Lands Transportation Working Group with the City. A five-kilometre study area, measured from the centroid of the W-4 Lands, will provide a high-level review of Stittsville, with a more detailed review of the local Stittsville South area. The local study area is generally between a one-kilometre radius from the boundary of the W-4 Lands or a 1.5-kilometre walking distance, whichever is greater based on the transportation network. The subsequent sections will provide additional details to the specifics of the area assessed for the various mobility options.

4.1 Boundary Community

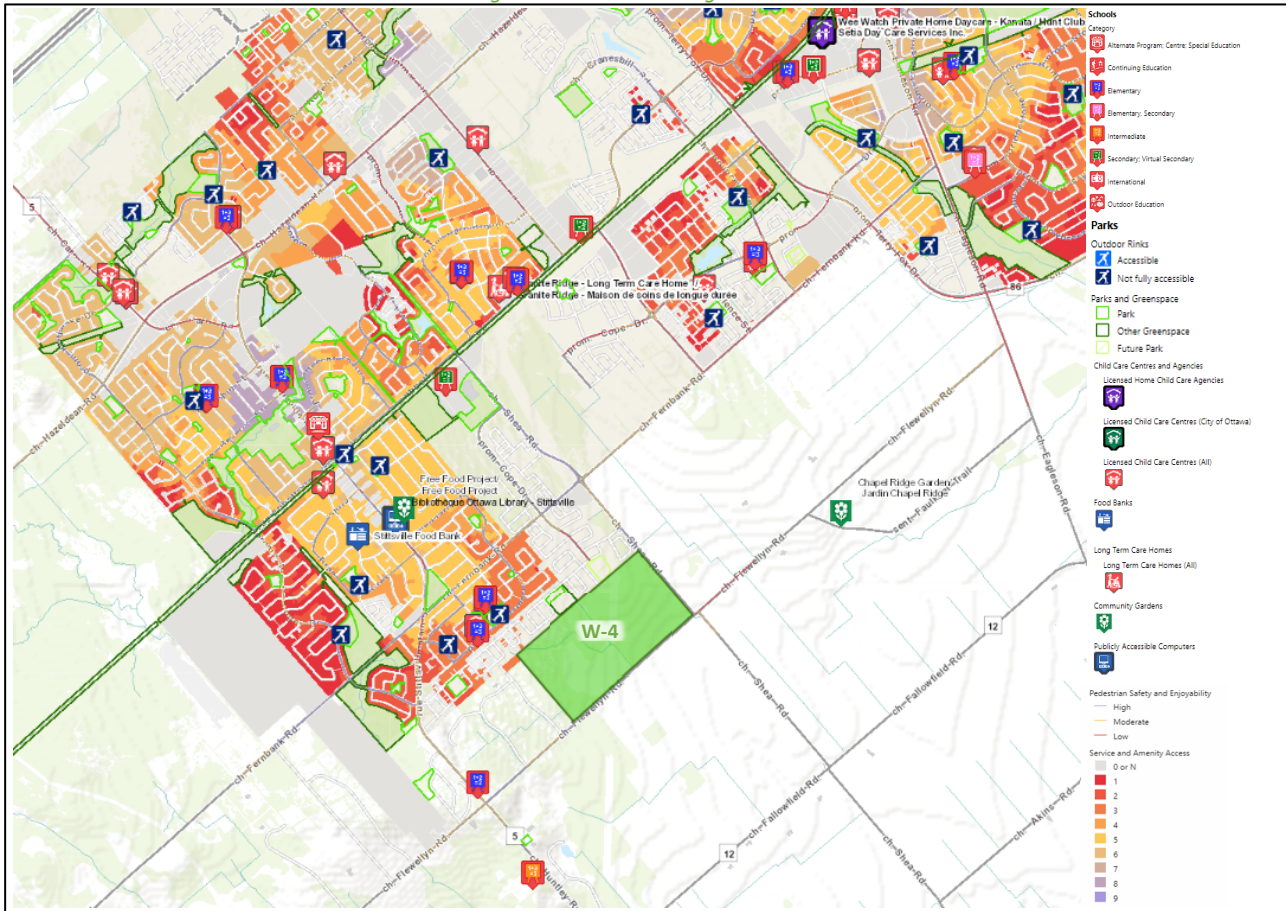
The W-4 Lands are bounded by Shea Road, Flewellyn Road, an isolated community along Poplarwood Avenue, and an existing community south of Hickstead Way.

The W-4 Lands are linked to Painted Sky Way, Ray McCaffrey Park, and the stormwater management area (Faulkner Drain) at their north boundary. Additionally, the upcoming Silas Bradley Park, also connected to the W-4 Lands north boundary, is currently under construction. Residential dwellings are situated on the north and west sides of the W-4 Lands, and the two elementary schools and childcare centers are situated on the northwest sides of the W-4 Lands.

As outlined in Section 3.2, north of the W-4 Lands, future residential dwellings are planned to be located at 5957 and 5969 Fernbank Road, 6041 Fernbank Road, 5993 Flewellyn Road, 5725 Fernbank Road, 5500 Abbott Street and 1555 Shea Road, and 1650 Shea Road. Additionally, future retail, restaurants, and a grocery store are planned to be located at 5960 Fernbank Road.

Figure 5 illustrates the area context and access to services and amenities.

Figure 5: 15-Minute Neighbourhood



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: January 30, 2024

The success of 15-minute policies for the W-4 Lands will be through the evolution of the adjacent community and Stittsville as a whole. The application of the policies can be completed through the concept plan development, which will be the focus of the ongoing study and submissions for the W-4 Lands.

4.2 Vehicular Network

4.2.1 Road Classifications and Capacity

4.2.1.1 Area Road Network - Within a Five-Kilometre Radius From The Centroid Of The W-4 Lands

Hazeldean Road, Carp Road, Stittsville Main Street south of Hazeldean Road, Huntley Road, Terry Fox Drive, Robert Grant Avenue, Fernbank Road east of Stittsville Main Street, Eagleson Road, Hope Side Road, and Fallowfield Road are City of Ottawa arterial roads.

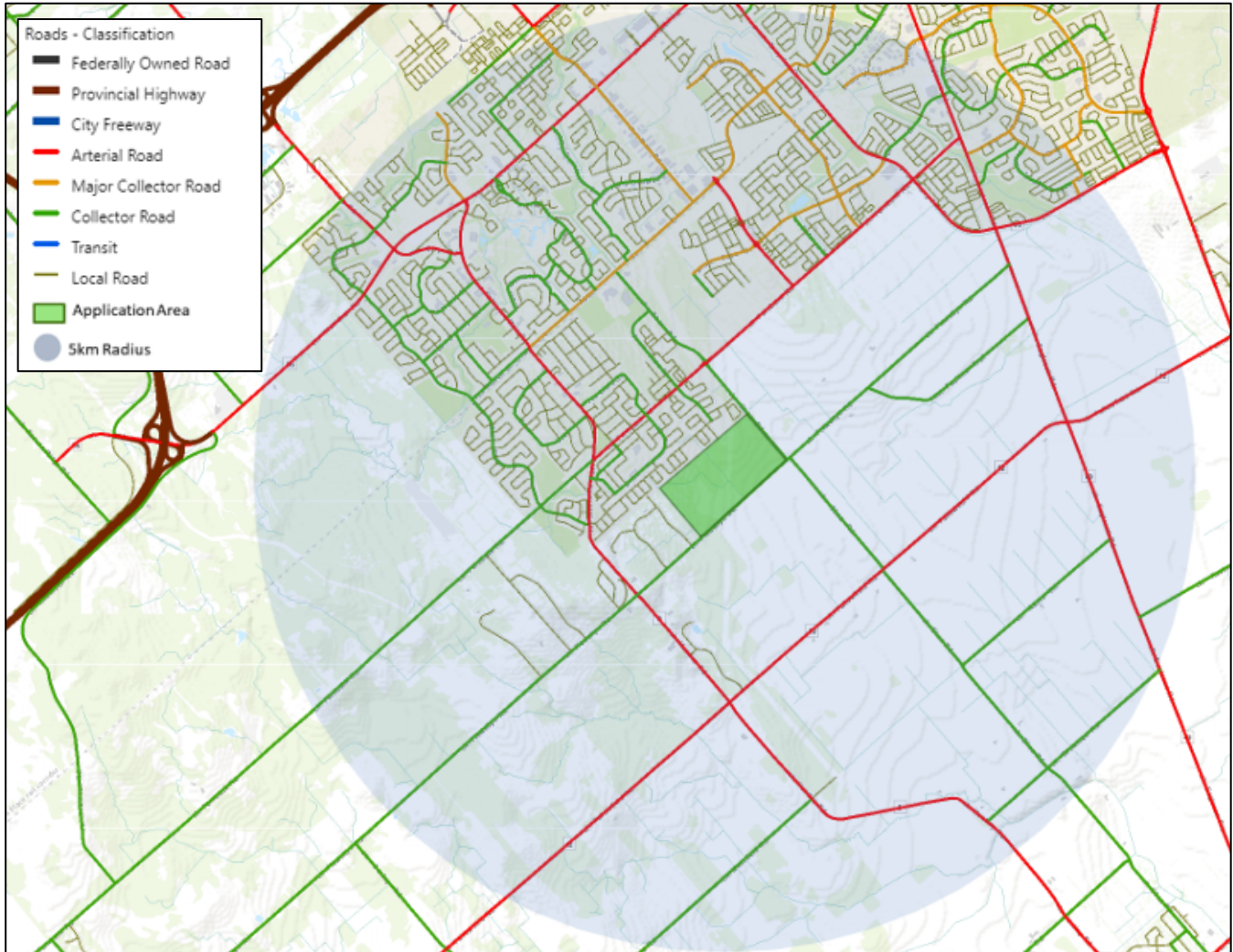
Huntmar Drive south of Maple Grove Road, Stittsville Main Street north of Hazeldean Road, Castlefrank Road, Abbott Street East, Rouncey Road, Iber Road, Cranesbill Road, Micheal Copeland Drive, Cope Drive between Terry Fox Drive and Goldhawk Drive, Bridgestone Drive, and Grassy Plains Drive are City of Ottawa major collector roads.

Shea Road, Flewellyn Road, Faulkner Trail, Akins Road, Brownlee Road, Mansfield Road, Rushmore Road, Fernbank Road west of Stittsville Main Street, Cope Drive west of Shea Road and east of Terry Fox Drive, Hartsmere Drive, Baywood Drive, West Ridge Drive, Braw Crescent, Abbott Street West, Jonathan Pack Street, Beverly Street, Hobin Street, Renshaw Avenue, Kittiwake Drive, Kimpton Drive, Beechfern Drive, Carbery Drive, Trailway Circle, Springbrook Drive, Hedgerow Lane, Moss Hill Trail, Kathleen Crescent, Amy Steet, Randall James Drive, Harry

Douglas Drive, Sweetnam Drive, Johnwoods Street, Rosehill Avenue, Maple Grove Road west of Huntmar Drive, Goldhawk Drive, Defence Street, Westphalian Avenue, and Glamorgan Drive are City of Ottawa collector roads, while other roads fall under the category of local roads.

Figure 6 illustrates the area road classification within a five-kilometre radius from the centroid of the W-4 Lands.

Figure 6: Area Road Classification - Within a Five-Kilometre Radius From The Centroid Of The W-4 Lands



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: February 6, 2024

4.2.1.2 Study Area Key Roadways

The study area for the existing conditions review was confirmed with the W-4 Lands Transportation Working Group with the City, and the roadways that may influence the W-4 Lands have been summarized below:

Stittsville Main Street: Within the study area, Stittsville Main Street is a City of Ottawa arterial road with a two-lane urban cross-section north of Fernbank Road and transitions to rural cross-section with paved shoulders on both sides south of Fernbank Road. Within the study area, sidewalks are present on both sides of the road north of Brae Crescent, on the east side between Brae Crescent and Fernbank Road, and on the west side between Elwer Trail and West Ridge Drive/Parade Drive. Between Fernbank Road and Upcountry Drive, asphalt pathways are present on both sides of the road, and on the east side between Upcountry Drive and West Ridge Drive/Parade Drive. The posted limit is 50 km/h north of West Ridge Drive/Parade Drive and 60 km/h south of north of West

Ridge Drive/Parade Drive. The City-protected right of way is 37.5 metres between Hazeldean Road and Carp Road, 30.0 metres between Carp Road and Wintergreen Drive, 23.0 metres between Wintergreen Drive and Etta Street, and 42.5 metres south of Etta Street. Stittsville Main Street is designated as a truck route.

Huntley Road: Huntley Road is a City of Ottawa arterial road with a two-lane rural cross-section including paved shoulders. Beyond 110 metres south of Flewellyn Road, the posted speed limit changes from 60 km/h to 70 km/h. Huntley Road is designated as a truck route. The existing right of way is 28.0 metres.

Fernbank Road: Fernbank Road is a City of Ottawa arterial road with a two-lane rural cross-section including paved shoulders. An asphalt pathway is present on the south side of the road between Hartsmere Drive and Stittsville Main Street. The posted speed limit is 60 km/h east of Cope Drive/Edenwylde Drive, 40 km/h between Cope Drive/Edenwylde Drive and West Ridge Drive, 60 km/h between West Ridge Drive and Blacks Side Road, and transitions to 80 km/h west of Blacks Side Road. The City-protected right of way is 37.5 metres.

Terry Fox Drive: Terry Fox Drive is a City of Ottawa arterial road. Terry Fox Drive has a four-lane divided urban cross-section north of Halkirk Avenue/Winchester Drive, and a two-lane rural cross-section south of Halkirk Avenue/Winchester Drive. Sidewalks are present on both sides of the road north of Halkirk Avenue/Winchester Drive. Between Halkirk Avenue/Winchester Drive and Abbott Street East/Castlefrank Road, a sidewalk is present on the east side, and an asphalt pathway is present on the west side. The posted speed limit is 70 km/h north of Halkirk Avenue/Winchester Drive, and 80 km/h south of Halkirk Avenue/Winchester Drive. The City-protected right of way is 44.5 metres. Terry Fox Drive is designated as a truck route.

Hope Side Road: Hope Side Road is a City of Ottawa arterial road with a two-lane semi-urban cross-section west of Catamount Courts and transition to rural cross-section east of Catamount Courts. There is an approximately 165-metre-long sidewalk on the north side of the road east of Eagleson Road, and an approximately 170-metre bike lane is ramped up on the south side of the road starting from 140 metres east of Eagleson Road. The City-protected right of way is 44.5 metres. The posted speed limit is 80 km/h. Hope Side Road is designated as a truck route.

Egleson Road: Eagleson Road is a City of Ottawa arterial road with a four-lane divided urban cross-section north of Kanata South Centre southern access, and a two-lane rural cross-section between Kanata South Centre southern access and Fernbank Road. Between Fernbank Road and 800 Eagleson Road south access, it has a two-lane semi-urban cross-section, and it transitions to rural cross-section the south. North of Palomino Drive within the study area, a sidewalk is present on the east side of the road while an asphalt pathway is present on the west side. Between Palomino Drive and Trans Canada Trail, an asphalt pathway is present on the east side of the road while a sidewalk is present on the west side. Between Trans Canada Trail and 500 Eagleson Road north access, MUPs are present on both sides of the road. Between 500 Eagleson Road north access and Cope Drive, an asphalt pathway is present on the east side of the road while a sidewalk is present on the west side. Between Cope Drive and Kanata South Centre southern access, a MUP is present on the west side of the road, and a sidewalk on the east side of the road. Between Kanata South Centre southern access and Fernbank Road, asphalt pathways are present on both sides of the road. A sidewalk is present on the west side of the road between Fernbank Road and 800 Eagleson Road south access, and an asphalt pathway is present on the east side of the road between Fernbank Road and Bridgestone Drive. An asphalt pathway is present on the west side of the road along 460 Brigitta Street frontage. The posted speed limit is 60 km/h north of Radiant Private and 80 km/h south of Radiant Private. The City-protected right of way is 44.5 metres north of Terry Fox Drive/Hope Side Road, 34.0 metres between Terry Fox Drive/Hope Side Road and Fallowfield Road, and the existing right of way is 30.0 metres. Eagleson Road is designated as a truck route.

Robert Grant Avenue: Robert Grant Avenue is a City of Ottawa arterial road with a two-lane urban cross-section. Sidewalks and cycletracks are present on both sides of the road. The posted limit is 50km/h. The City-protected right of way is 37.5 metres north of Hazeldean Road and 45.5 metres south of Hazeldean Road.

Abbott Street: Abbott Street is a major collector road east of Stittsville Main Street, and a collector road west of Stittsville Main Street. It has a two-lane urban cross-section west of Robert Grant Avenue, transitioning to a semi-urban cross-section east of Robert Grant Avenue. Sidewalks are provided on the south side west of Stittsville Main Street, on the north side between Stittsville Main Street and Robert Grant Avenue, on the south side between Robert Grant Avenue and 150 metres west of Triangle Street, and on both sides east of that point. Bike lanes are present on both sides of the road between Stittsville Main Street and Robert Grant Avenue. The posted limit is 40km/h west of Stittsville Main Street and 50km/h east of Stittsville Main Street. The City-protected right of way is 24.0 metres west of Stittsville Main Street and 26.0 metres east of Stittsville Main Street.

Cope Drive: Cope Drive is a major collector road between Goldhawk Drive and Terry Fox Drive, while the remaining roads serve as collector road. It has a two-lane urban cross-section east of Robert Grant Avenue, and a semi-urban cross-section west of Robert Grant Avenue. The unposted speed limit is 40 km/h, and the City-protected right of way is 24.0 metres.

Edenwyld Drive: Edenwyld Drive is a City of Ottawa collector road with a two-lane urban cross-section including sidewalks on both sides of the road (under construction). The unposted speed limit is 40 km/h, and the existing right of way is 22.0 metres.

Flewellyn Road: Flewellyn Road is a City of Ottawa collector road with a two-lane rural cross-section including gravel shoulders within the study area. The posted speed limit is 80 km/h, and the existing right of way is 26.0 metres.

Shea Road: Shea Road is a City of Ottawa collector road with a two-lane rural cross-section including gravel shoulders within the study area. Approximately 270.0 metres south of Fernbank Road, the posted speed limit transitions from 60 km/h to 80 km/h. The existing right of way is 20.0 metres.

West Ridge Drive: West Ridge Drive is a City of Ottawa collector road with a two-lane urban cross-section including sidewalks on both sides of the road. The posted speed limit is 40 km/h. The City-protected right of way is 24.0 metres north of Fernbank Road, and the existing right of way is 22.0 metres.

Hartsmere Drive: Hartsmere Drive is a City of Ottawa collector road with a two-lane urban cross-section. Sidewalks are present on the east side of the road between Fernbank Road and Friendly Crescent, on both sides of the road between Friendly Crescent and Upcountry Drive, and on the south side of the road west of Upcountry Drive to the 90-degree bend of Hartsmere Drive. The posted speed limit is 40 km/h, and the existing right of way is 20.0 metres.

Hickstead Way: Hickstead Way is a City of Ottawa local road with a two-lane urban cross-section. Sidewalks are present on both sides of the road east of Parade Drive and on the north side of the road west of Parade Drive ending at a pathway block at the 90-degree bend towards Parade Drive. The speed limit is assumed to be consistent with Parade Drive at a posted 40 km/h, and the existing right of way is 18.0 metres.

Parade Drive: Parade Drive is a City of Ottawa local road with a two-lane urban cross-section. Sidewalks are present on both sides of the road. The posted speed limit is 40 km/h, and the existing right of way is 20.0 metres east of Hickstead Way and 24.0 metres west of Hickstead Way.

Painted Sky Way: Painted Sky Way is a City of Ottawa local road with a two-lane urban cross-section. A sidewalk is expected to be constructed along one side of the roadway. The speed limit is assumed to be 40 km/h, consistent with the remainder of the adjacent subdivision, and the existing right of way is 18.0 metres.

Cosanti Drive: Cosanti Drive is a City of Ottawa local road with a two-lane urban cross-section. Sidewalks are expected to be constructed along both sides of the roadway. The unposted speed limit is 40 km/h, and the City-protected right of way is 22.0 metres.

4.2.2 Road Capacity

A high-level review of the key roadway lane capacities and utilizations was completed to assess the networks' ability to accommodate additional growth. The lane capacity estimates are assembled from a review of the TRANS Regional Model and Screenline 44, which is located between Stittsville and Kanata from Richardson Side to Flewellyn Road in a north-south direction.

In response to specific inquiries by the City of Ottawa, the following discusses the exclusion of Liard Street, West Ridge Drive and Cope Drive from the screenline:

- Liard Street provides no regional capacity for the W-4 Lands as it only leads to Stittsville Main Street. As a consequence of adding Liard Street, the screenline would need to be pushed north of the Stittsville Main Street and Liard Street intersection to capture the combined impacts. The exclusion of Liard Street assesses this condition regardless of the position of the intersection screenline on Stittsville Main Street.
- West Ridge Drive is considered out of the way travel for the regional travel demand for the W-4 Lands. Stittsville has lower than 5% westerly travel in the OD Surveys, which would be better served by using Fernbank Road or Flewellyn Road. The northerly travel would have to drive through a curvilinear street to then loop back easterly to Stittsville proper or Kanata, which is over twice as long as other routes in or around Stittsville. Inclusion of West Ridge Drive would increase the screenline capacity and be contrary to previous local traffic calming goals of reducing cut through traffic on West Ridge Drive.
- Cope Drive is currently disconnected and provides east-west connectivity for the developing community north of Fernbank Road. Similar to West Ridge Drive, the extended out of the way travel to use Cope Drive is not considered an attractive route for the W-4 Lands. It is also unreasonable to expect regional travel to use Cope Drive, likely posted 30 km/h through a residential community, when Flewellyn Road and Fernbank Road are posted at higher speeds and limited stops to connect to the next arterial road.

Therefore, Liard Street, West Ridge Drive, and Cope Drive are not included in the local screenline.

To assess the capacity of the area network, a local screenline was created around the study area and was illustrated in Figure 7. Table 2 summarizes the high-level capacity, existing volumes, and utilization of the roadway corridors in the immediate study area, and the existing volumes are included in Appendix A.

Figure 7: Local Screenline



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: May 14, 2024

Table 2: Road Capacity Approximation

Roadway	Classification	Estimated Lane Capacity	Existing Volumes	Percent Utilization
Stittsville Main Street	Arterial	1000 cars/hour	270-440	27-44%
Shea Road	Collector	800 cars/hour	265-525	33-67%
Fernbank Road	Arterial	800 cars/hour	255-510	31-64%
Flewellyn Road	Collector	800 cars/hour	80-190	10-24%

Notes: Lane Capacity = single lane estimate
 Existing Volumes = directional volume range during AM or PM peak hours
 Percent Utilization = utilization range based on Existing Volume for lane

Overall, the study area roadways have residual capacity in the existing conditions.

It is noted, that while not part of the screenline, Fernbank Road is expected to be nearing capacity to the west of Shea Road due to the new 40 km/h speed zone. This occurs during the AM peak hour in the eastbound direction. The remaining capacity in this section would be used by the completion of the Area 6 Lands. As the location of this section would not be a route of travel for the W-4 Lands, it will not pose a constraint on the additional growth planned through the urban boundary expansion.

No further roadways will be considered as part of the local screenline within the context of the W-4 Lands.

4.2.3 Network Connectivity

Within a five-kilometre radius from the centroid of the W-4 Lands, which covers most of the Stittsville area, the key destinations within this range include schools, childcare centres, parks, long-term care homes, retail stores, bus stops, bus rapid transit stops, libraries, and recreational facilities.

The connectivity to the adjacent community is provided through two future road connections to Painted Sky Way and a future roadway block to Parade Drive. The larger area is connected through Shea Road and Flewellyn Road which provide the connectivity from the W-4 Lands boundary to the adjacent collector and arterial road network. These routes, such as Stittsville Main Street, Terry Fox Drive and Abbott Street/Iber Road are the regional connections to the Stittsville and Kanata areas.

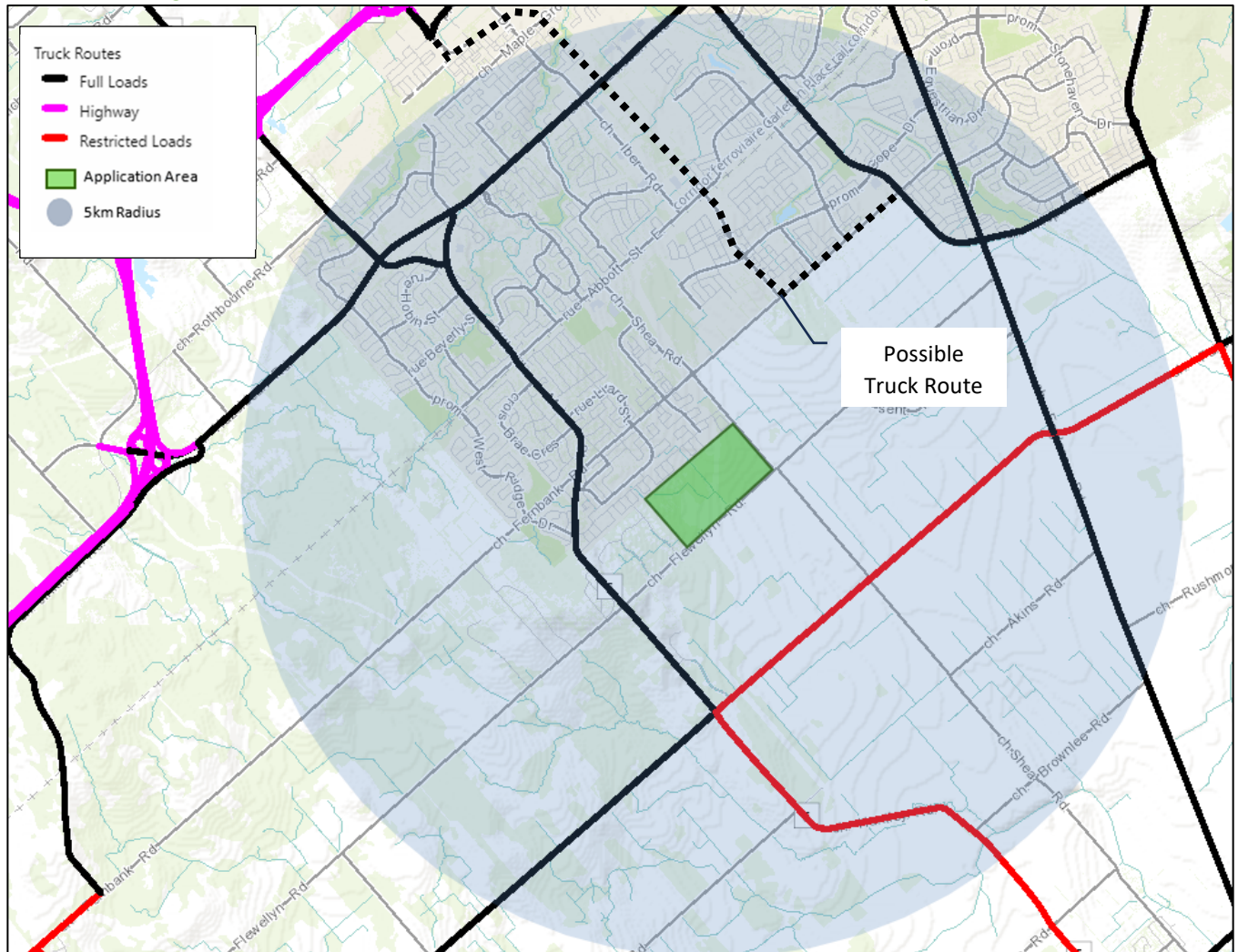
4.2.4 Truck Routes- Within a Five-Kilometres Radius From The Centroid Of The W-4 Lands

Hazeldean Road, Carp Road, Stittsville Main Street, Huntley Road north of Fallowfield Road, Fallowfield Road west of Huntley Road, Terry Fox Drive, and Eagleson Road are designated as full loads truck routes. Additionally, Fallowfield Road east of Huntley Road, and Huntley Road south of Fallowfield Road are identified as restricted loads truck routes.

The current truck route network provides routes to all directions through Stittsville area. With the future extension of Robert Grant Avenue to Palladium Drive, it is recommended that the City explore designating Robert Grant Avenue and Fernbank Road as a truck route to connect through to the existing truck route on Terry Fox Drive.

Figure 8 illustrates the area road truck routes within a five-kilometre radius from the centroid of the W-4 Lands.

Figure 8: Area Road Truck Routes - Within a Five-Kilometre Radius From The Centroid Of The W-4 Lands



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: April 5, 2024

4.2.5 Key Study Area Intersection

The study area key intersections were confirmed with the W-4 Lands Transportation Working Group, similar to the study area discussions. The key intersections within the study area have been summarized below.

- Stittsville Main Street at Abbott Street* The intersection of Stittsville Main Street at Abbott Street is a signalized intersection. The northbound approach consists of an auxiliary left-turn lane, a through lane and an auxiliary channelized right-turn lane. The southbound and eastbound approaches each consists of an auxiliary left-turn lane and a shared through/right-turn lane. The westbound approach consists of an auxiliary left-turn lane and a shared through/channelized right-turn lane. No turn restrictions were noted.
- Stittsville Main Street at Fernbank Road* The intersection of Stittsville Main Street at Fernbank Road is a signalized intersection. The northbound and southbound approaches each consist of an auxiliary left-turn lane and a shared through/right-turn lane. The eastbound approach consists of an auxiliary left-turn lane and a shared through/channelized right-turn lane, and the westbound approach consists of an auxiliary left-turn lane, a through lane, and an auxiliary channelized right-turn lane. No turn restrictions were noted.
- Stittsville Main Street at West Ridge Drive* The intersection of Stittsville Main Street at West Ridge Drive is a signalized intersection. The northbound, eastbound, and westbound approaches each consist of an auxiliary left-turn lane and a shared through/right-turn lane. The southbound approach consists of an auxiliary left-turn lane, a through lane, a floating bike lane, and an auxiliary right-turn lane. The eastbound and westbound approaches. No turn restrictions were noted.
- Stittsville Main Street/ Huntley Road at Flewellyn Road* The intersection of Stittsville Main Street/ Huntley Road at Flewellyn Road is an all-way stop-controlled intersection. The northbound, eastbound, and westbound approaches each consist of a shared all-movement lane. The southbound approach consists of a shared left-turn/through and channelized right-turn lane. No turn restrictions are noted.
- Cope Drive/ Edenwyld Drive at Fernbank Road* The intersection of Cope Drive at Fernbank Road is a stop-controlled intersection on the minor approaches of Cope Drive/ Edenwyld Drive. The northbound and southbound approaches consist of a shared all-movement lane. The eastbound and westbound approaches each consist of an auxiliary left-turn lane and a shared through/right-turn lane. No turn restrictions are noted.
- Shea Road at Abbott Street* The intersection of Shea Road at Abbott Street is an unsignalized T-intersection with all-way stop control. The northbound approach consists of a shared left-turn/right-turn lane. The eastbound approach consists of a shared through/right-turn lane and a bike lane, and the westbound approach consists of a shared left-turn/through lane and a bike lane. No turn restrictions were noted.

Shea Road at Fernbank Road

The intersection of Shea Road at Fernbank Road is a four-legged roundabout intersection. Each leg consists of a shared all-movement lane. Pedestrian crossovers are provided on each leg and a MUP circulates the roundabout. No turn restrictions were noted.

Shea Road at Flewellyn Road

The intersection of Shea Road and Flewellyn Road is a stop-controlled intersection on the minor approaches of Shea Road, which are offset by approximately 33.0 metres. Each leg consists of a shared all-movement lane. No turn restrictions are noted

Robert Grant Avenue at Fernbank Road

The intersection of Robert Grant Avenue at Fernbank Road is a signalized T-intersection. The southbound approach consists of an auxiliary left-turn lane and a right-turn lane. The eastbound approach consists of an auxiliary left-turn lane, a through lane, and a paved shoulder functions as a bike lane, and the westbound approach consists of a through lane and an auxiliary right-turn lane. Crossride is provided on the north crossing.

Terry Fox Drive at Fernbank Road

The intersection of Terry Fox Drive at Fernbank Road is a signalized intersection. The northbound approach consists of an auxiliary left-turn lane and a shared through/right-turn lane, and the southbound approach consists of an auxiliary left-turn lane, a through lane, a bike lane, and an auxiliary right-turn lane. The eastbound approach consists of an auxiliary left-turn lane, a through lane, a pocket bike lane, and an auxiliary right-turn lane, and the westbound approach consists of an auxiliary left-turn lane, a through lane, a bike lane, and an auxiliary channelized right-turn lane. No turn restrictions were noted.

Terry Fox Drive at Eagleson Road

The intersection of Terry Fox Drive at Eagleson Road is a signalized intersection. All approaches consist of an auxiliary left-turn lane and a shared through/right-turn lane. No turn restrictions were noted.

Eagleson Road at Flewellyn Road

The intersection of Eagleson Road at Flewellyn Road is a T-intersection with stop control on the minor approach of Flewellyn Road. The northbound approach consists of a left-turn/through lane, the southbound approach consists of a through/right-turn lane. The eastbound approach consists of a left-turn/right-turn lane. No turn restrictions were noted.

Shea Road at Cosanti Drive

The intersection of Shea Road at Cosanti Drive is a T-intersection with stop control on the minor approach of Cosanti Drive. The northbound approach consists of a left-turn/through lane, the southbound approach consists of a through/right-turn lane. The eastbound approach consists of a left-turn/right-turn lane. No turn restrictions were noted.

4.2.5.1 Intersection Capacity and Performance

Existing turning movement counts were acquired from the City of Ottawa, and third-party counts were collected by The Traffic Specialist and Ontario Traffic Inc. for the existing key study area intersections except for the intersection of Shea Road at Cosanti Drive. The volumes at the intersection of Shea Road at Cosanti Drive were

estimated based on the 5993 Flewellyn TIA (IBI Group, 2015). Table 3 summarizes the intersection count dates and sources.

Table 3: Intersection Count Date

Intersection	Count Date	Source
Stittsville Main Street at Abbott Street	Tuesday, April 23, 2024	Ontario Traffic Inc.
Stittsville Main Street at Fernbank Road	Tuesday, April 23, 2024	Ontario Traffic Inc.
Stittsville Main Street at West Ridge Drive	Wednesday, March 08, 2023	City of Ottawa
Stittsville Main Street/ Huntley Road at Flewellyn Road	Thursday, August 10, 2023	The Traffic Specialist
Cope Drive at Fernbank Road	Tuesday, April 23, 2024	Ontario Traffic Inc.
Shea Road at Abbott Street	Wednesday, March 08, 2023	City of Ottawa
Shea Road at Fernbank Road	Wednesday, March 02, 2022	City of Ottawa
Shea Road at Flewellyn Road	Wednesday, April 26, 2023	City of Ottawa
Robert Grant Avenue at Fernbank Road	Tuesday, April 23, 2024	Ontario Traffic Inc.
Terry Fox Drive at Fernbank Road	Wednesday, February 07, 2024	City of Ottawa
Terry Fox Drive at Eagleson Road	Wednesday, February 07, 2024	City of Ottawa
Egleson Road at Flewellyn Road	Tuesday, July 30, 2024	City of Ottawa
Shea Road at Cosanti Drive	-	5993 Flewellyn TIA (IBI Group, 2015)

Figure 9 illustrates the existing traffic counts and Table 4 summarizes the existing intersection operations. Synchro 11 has been used to model the signalized and unsignalized intersections and Sidra 9 to model the study area roundabout. Level of service is based on volume to capacity ratio (v/c) calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection for signalized intersections, HCM 2010 delay for stop-controlled intersection, and Sidra HCM 6 for roundabout intersections. Detailed turning movement count data is included in Appendix A and the Sidra and Synchro worksheets are provided in Appendix B.

Figure 9: Existing Traffic Counts

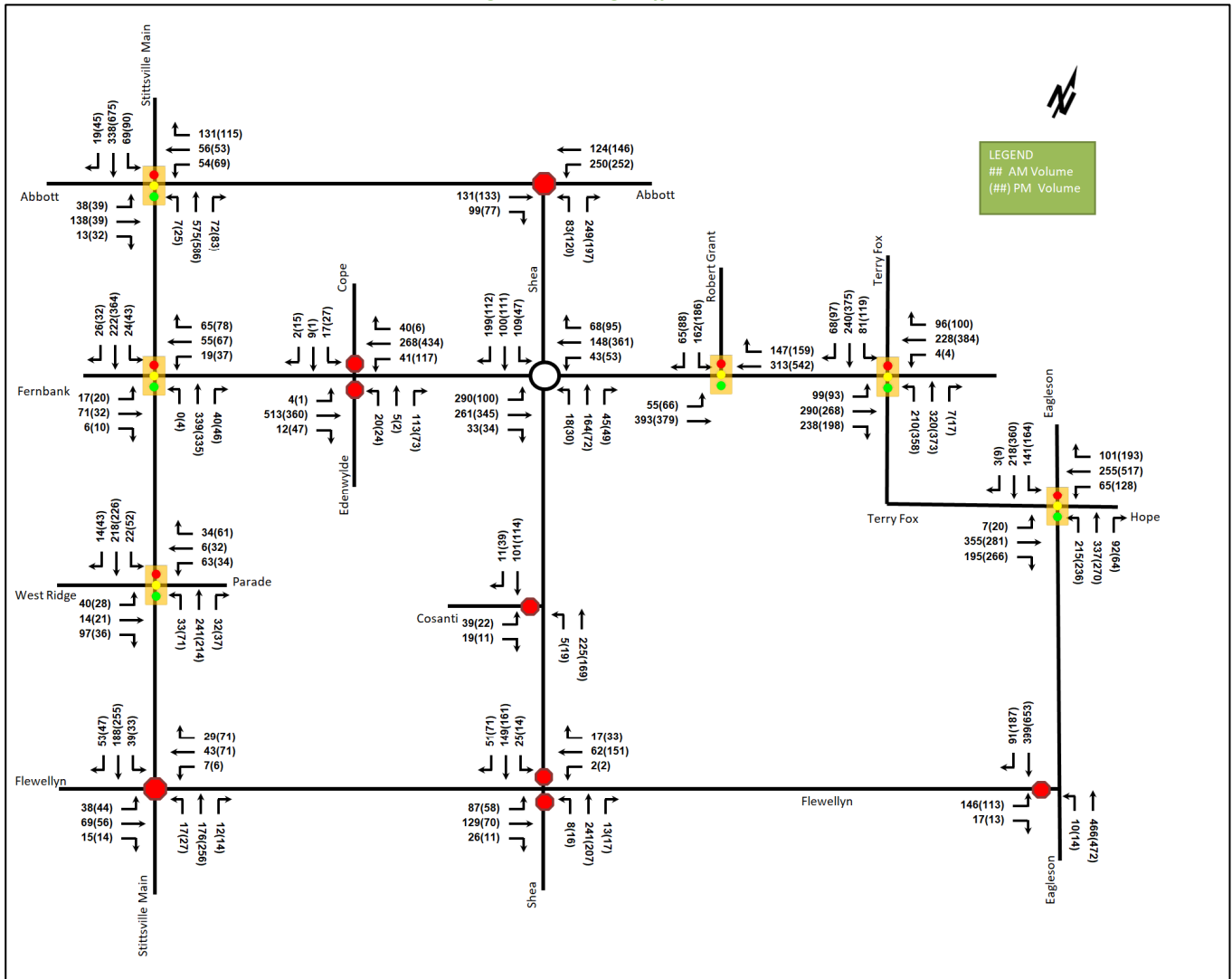


Table 4: Existing Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)
Stittsville Main Street at Abbott Street Signalized	EBL	A	0.28	31.3	12.7	A	0.30	35.4	14.6
	EBT/R	A	0.54	34.1	35.1	A	0.27	19.9	16.5
	WBL	A	0.34	32.2	16.3	A	0.38	36.4	22.3
	WBT/R	A	0.54	14.7	23.0	A	0.51	16.5	25.4
	NBL	A	0.01	5.9	2.1	A	0.08	6.5	5.2
	NBT	A	0.54	9.4	92.9	A	0.53	9.3	92.3
	NBR	A	0.08	3.6	7.7	A	0.09	3.6	8.4
	SBL	A	0.20	7.5	12.6	A	0.23	7.6	15.2
	SBT/R	A	0.35	6.9	48.0	B	0.65	11.6	132.4
	Overall	A	0.54	12.9	-	A	0.60	12.4	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)
Stittsville Main Street at Fernbank Road <i>Signalized</i>	EBL	A	0.07	14.1	5.0	A	0.08	14.3	5.9
	EBT/R	A	0.21	14.3	13.7	A	0.11	11.9	8.9
	WBL	A	0.07	13.9	5.3	A	0.14	14.9	9.2
	WBT	A	0.15	14.5	11.0	A	0.17	14.8	13.8
	WBR	A	0.18	6.0	7.1	A	0.20	5.5	7.9
	NBL	-	-	-	-	A	0.01	8.8	1.6
	NBT/R	A	0.47	11.0	41.5	A	0.47	11.9	55.1
	SBL	A	0.06	7.9	4.2	A	0.11	9.6	8.3
	SBT/R	A	0.31	9.1	25.1	A	0.49	12.3	58.4
Overall	A	0.45	10.6	-	A	0.44	11.8	-	
Stittsville Main Street at West Ridge Drive <i>Signalized</i>	EBL	A	0.14	14.2	8.1	A	0.11	13.8	6.3
	EBT/R	A	0.27	5.9	9.1	A	0.15	7.9	7.3
	WBL	A	0.25	16.0	11.6	A	0.14	14.3	7.3
	WBT/R	A	0.11	6.5	5.3	A	0.24	7.8	9.9
	NBL	A	0.07	9.0	7.3	A	0.13	9.3	13.1
	NBT/R	A	0.32	9.7	40.7	A	0.28	9.1	36.1
	SBL	A	0.05	9.0	5.3	A	0.10	9.1	10.1
	SBT	A	0.25	9.5	32.9	A	0.25	9.3	33.6
	SBR	A	0.02	1.6	1.3	A	0.06	3.9	4.9
	Overall	A	0.33	9.5	-	A	0.26	9.0	-
Stittsville Main Street / Huntley Road at Flewellyn Road <i>Unsignalized</i>	EB	A	0.21	9.8	6.0	B	0.22	10.9	6.0
	WB	A	0.13	9.1	3.0	B	0.27	10.9	8.3
	NB	B	0.33	10.7	10.5	B	0.50	13.7	21.0
	SB	B	0.42	11.1	15.0	B	0.54	14.5	24.8
	Overall	B	-	10.5	-	B	-	13.2	-
Cope Drive/Edenwylde Drive at Fernbank Road <i>Unsignalized</i>	EBL	A	0.00	8.0	0.0	A	0.00	8.4	0.0
	EBT/R	-	-	-	-	-	-	-	-
	WBL	A	0.05	8.8	0.8	A	0.12	8.7	3.0
	WBT/R	-	-	-	-	-	-	-	-
	NB	C	0.38	19.5	13.5	C	0.34	21.4	10.5
	SB	E	0.23	39.5	6.0	E	0.30	37.7	9.0
Overall	A	-	4.0	-	A	-	4.3	-	
Shea Road at Abbott Street <i>Unsignalized</i>	EBT/R	B	0.39	11.9	13.5	B	0.35	11.4	12.0
	WBL/T	C	0.64	18.1	34.5	C	0.67	18.8	38.3
	NBL/R	B	0.55	14.9	25.5	B	0.53	14.5	23.3
	Overall	C	-	15.4	-	C	-	15.6	-
Shea Road at Fernbank Road <i>Roundabout</i>	EB	B	0.65	13.1	58.3	A	0.50	9.3	23.7
	WB	A	0.37	9.3	13.5	A	0.53	9.7	26.0
	NB	B	0.42	12.5	15.7	A	0.22	7.2	6.8
	SB	A	0.43	8.2	18.8	A	0.38	9.2	14.0
	Overall	B	0.65	11.0	58.3	A	0.53	9.2	26.0
Shea Road at Flewellyn Road <i>Unsignalized</i>	EB	A	0.07	7.6	1.5	A	0.05	7.8	0.8
	WB	A	0.00	7.6	0.0	A	0.00	7.4	0.0
	NB	C	0.62	24.5	31.5	C	0.54	20.8	24.0
	SB	C	0.54	21.6	24.0	C	0.50	18.2	21.0
	Overall	B	-	14.8	-	B	-	12.3	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)
Robert Grant Avenue at Fernbank Road <i>Signalized</i>	EBL	A	0.38	45.7	23.4	A	0.42	46.6	27.3
	EBT	A	0.36	5.9	46.9	A	0.34	6.2	47.6
	WBT	A	0.38	13.5	64.3	B	0.61	18.6	134.3
	WBR	A	0.22	3.7	11.6	A	0.23	3.8	12.6
	SBL	B	0.64	45.2	52.5	B	0.68	46.0	59.5
	SBR	A	0.23	10.1	11.0	A	0.29	9.1	12.6
	Overall	A	0.52	15.5	-	B	0.68	18.0	-
Terry Fox Drive at Fernbank Road <i>Signalized</i>	EBL	A	0.34	19.8	19.9	A	0.52	30.9	25.5
	EBT	A	0.49	22.8	55.1	A	0.44	26.9	69.0
	EBR	A	0.38	3.6	12.3	A	0.32	4.2	14.3
	WBL	A	0.02	25.8	3.0	A	0.02	30.5	3.4
	WBT	C	0.71	44.2	59.9	E	0.95	73.1	#148.0
	WBR	A	0.30	7.1	10.6	A	0.25	3.1	5.6
	NBL	A	0.51	23.1	57.3	F	1.04	86.0	#134.4
	NBT/R	A	0.44	19.1	73.0	A	0.50	21.3	88.6
	SBL	A	0.25	18.6	22.4	A	0.59	47.9	45.9
	SBT	A	0.33	17.4	52.3	E	0.91	65.8	#143.1
	SBR	A	0.08	2.2	5.2	A	0.17	5.6	11.5
Overall	A	0.58	19.8	-	F	1.01	45.9	-	
Terry Fox Drive at Eagleson Road <i>Signalized</i>	EBL	A	0.02	18.0	4.2	A	0.13	26.2	10.0
	EBT/R	C	0.72	28.3	#186.3	D	0.89	48.7	#211.4
	WBL	A	0.30	23.6	24.4	A	0.52	20.2	26.2
	WBT/R	A	0.46	20.4	92.2	D	0.84	32.1	209.3
	NBL	C	0.79	44.2	47.7	F	1.27	183.0	#124.5
	NBT/R	C	0.74	35.4	100.6	B	0.64	39.9	109.4
	SBL	D	0.90	85.3	52.1	E	0.97	108.0	#90.3
	SBT/R	A	0.60	41.9	61.8	F	1.18	149.7	#183.2
Overall	C	0.80	35.5	-	F	1.09	72.6	-	
Eagleson Road at Flewellyn Road <i>Unsignalized</i>	EBL/R	E	0.68	42.8	33.8	F	0.86	94.5	45.0
	NBL/R	A	0.01	8.6	0.0	B	0.02	10.2	0.8
	SBT/R	-	-	-	-	-	-	-	-
	Overall	A	-	6.3	-	A	-	8.3	-
Shea Road at Cosanti Drive <i>Unsignalized</i>	EBL/R	B	0.09	10.7	2.3	B	0.05	10.6	1.5
	NBL/R	A	0.00	7.5	0.0	A	0.02	7.6	0.0
	SBT/R	-	-	-	-	-	-	-	-
	Overall	A	-	1.7	-	A	-	1.3	-

Notes: Saturation flow rate of 1800 veh/h/lane
 Queue is measured in metres
 Peak Hour Factor = 0.90

Delay = average vehicle delay in seconds
 m = metred queue
 # = volume for the 95th %ile cycle exceeds capacity

During both the AM and PM peak hours, the study area intersections operate well except for intersections along Terry Fox Drive.

At the intersection of Terry Fox Drive at Fernbank Road, during the PM peak hour, the northbound left-turn movement and overall intersection are over theoretical capacity and may be subject to high delays and extended queues. The westbound through and southbound through movements may be subject to extended queues.

At the intersection of Terry Fox Drive at Eagleson Road, during the AM peak hour, the eastbound through/right-turn movement may be subject to extended queues. During the PM peak hour, the northbound left-turn, southbound through/right-turn, and overall intersection are over theoretical capacity and may be subject to high

delays and extended queues. The eastbound through/right-turn and southbound left-turn movements may be subject to extended queues.

At the intersection of Eagleson Road at Flewellyn Road, the eastbound shared left-turn/right-turn lane during the PM peak hour may be subject to high delays. This intersection is expected to be converted into a roundabout, and the operation is anticipated to be improved.

All-way stop control warrant analysis was performed for the intersections of Cope Drive at Fernbank Road, Shea Road at Flewellyn Road, and Shea Road at Cosanti Drive for the existing conditions, and all intersections met the all-way stop-control warrants. Although warrants are met, the operations are acceptable to remain as a minor stop-control condition. All-way stop control warrant calculation sheets are provided in Appendix C.

Signal warrant analysis of Justifications 1 and 2 were performed for the intersections of Shea Road at Flewellyn Road, Stittsville Main Street / Huntley Road at Flewellyn Road, Cope Drive at Fernbank Road, and Shea Road at Abbott Street for the existing conditions. The intersections of Shea Road at Flewellyn Road, Shea Road at Abbott Street, and Cope Drive at Fernbank Road do not meet signal warrants. The Stittsville Main Street / Huntley Road at Flewellyn Road intersection met the Signal Justification 1, and as it has only met a single justification, it is recommended to remain as all-way stop-control. Signal warrant calculation sheets are provided in Appendix D.

The left-turn warrant analysis was performed for the intersections of Shea Road at Flewellyn Road, Stittsville Main Street / Huntley Road at Flewellyn Road, Shea Road at Abbott Street, and Shea Road at Cosanti Drive for existing conditions. The westbound left turn at Shea Road at Abbott Street intersection met a left turn warrant. Operationally, the turn lane is not required. The left-turn warrant calculation sheets are provided in Appendix E.

4.2.6 Collision History

The collision study area includes the intersections of Flewellyn Road at Shea Road, Fernbank Road at Shea Road, and Stittsville Main Street/Huntley Road at Flewellyn Road, and segments along Shea Road and Flewellyn Road between these intersections.

Collision data have been acquired from the City of Ottawa open data website (data.ottawa.ca) for five years (2018-2022) for the surrounding study area road network. Table 5 summarizes the collision types and conditions in the study area, Figure 10 illustrates the study area collision records, and Table 6 summarizes the total collisions for each of these locations. Collision data are included in Appendix F.

Table 5: Study Area Collision Summary, 2018-2022

		Number	%
Total Collisions		60	100%
Classification	Fatality	0	0%
	Non-Fatal Injury	12	20%
	Property Damage Only	48	80%
Initial Impact Type	Angle	28	47%
	Sideswipe	1	2%
	Turning Movement	1	2%
	Turning Movement	1	2%
	SMV Other	16	27%
	Other	2	3%
Road Surface Condition	Dry	35	58%
	Wet	11	18%
	Loose Snow	4	7%
	Slush	1	2%

		Number	%
Total Collisions		60	100%
	Packed Snow	2	3%
	Ice	7	12%
Pedestrian Involved		0	0%
Cyclists Involved		0	0%

Figure 10: Study Area Collision Records, 2018-2022



Table 6: Summary of Collision Locations, 2018-2022

Intersections / Segments	Number	%
	60	100%
Flewellyn Rd @ Shea Rd	23	38%
Fernbank Rd @ Shea Rd	15	25%
Flewellyn Rd btwn Poplarwood Ave & Shea Rd	7	12%
Stittsville Main St/Huntley Rd @ Flewellyn Rd	10	17%
Shea Rd btwn Fernbank Rd & Flewellyn Rd	3	5%
Flewellyn Rd btwn Forestgrove Dr & Stittsville Main St	1	2%
Flewellyn Rd btwn Forestgrove Dr & Poplarwood Ave	1	2%

Within the study area, the intersections of Flewellyn Road at Shea Road and Fernbank Road at Shea Road are noted to have experienced higher collisions than other locations. Table 7 and Table 8 summarize the collision types and conditions for each location.

Table 7: Flewellyn Road at Shea Road Collision Summary, 2018-2022

		Number	%
Total Collisions		23	100%
Classification	Fatality	0	0%
	Non-Fatal Injury	7	30%
	Property Damage Only	16	70%
Initial Impact Type	Angle	17	74%
	Rear end	3	13%
	SMV Other	3	13%
Road Surface Condition	Dry	16	70%
	Wet	4	17%
	Loose Snow	1	4%
	Ice	2	9%
Pedestrian Involved		0	0%
Cyclists Involved		0	0%

The Flewellyn Road at Shea Road intersection had a total of 23 collisions during the 2018-2022 time period, with sixteen involving property damage only and the remaining seven having non-fatal injuries. The collision types are most represented by angle with 17, followed by three collisions each for the rear end and SMV other. Weather conditions do not affect collisions at this location.

The latest detailed collision records for this intersection were received from the City for the data range of 2017-2021, which is a 5-year period shifted one year earlier than the open data. From this data, a total of 20 collisions were observed, including three single motor vehicles collisions, three rear end collisions and 14 angled collisions.

Among the 14 angled collisions recorded between 2017 and 2021, most angle collisions were noted to have occurred in a clear condition during daylight (9 out of 14). Additionally, angled collisions are predominantly involved southbound vehicles conflicting with westbound vehicles (10 out of 14), with six southbound movements turning left and four traversing the offset to travel south of Flewellyn Road. Two other collisions involve left-turning southbound vehicles conflicting with eastbound vehicles and two with northbound vehicles traversing the offset conflicting with eastbound vehicles. The offset configuration of this intersection is the likely cause of the angled collisions. The detailed collision data are included in Appendix F. The offset configuration of this intersection is considered the primary cause of these angled collisions.

Due to the property ownership, no ability exists for the W-4 Lands to re-align Shea Road. The City should investigate the ability to expropriate the necessary lands to improve this intersection into a standard four-leg 90-degree configuration. Based on the stop control warrant, the change in intersection control may be implemented by the City as a low-cost solution to potentially reduce the collisions at this location.

Table 8: Fernbank Road at Shea Road Collision Summary, 2018-2022

		Number	%
Total Collisions		15	100%
Classification	Fatality	0	0%
	Non-Fatal Injury	1	7%
	Property Damage Only	14	93%
Initial Impact Type	Angle	7	47%
	Rear end	4	27%
	SMV Other	3	20%
	Other	1	7%
Road Surface Condition	Dry	9	60%

		Number	%
Total Collisions		15	100%
	Wet	1	7%
	Packed Snow	1	7%
	Ice	4	27%
Pedestrian Involved		0	0%
Cyclists Involved		0	0%

The Fernbank Road at Shea Road intersection had a total of 15 collisions during the 2018-2022 time period, with fourteen involving property damage only and the remaining one having non-fatal injuries. The collision types are most represented by angle with seven, followed by four rear end, three SMV other, and one other. It is noted that six out of 15 collisions are due to wet, packed snow, or ice surface conditions. Angle collisions mostly occurred during daylight under clear and dry conditions (5 out of 7), and all the angle collisions occurred during 2018-2019. All rear end collisions occurred under dark light conditions in the late afternoon/early evening, all occurred during fall or winter between October and March, and two of four collisions occurred during icy conditions. The surface conditions and dark conditions, despite available street lighting, appear to be contributing factors for collisions at this intersection. No further examination is required as part of this study.

4.3 Pedestrian and Cycling Facilities

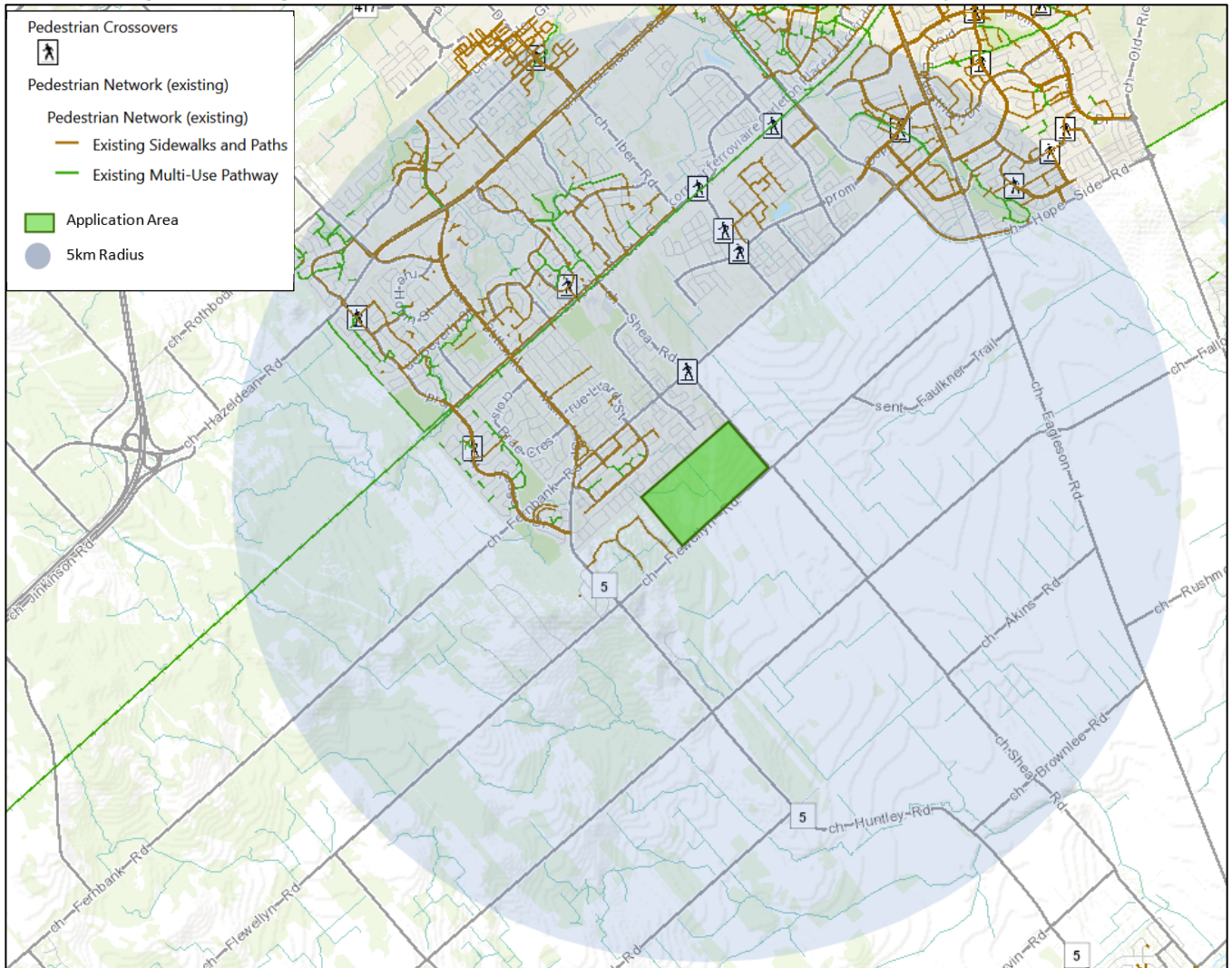
The concept of 15-Minute Neighbourhoods is based on the ability of a community to walk 15 minutes to meet their general daily needs. According to the Official Plan and the Transportation Master Plan – Part 1, the 15-minute walking distance is equivalent to a radius of 900 metres or 1,500-metre along pedestrian facilities. Given these distances, the transportation review of the pedestrian and cycling networks has been reviewed within a one-kilometre distance from the boundary of the W-4 Lands. This scope was confirmed with the W-4 Lands Working Group, with the amendment to review the 1.5-kilometre walking distance and use the greater of the two distances. The high-level network review will be consistent with the draft Terms of Reference.

4.3.1 Existing Pedestrian Network - Within a Five-Kilometre Radius From The Centroid Of The W-4 Lands

Existing pedestrian facilities in the Stittsville and Kanata area are predominantly focused on the road corridors with limited off-road connections south of Abbott Street. Key roads that have sidewalks provided include Stittsville Main Street, West Ridge Drive, Hazeldean Road, Terry Fox Drive, and Eagleson Road. Multi-Use Pathways (MUPs) are provided along the Trans Canada Trail and parks.

Figure 11 illustrates the existing pedestrian facilities within five kilometres radius from the centroid of the W-4 Lands. It is noted that the City has not formalized a number of new community sidewalks and existing pathways in the figure below. These have not been updated given the expansive context of the study area shown and the general regional pedestrian connectivity is sufficiently illustrated.

Figure 11: Existing Pedestrian Facilities - Within a Five-Kilometre Radius From The Centroid Of The W-4 Lands



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: February 6, 2024

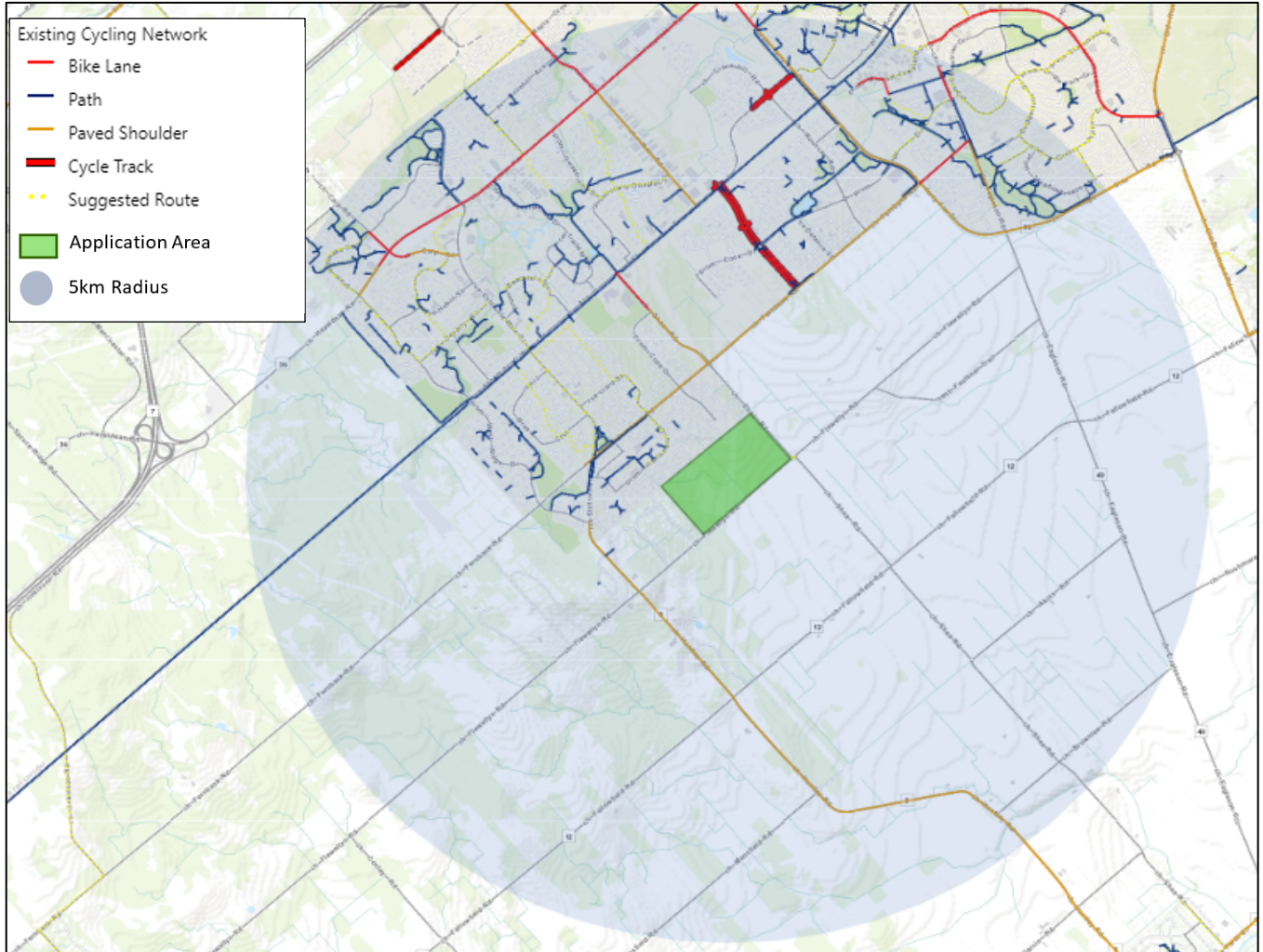
The existing pedestrian network within a five-kilometre radius from the centroid of the W-4 Lands highlights a number of gaps in the network connectivity from Stittsville South area to core of Stittsville and Kanata area. Currently, there are no pedestrian connections along Shea Road between CARDELREC Recreation Complex Goulbourn and Flewellyn Road, Fernbank Road between Hartsmere Drive and Terry Fox Drive, Stittsville Main Street between West Ridge Drive and Flewellyn Road, Flewellyn Road east of Stittsville Main Street, and Eagleson Road between Bridgestone Drive and 460 Brigitta Street and between Romina Street and Flewellyn Road. To address these gaps, it is recommended that the City explore opportunities to implement pathways or sidewalks along these roadway segments.

4.3.2 Existing Cycling Network - Within a Five-Kilometre Radius From The Centroid Of The W-4 Lands

Existing cycling facilities in the Stittsville and Kanata area are predominantly provided through rural paved shoulders, off-road pathway networks and links, with sections of cycle tracks and bike lanes appearing along major roadways to the north, west and on newly constructed corridors.

Figure 12 illustrates the cycling facilities within a five-kilometre radius from the centroid of the W-4 lands. It is noted that the City has not formalized a number of new community pathways in the figure below. These have not been updated given the expansive context of the study area shown and the general regional cycling connectivity is sufficiently illustrated.

Figure 12: Cycling Facilities - Within a Five-Kilometres Radius From The Centroid Of The W-4 Lands



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: February 6, 2024

The existing cycling network within a five-kilometre radius from the centroid of the W-4 Lands highlights a number of gaps in the network connectivity from Stittsville South area to core of Stittsville and Kanata area. Currently, there are no cycling connections along Shea Road between Fernbank Road and Flewellyn Road, Flewellyn Road east of Stittsville Main Street, Eagleson Road between Terry Fox Drive and Flewellyn Road, and Stittsville Main Street north of Fernbank Road. To address these gaps, it is recommended that the City explore opportunities to implement bike lanes along Stittsville Main Street north of Fernbank Road, and paved shoulders along other roadway segments to fulfill the minimum cycling link requirements.

4.3.3 Study Area Pedestrian Network – 15-Minute Neighbourhoods

The local pedestrian network is comprised of new sidewalks in the community north of the W-4 Lands, with pathways linking through parks and open spaces. These sidewalks and pathways extend to the adjacent collector and arterial road network, although a number of missing sidewalks are noted along Stittsville Main Street south

of West Ridge Drive and Fernbank Road east of Hartsmere Drive that funnel the path of travel in a northwesterly direction rather than the most direct routes within/through the community.

Sidewalks providing local connectivity include Stittsville Main Street north of West Ridge Drive, West Ridge Drive, Upcountry Drive, Baywood Drive, Arrowwood Drive, Brightside Avenue between Fernbank Road and Baywood Drive, Edenwyld Drive, Hartsmere Drive, Hickstead Way, and Parade Drive. Asphalt pathways and multi-use pathways provide a number of short cuts through residential blocks, parks and schools, and adjacent to stormwater ponds. This network permits multiple routes through the existing community.

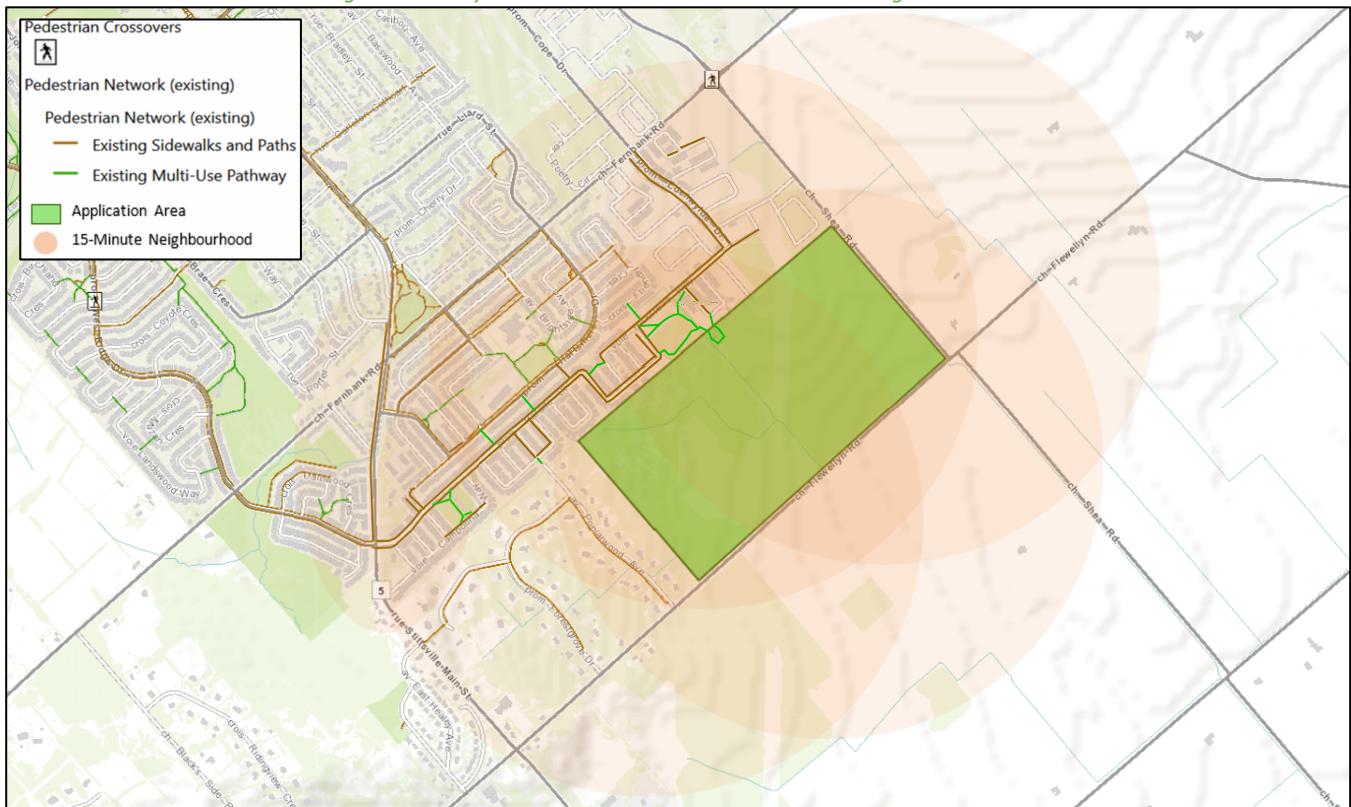
Although there is a missing sidewalk along Painted Sky Way, the potential connection to Parade Drive and multi-use pathways within the stormwater maintenance ponds are expected to provide connections from W-4 Lands and the community to the north. This will facilitate access to key destinations within the adjacent community, including elementary schools and parks. However, there is a lack of connectivity from W-4 Lands to the community to the west and regionally to the south and east.

Within 15-minute Neighbourhoods, Stittsville Main Street between West Ridge Drive and Flewellyn Road, Fernbank Road between Hartsmere Drive and Shea Road, Shea Road between the CARDELREC Recreation Complex Goulbourn and Flewellyn Road, and Flewellyn Road between Stittsville Main Street and Shea Road lack of pedestrian connections. It is recommended that the City explore opportunities address these gaps.

The pedestrian volumes were included in the study area intersection counts, and these are included in Appendix A.

Figure 13 illustrates the existing pedestrian facilities within 15-minute Neighbourhoods. New community sidewalks have been included in the figure despite not being formalized within the City's pedestrian network in geoOttawa.

Figure 13: Study Area Pedestrian Facilities - 15-Minute Neighbourhoods



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: February 6, 2024

4.3.4 Study Area Cycling Network - 15-Minute Neighbourhoods

Within 15-minute Neighbourhoods, paved shoulders are present on both sides along Stittsville Main Street south of Etta Street, Huntley Road, Fernbank Road, Shea Road north of Fernbank Road, and on the west side along Stittsville Main Street between Etta Street and Upcountry Drive. The rural network requires cyclists to travel north prior to heading easterly, with Huntley Road as the only possible connection south. Dedicated facilities are not provided in the adjacent community, relying on on-road facilities and pathways/MUPs.

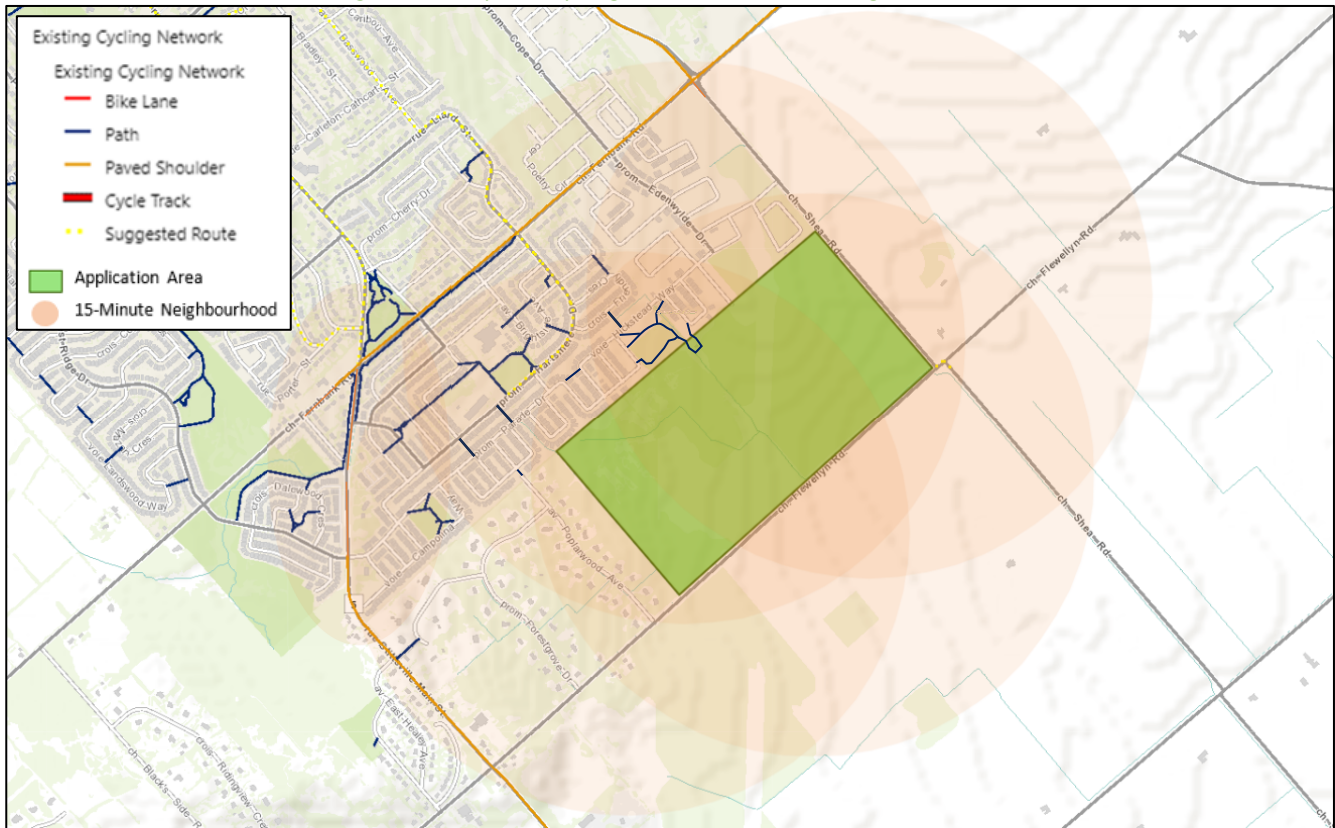
A suggested route is noted at the offset Flewellyn Road and Shea Road intersection in the geoOttawa existing cycling network. The City currently has an active mode project along West Ridge Drive for cycling facilities.

Within 15-minute Neighbourhoods, Shea Road between Fernbank Road and Flewellyn Road and Flewellyn Road between Stittsville Main Street and Shea Road lack of cycling connections, and paved shoulders are recommended along these roadway segments to fill the minimum need for cycling links. It is recommended that the City explore opportunities to address these gaps.

The cyclist volumes were included in the study area intersection counts, and these are included in Appendix A.

Figure 14 illustrates the cycling facilities within 15-minute Neighbourhoods. New community cycling pathways are being constructed to the north of the W-4 Lands. Despite not being formalized within the City's cycling network in geoOttawa at this time, they have been included in Figure 14.

Figure 14: Study Area Cycling Facilities - 15-Minute Neighbourhoods



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: February 6, 2024

4.3.5 Ultimate Pedestrian and Cycling Network

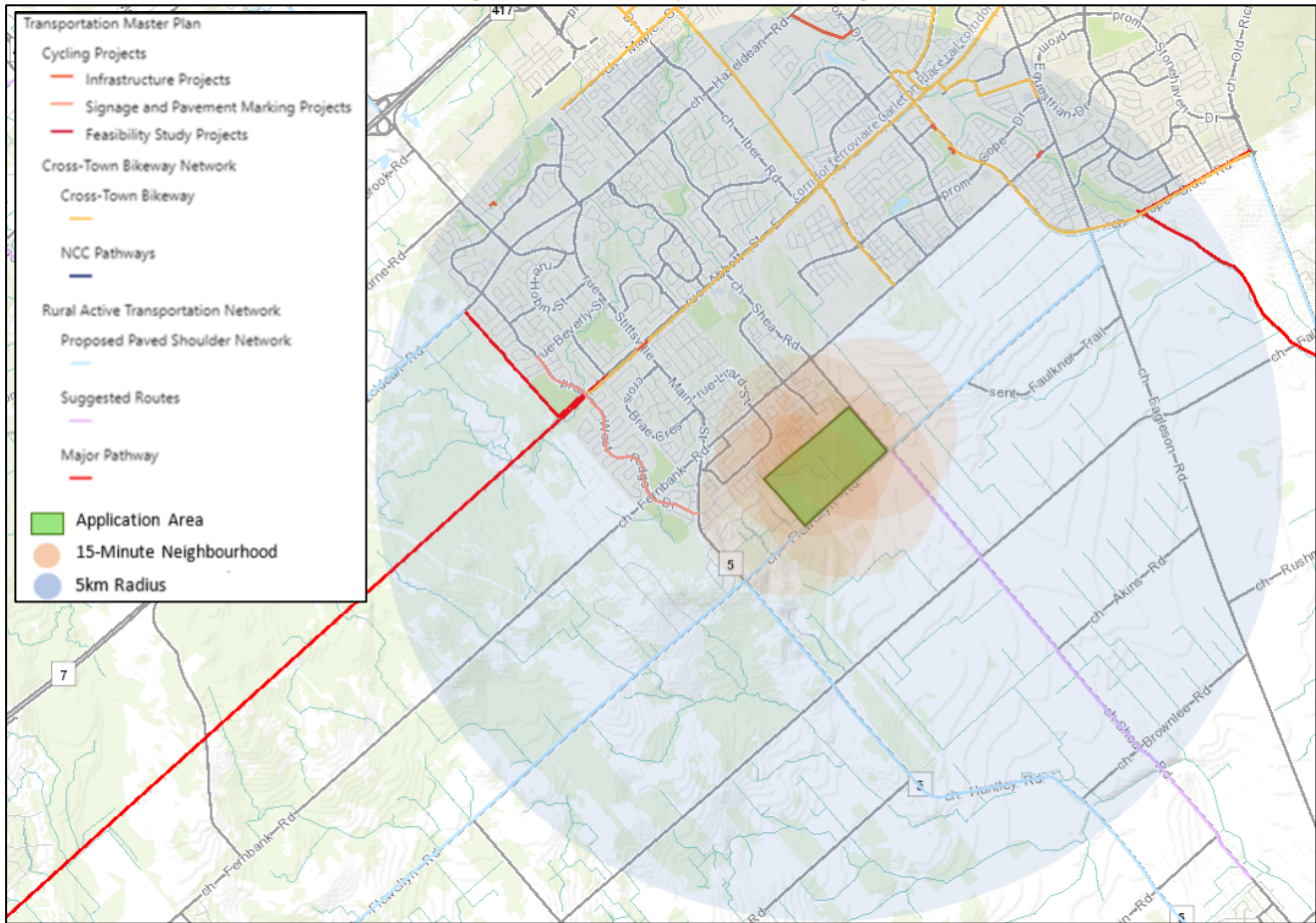
The ultimate pedestrian and cycling network have been outlined within the 2023 Transportation Master Plan – Part 1. Within a five-kilometre radius from the centroid of the W-4 Lands, Robert Grant Avenue, Castlefrank Road, Michael Cowpland Drive, Terry Fox Drive, Hope Side Road, and the Trans Canada Trail are designated as Cross-Town Bikeways, sidewalk projects are listed for West Ridge Drive and Hobin Street, and cycling projects are listed for West Ridge Drive and Stittsville Trans Canada Trail Crossing, Terry Fox Drive Pathway, Carp River Pathway, and Echowoods Park. For the rural area network, paved shoulders are proposed on Flewellyn Road and Eagleson Road between Terry Fox and Flewellyn Road, and Shea Road, located 640 metres north of Fernbank Road, to the south is a suggested route. The addition of paved shoulders along Flewellyn Road and Eagleson Road are expected to fill the minimum need for cycling links from the W-4 Lands to Kanata.

Timing for the above projects is currently undefined in the Active Transportation Projects within 2023 Transportation Master Plan – Part 1.

No pedestrian projects have been identified along Shea Road, Stittsville Main Street, and Fernbank Road to address the pedestrian missing links indicated in Section 4.3.1 and 4.3.3. Additionally, no cycling projects have been identified in the Active Transportation Projects list along Shea Road and Stittsville Main Street to address the cycling missing links indicated in Section 4.3.2. and 4.3.4.

Figure 15 illustrates the active transportation planning outlined in the 2023 Transportation Master Plan – Part 1.

Figure 15: Active Transportation - Planning



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: March 26, 2024

4.3.6 Network Connectivity to Adjacent Community

The pedestrian and cycling connectivity to the adjacent community is provided through two future road connections to Painted Sky Way and a future roadway block to Parade Drive, and stormwater management pond pathways, park/open space along the Hydro corridor. Within the community to the north, the roadway sidewalks and park/open space provide connectivity from the W-4 Lands boundary to destinations to the north.

The key destinations within the adjacent community include three elementary schools, six parks, and the upcoming Ray McCaffrey Park located adjacent to the W-4 Lands. Among these schools, Guardian Angels School and Westwind Public School have licensed childcare centers, both located approximately 300 to 400 metres north of the W-4 Lands, adjacent to Trustee M. Curry Park. The third school, Ambassadors Christian School, is located approximately one kilometre west of the W-4 Lands on Stittsville Main Street.

4.3.7 15-Minute Neighbourhoods Desire Lines

Within 15-Minute Neighbourhoods, there are three elementary schools, two childcare centers, and five parks. The forthcoming Silas Bradley Park, situated at 910 Orviato Way, is presently under construction. At present, there is no retail/commercial located within 15-minute Neighbourhoods, although a retail store and a grocery store are anticipated to be located at 5960 Fernbank Road in the future. The desire line to the schools and parks will be provided through the connections noted in Section 4.3.6.

Figure 16 illustrates the service, amenity, grocery store, and supermarket locations. It is noted that the City's maps below do not include newer amenities or those under approval.

Figure 16: 15 Minute Neighbourhood – Map A1 & Map A1-1: Service, Amenity, Grocery Store, and Supermarket Locations

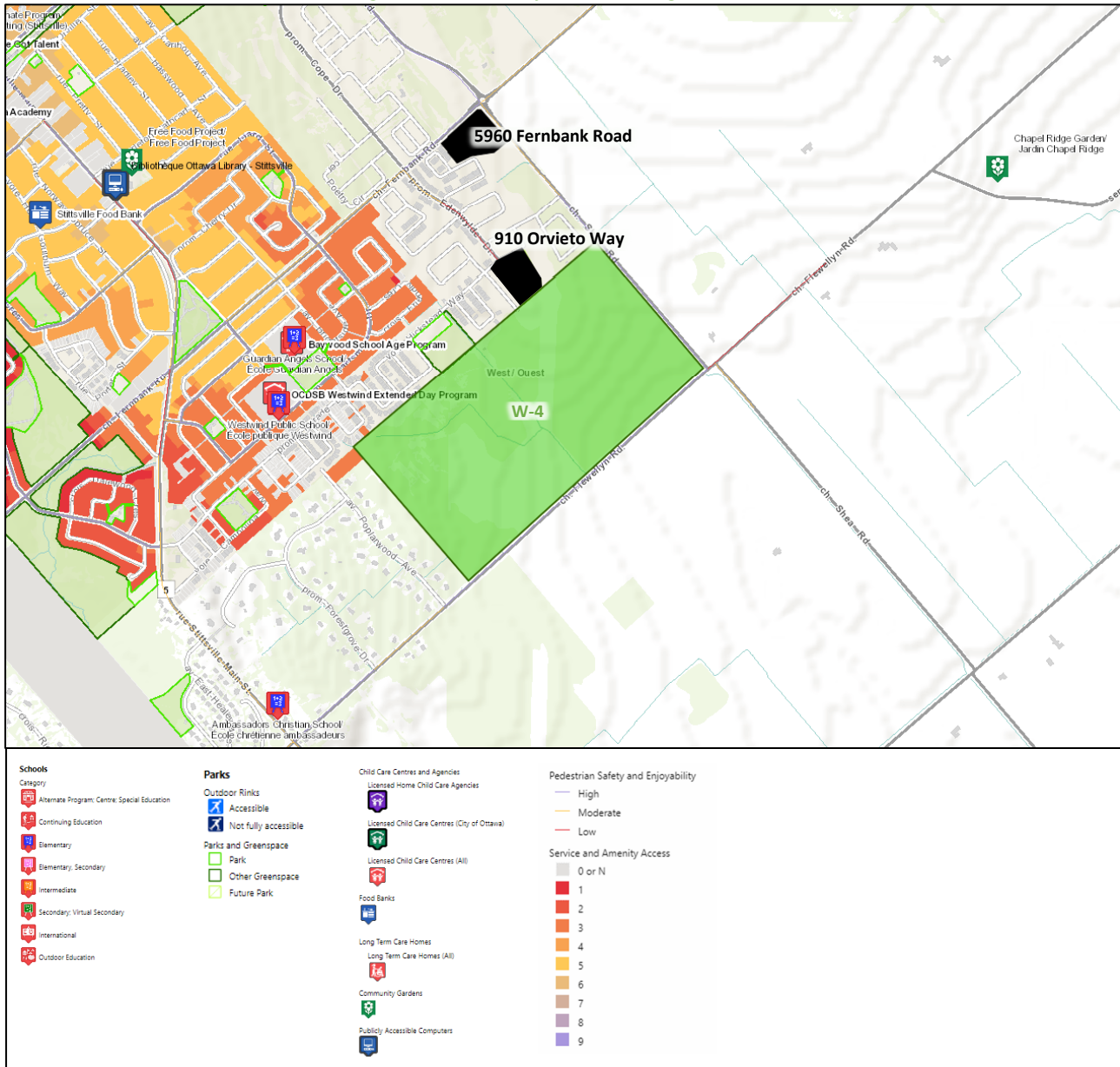


Source: https://engage.ottawa.ca/the-new-official-plan/news_feed/15-minute-neighbourhoods Accessed: February 1, 2024

Using the access to services and amenities framework from the 15-Minute Neighbourhood Baseline Report (2021), the existing community to the north of the W-4 Lands is estimated to be an approximate gauge of the 15-minute nature of the expansion lands. The existing service and amenity access has not fully encapsulated the newly built houses and is assumed to maintain a grade of two or three to the urban boundary.

Figure 17 illustrates the elements within 15-minute Neighbourhoods and the locations of the future retail/grocery store and park.

Figure 17: Elements of 15 Minute Neighbourhood



Source: <http://maps.ottawa.ca/geoOttawa/>, Accessed: January 18, 2024

The existing access scores are anticipated to be similar at the northern boundary of the W-4 Lands, sitting at a score of two or three, and will decrease through the area to Flewellyn Road. The future retail and grocery store noted for 5960 Fernbank Road would likely increase the score by one for the W-4 Lands.

4.4 Transit

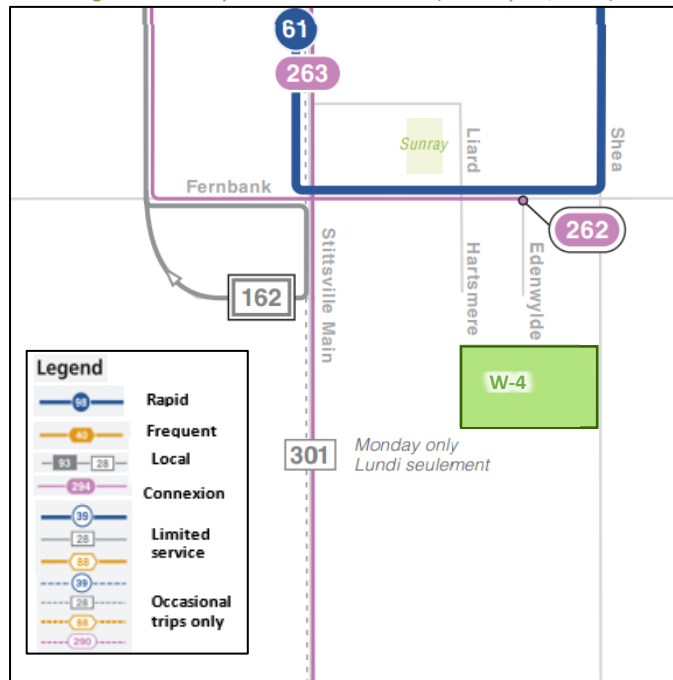
It is noted that the Transit Service and Fare Policy Manual standard requires a 400-metre (five-minute) walk from home, school, and work locations for urban residents during the peak-period route network, and an 800-metre walk from the home location for the all-day network. Given that 15-Minute Neighbourhoods encompasses distances of 400 and 800 metres, the transit network will be reviewed within the context of the local stops within 15-Minute Neighbourhoods, and the wider network connectivity for the five-kilometre radius which will cover the future Bus Rapid Transit (BRT).

4.4.1 Existing Transit Routes and Alignment

Figure 18 illustrates the existing transit system map in proximity to the W-4 Lands. All transit information is from January 18, 2024, and is included for general information purposes and context to the surrounding area.

Route #61 currently travels along Shea Road and Fernbank Road, Stittsville Main Street, Route #162 currently travels along Stittsville Main Street, Fernbank Road, and West Ridge Drive, Route #262 currently travels along Fernbank Road and West Ridge Drive, and Routes #263 and #301 currently travel along Stittsville Main Street. All these routes continue towards the northern Stittsville area.

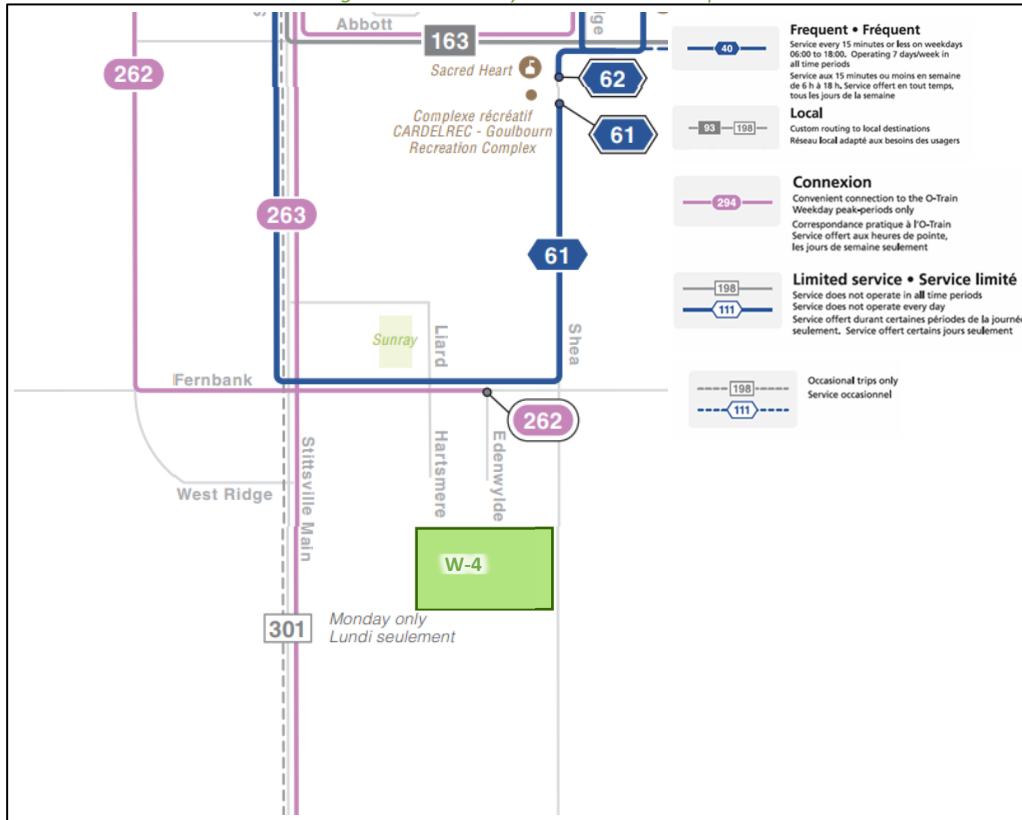
Figure 18: Study Area Transit Service (January 18, 2024)



Source: <http://www.octranspo.com/> Accessed: January 18, 2024

Responding to recent ridership trends and anticipating the upcoming completion of the Stage 2 expansion of LRT service within the City, the OC Transpo bus service is planned to be recalibrated to focus on frequency, local service in neighbourhoods, and connections to key destinations. The new service map is illustrated in Figure 19.

Figure 19: New Ways to Bus Service Map



Source: <https://www.octranspo.com/en/plan-your-trip/service-changes/new-ways-to-bus#new-network> Accessed: August 28, 2024

4.4.2 Existing Route Capacity and Frequencies

The frequency of routes within proximity of the W-4 Lands based on January 18, 2024, service levels are:

- Route # 61 – 30-minute service all day
- Route # 162 – Three afternoon buses and four evening buses per day
- Route # 262 – 30-minute service in the peak direction/period
- Route # 263 – Three morning buses and four afternoon buses per day in the peak direction
- Route # 301 – One morning bus and one afternoon bus on Monday in the peak direction

OC Transpo has confirmed that each bus will have a passenger capacity of 45 passengers during peak periods, based on a standard 40-foot bus equivalent, for all routes.

As noted in Section 4.4.1, the OC Transpo bus service is planned to be recalibrated to focus on frequency, local service in neighbourhoods, and connections to key destinations following the opening of O-Train Line 2 and 4.

4.4.3 Transit Priority Measures

Transit priority measures in the Transportation Master Plan’s (2013) affordable network are identified along Hazeldean Road and Robert Grant Avenue.

4.4.4 Transit Stations/Stops

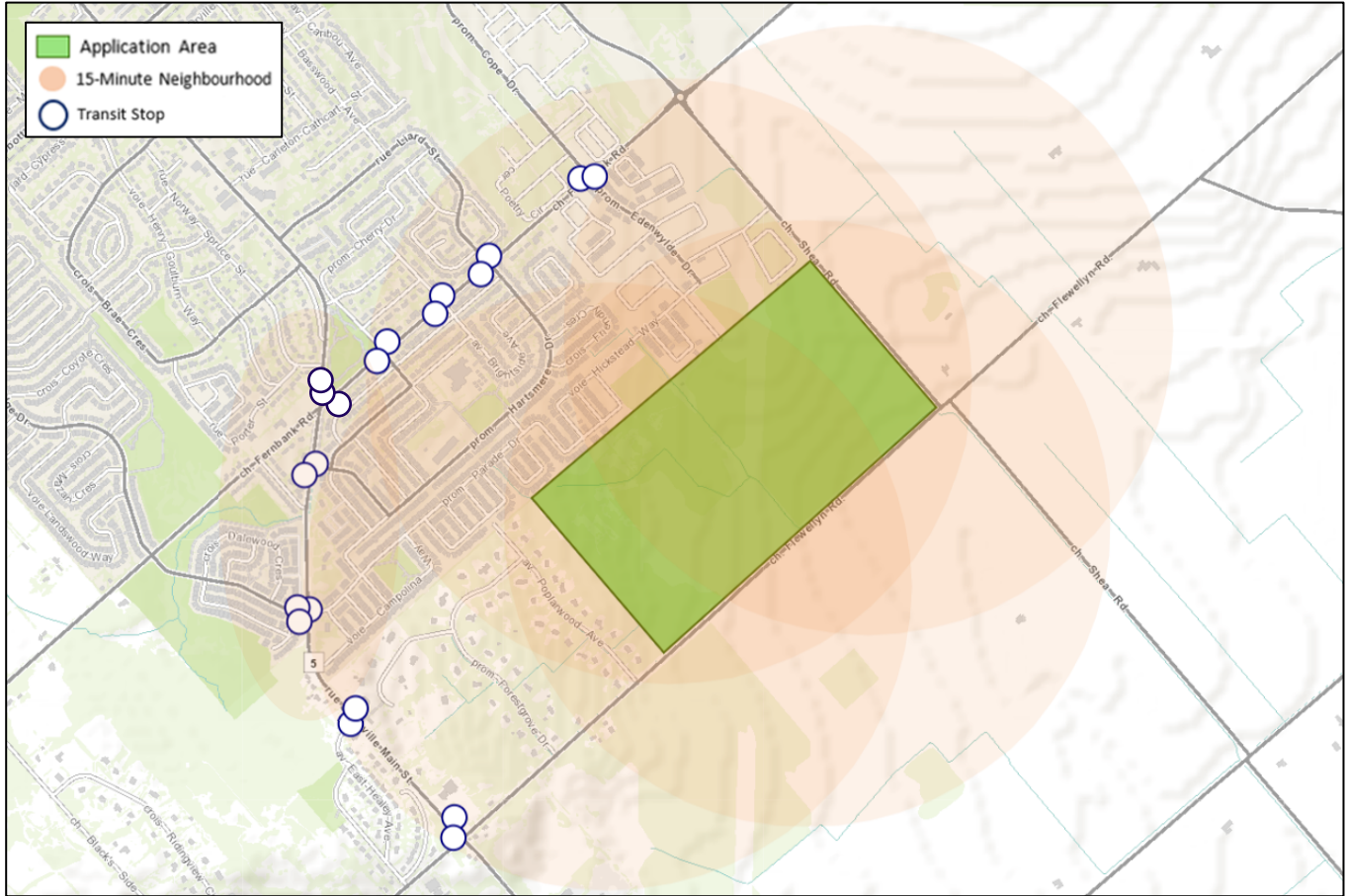
4.4.4.1 Existing Transit Stations/Stops– 15-Minute Neighbourhoods

At present, there are no transit stations within 15-minute Neighbourhoods. The existing transit stops within 15-minute Neighbourhoods are located along Fernbank Road between Stittsville Main Street and Shea Road and

along Stittsville Main Street between Fernbank Road and Flewellyn Road. The local stop amenities include benches at bus stops 0703 and 0762 at the intersection of Stittsville Main Street at West Ridge Drive/Parade Drive. In the 15-minute Neighbourhoods, it is noted that routes #61, #262, #263, and #301 are provided at the intersection of Fernbank Road and Stittsville Main Street, potentially making these stops the main ones.

Figure 20 illustrates the existing transit stops within 15-minute Neighbourhoods.

Figure 20: Existing Transit Stops – 15-Minute Neighbourhoods

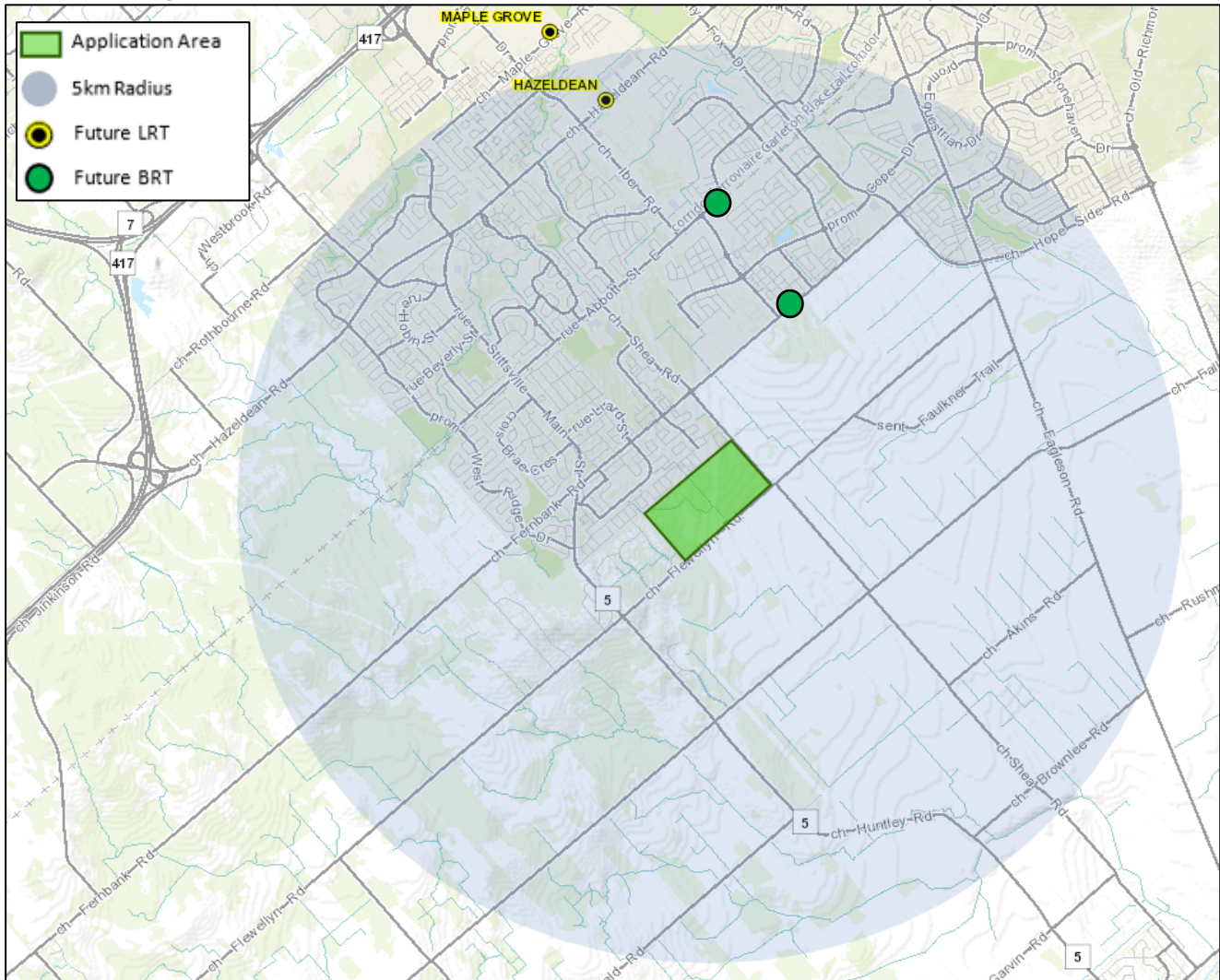


Source: <http://www.octranspo.com/> Accessed: February 6, 2024

4.4.4.2 Future Transit Stations— Within a Five-kilometre Radius From The Centroid Of The W-4 Lands

Within a five-kilometre radius from the centroid of the W-4 Lands, future BRT stations are anticipated at the intersection of Robert Grant Avenue at Fernbank Road and at Abbott Street East. Additionally, the future Hazeldean Light Rail Transit (LRT) station is planned to be located at the intersection of Robert Grant Avenue at Hazeldean Road. Figure 21 illustrates the future transit station within five kilometres from the centroid of the W-4 Lands.

Figure 21: Future Transit Stations - Within a Five-Kilometre Radius From The Centroid Of The W-4 Lands



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: February 6, 2024

5 Community Concept Plan

A total of 991 townhomes, 479 single detached homes, 674 stacked condo units, and park/open space are proposed within the proposed development. New streets, including collector and local roads, are planned within the W-4 Lands.

Driveways are proposed for each single-detached dwelling, garages for typical townhomes, and surface parking for the stacked condo units. Bicycle parking is assumed to be within the individual units.

5.1 New Roadways

The new collector roads are proposed to connect Shea Road and Flewellyn Road and serve as potential transit routes. The new collector roads are all 24.0-metre-wide and include a 2.0-metre-wide sidewalk with a 1.7-metre-wide boulevard on one side of the corridor and a 3.0-metre-wide MUP with a 0.7-metre-wide boulevard on the opposite side. On-street parking is anticipated for be provided on one side of the road only. The collector roads will have a posted speed limit of 40 km/h. All the new local roadways are 18.0-metre-wide and on-street parking along one side of the road, with key connections including 2.0-metre-wide sidewalks on one side. The proposed speed limit will be 30 km/h.

The new roadways will need to be coordinated with utility placements, soil conditions, street trees and set back requirements for subsurface elements. These subsurface requirements may limit the ability to provide the full compliment of City standards on various roadways, and a trade-off review of those elements will be required.

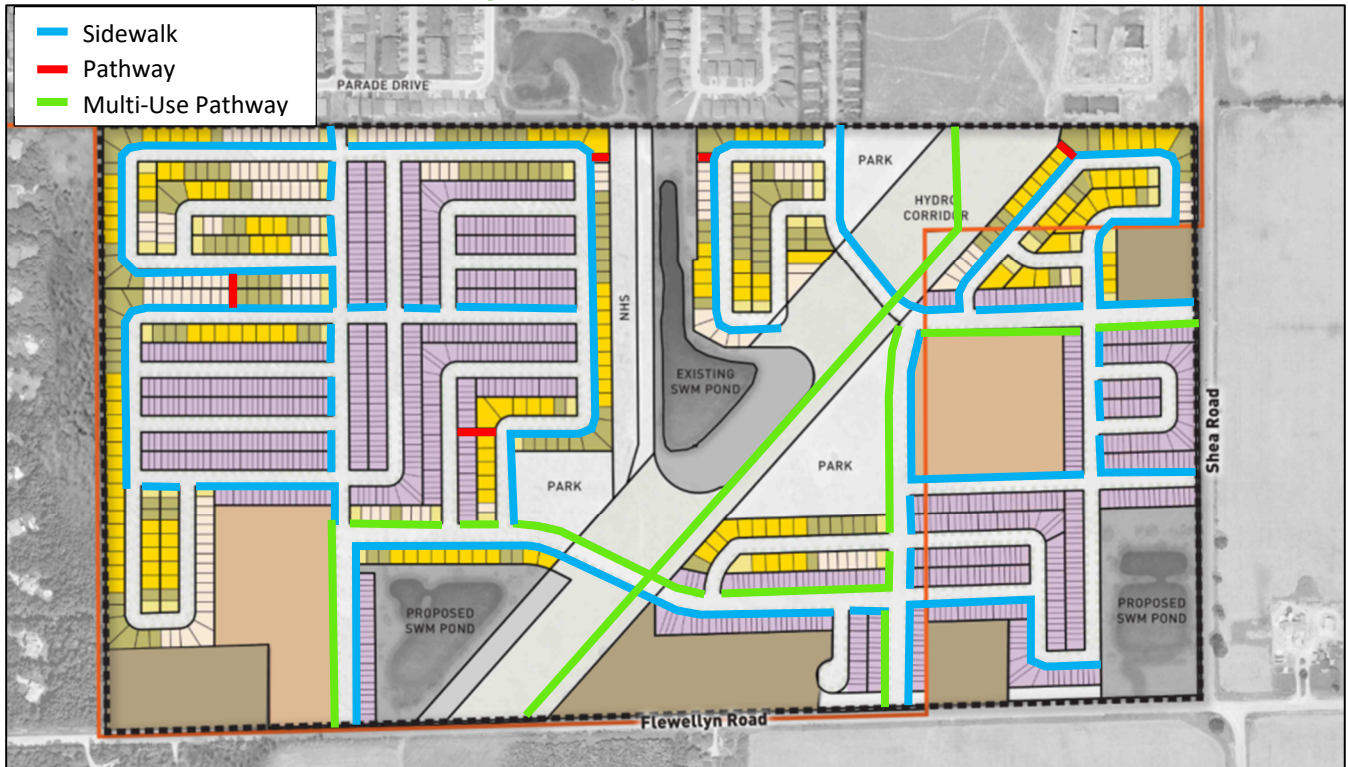
5.2 New Intersections

The new roadway intersections to Flewellyn Road and to Shea Road are proposed as stop controlled on the minor approach. The internal intersection control measures will be subject to operational requirements of the transit or active mode networks, not per volume requirements of the local and collector roadways.

5.3 Pedestrian & Cycling

The existing Hydro corridor and stormwater management ponds are noted within the W-4 Lands, and two proposed stormwater management ponds and three parks are proposed. Sidewalks are provided on the new collector roads and key locals to provide connectivity within the W-4 Lands, to the boundary streets of Shea Road and Flewellyn Road and the northern communities. Pedestrian crossovers are proposed at major active mode crossing locations and to facilitate future the Hydro corridor multi-use pathway links. Pathways are anticipated to be provided along the Hydro corridor, stormwater management ponds and improve connectivity to the area parks. Figure 22 illustrates the conceptual pedestrian network.

Figure 22: Conceptual Pedestrian Network



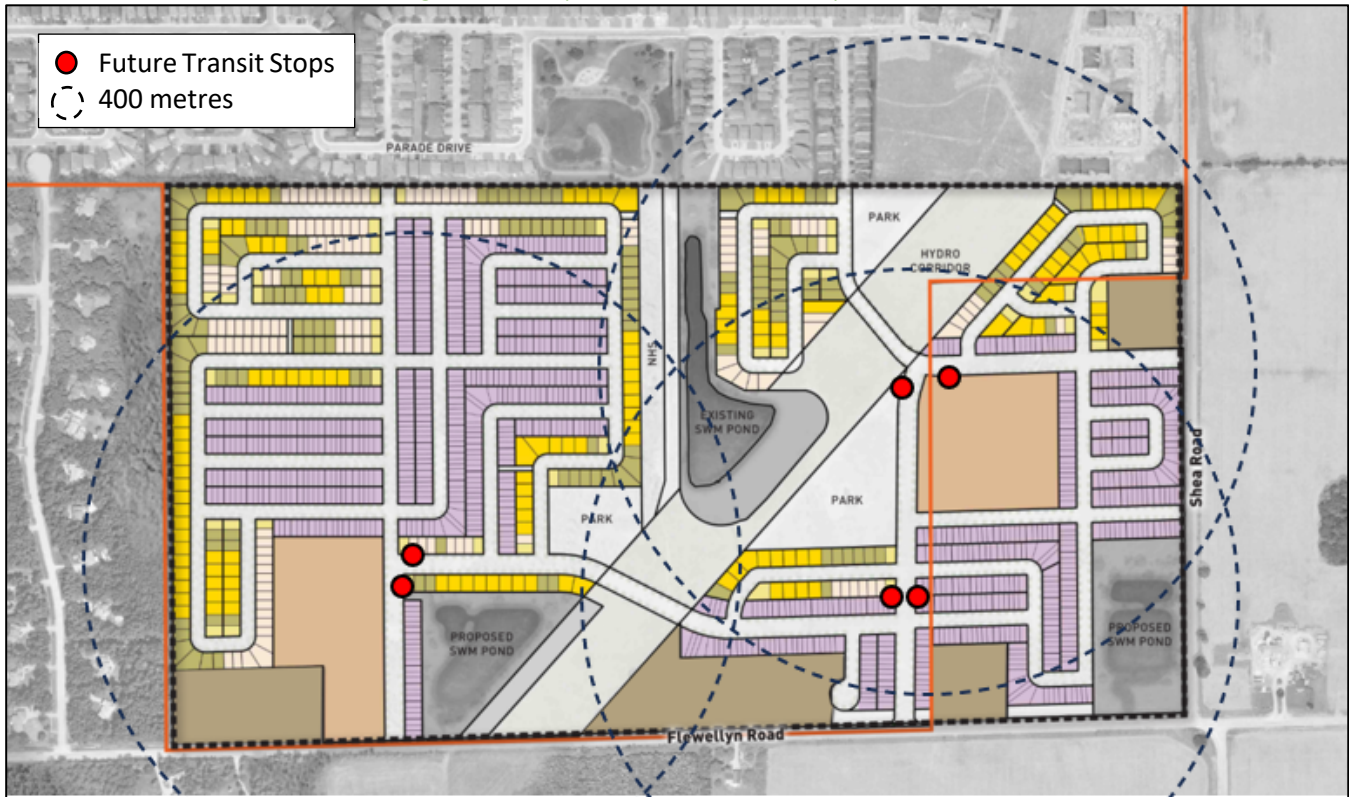
5.4 Traffic Calming Design

Traffic calming measures at the internal intersections and on the internal roadways, including bulb-outs to narrow approaches to intersections (e.g. reduced crossing distance), and street parking, speed humps, and midblock narrowing to reduce vehicle speeds. Traffic calming elements for connections to the existing roadways will be coordinated with the adjacent existing roadway during the detailed design phase. The conceptual traffic calming plan has been provided in Appendix G.

5.5 Transit

The future transit stops will be planned to be located between 400-600 metres along the new collector roadways. Locations will be dependent on OC Transpo input and the W-4 Lands lotting and local road network. Figure 23 illustrates the conceptual W-4 Lands transit stop locations.

Figure 23: Conceptual W-4 Lands Transit Stop Locations



6 Forecasting and Travel Demand

6.1 Mode Shares

Examining the mode shares recommended in the TRANS Trip Generation Manual (2020) for the Kanata/Stittsville and Rural Southwest districts, derived from the most recent National Capital Region Origin-Destination survey (OD Survey), the existing average district mode shares by land use have been summarized in Table 9.

Table 9: TRANS Trip Generation Person Trip Rates – Kanata/Stittsville and Rural Southwest

Travel Mode	Kanata/Stittsville				Rural Southwest			
	Single Detached		Multi-Unit (Low-Rise)		Single Detached		Multi-Unit (Low-Rise)	
	AM	PM	AM	PM	AM	PM	AM	PM
Auto Driver	52%	56%	52%	58%	60%	67%	66%	62%
Auto Passenger	15%	19%	14%	17%	14%	17%	13%	19%
Transit	20%	14%	22%	17%	24%	14%	21%	16%
Cycling	1%	1%	0%	0%	2%	2%	1%	3%
Walking	12%	9%	11%	8%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Examining the above mode shares for the adjacent districts, a combined modal share for the subject development has been developed as a baseline for the expected travel modes of the development. Table 10 summarizes the expected modes shares for the development area.

Table 10: Expected Development Baseline Mode Shares

Travel Mode	Single Detached		Multi-Unit (Low-Rise)	
	AM	PM	AM	PM
Auto Driver	51%	59%	55%	58%
Auto Passenger	15%	19%	15%	19%
Transit	24%	14%	21%	16%
Cycling	2%	2%	2%	2%
Walking	8%	6%	7%	5%
Total	100%	100%	100%	100%

6.2 Background Network Travel Demands

6.2.1 Transportation Network Plans

The transportation network plans were discussed in Section 2 and will be considered in the analysis.

6.2.2 Background Growth

A review of the background projections from the City’s TRANS Regional Model for the 2011 and 2031 horizons was completed to determine the background growth for each of the study area roadways. The background TRANS model growth rates are summarized in Table 11 and the TRANS model plots are provided in Appendix H.

Table 11: TRANS Regional Model Projections – Study Area Growth Rates – AM Peak Hour

Street	TRANS 2011 to 2031	
	Eastbound	Westbound
Flewellyn Rd	-	-
Fernbank Rd	-0.88%	1.47%
Abbott Rd	-0.29%	2.83%
West Ridge Dr	0.92%	1.17%
	Northbound	Southbound
Shea Rd	2.36%	4.84%
Stittsville Main St	0.56%	0.54%
Huntley Rd	0.56%	0.56%
Robert Grant Ave	-	-
Eagleson Rd	0.10%	2.26%
Terry Fox Dr	0.43%	2.60%

The volumes along Fernbank Road and Shea Road are noted to be underestimated when compared to traffic existing counts. The explicit developments identified within this report would form the primary local growth for the existing volumes and the background growth rates would be subject to regional travel through the area. This background growth would be related to rural development and planned development in Richmond Village. Given these factors, Table 12 summarizes the suggested growth rates applied for the background road network. It is noted that no TRANS Rates are provided for Flewellyn Road, and the growth rates are assumed to be the same as Fernbank Road.

Table 12: Recommended Area Growth Rates

Street	AM Peak Hour		PM Peak Hour	
	Eastbound	Westbound	Eastbound	Westbound
Flewellyn Rd	0%	2%	2%	0%
Fernbank Rd	0%	2%	2%	0%
Abbott Rd	0%	2.75%	2.75%	0%
West Ridge Dr	1.00%	1.25%	1.25%	1.00%

Street	AM Peak Hour		PM Peak Hour	
	Northbound	Southbound	Northbound	Southbound
Shea Rd	2.5%	4.75%	4.75%	2.5%
Stittsville Main St	0.5%	0.5%	0.5%	0.5%
Huntley Rd	0.5%	0.5%	0.5%	0.5%
Eagleson Rd	0.25%	2.25%	2.25%	0.25%
Terry Fox Dr	0.5%	2.5%	2.5%	0.5%

6.2.3 Other Developments

The study area developments were discussed in Section 2.2 and will be considered in the analysis. The developments at 5957 and 5969 Fernbank Road, 6041 Fernbank Road, and 5500 Abbott Street and 1555 Shea Road trip generation are noted to be updated to the TRANS 2020 methodology. Given that 95% of the development at 5993 Flewellyn Road have been completed in 2024, the associated trips are assumed to be captured in the 2024 counts.

6.3 Development-Generated Travel Demand

6.3.1 Trip Generation

This TIA has been prepared using the person trip rates for the residential dwellings using the TRANS Trip Generation Manual (2020). Table 13 summarizes the person trip rates for the proposed residential land uses for each peak period.

Table 13: Trip Generation Person Trip Rates by Peak Period

Land Use	Land Use Code	Peak Period	Person Trip Rates
Single-Detached	210 (TRANS)	AM	2.05
		PM	2.48
Multi-Unit (Low-Rise)	220 (TRANS)	AM	1.35
		PM	1.58

Using the above person trip rates, the total person trip generation has been estimated. Table 14 summarizes the total person trip generation for the residential land uses.

Table 14: Total Residential Person Trip Generation by Peak Period

Land Use	Units	AM Peak Period			PM Peak Period		
		In	Out	Total	In	Out	Total
Single-Detached	479	295	687	982	737	451	1188
Multi-Unit (Low-Rise)	1665	674	1574	2248	1473	1158	2631

Using the above mode share targets and the person trip rates, the person trips by mode have been projected. Trip generation by peak hour has been forecasted using the prescribed peak period conversion factors presented in the TRANS Trip Generation Manual (2020) for the residential component. Table 15 summarizes the residential trip generation by mode and peak hour.

Table 15: Trip Generation by Mode

Travel Mode		AM Peak Hour				PM Peak Hour			
		Mode Share	In	Out	Total	Mode Share	In	Out	Total
Single-Detached	Auto Driver	51%	72	168	240	59%	191	117	308
	Auto Passenger	15%	21	50	71	19%	61	38	99
	Transit	24%	39	91	130	14%	48	30	78
	Cycling	2%	4	8	12	2%	7	5	12

Travel Mode	AM Peak Hour				PM Peak Hour				
	Mode Share	In	Out	Total	Mode Share	In	Out	Total	
Walking	8%	14	32	46	6%	23	14	37	
Total	100%	150	349	499	100%	330	204	534	
Multi-Unit (Low-Rise)	Auto Driver	55%	178	415	593	58%	376	295	671
	Auto Passenger	15%	49	113	162	19%	123	97	220
	Transit	21%	78	182	260	16%	111	87	198
	Cycling	2%	8	18	26	2%	14	11	25
	Walking	7%	27	64	91	5%	39	30	69
	Total	100%	340	792	1132	100%	663	520	1183
Total	Auto Driver	-	250	583	833	-	567	412	979
	Auto Passenger	-	70	163	233	-	184	135	319
	Transit	-	117	273	390	-	159	117	276
	Cycling	-	12	26	38	-	21	16	37
	Walking	-	41	96	137	-	62	44	106
	Total	-	490	1141	1631	-	993	724	1717

As shown above, a total of 833 AM and 979 PM new peak hour two-way vehicle trips are projected as a result of the proposed development.

6.3.2 Trip Distribution

To understand the travel for the subject development, the OD Survey has been reviewed to determine the travel patterns for the Kanata/Stittsville and Rural Southwest districts. Based on the screenline review in Section 7.3, Fernbank Road, east of Shea Road, during the PM peak hour in the westbound direction is expected to be over the TRANS capacity in the future background conditions, therefore, no trip assignments are anticipated through Fernbank Road during the PM peak hour in the westbound direction. Table 16 below summarizes the expected distribution of trips from the W-4 Lands. While not explicitly detailed, it is expected that an amount of cut-through travel between the existing subdivision area and the W-4 Lands will occur, and it is assumed that the interaction of those trips on the area road network will balance through the W-4 Lands.

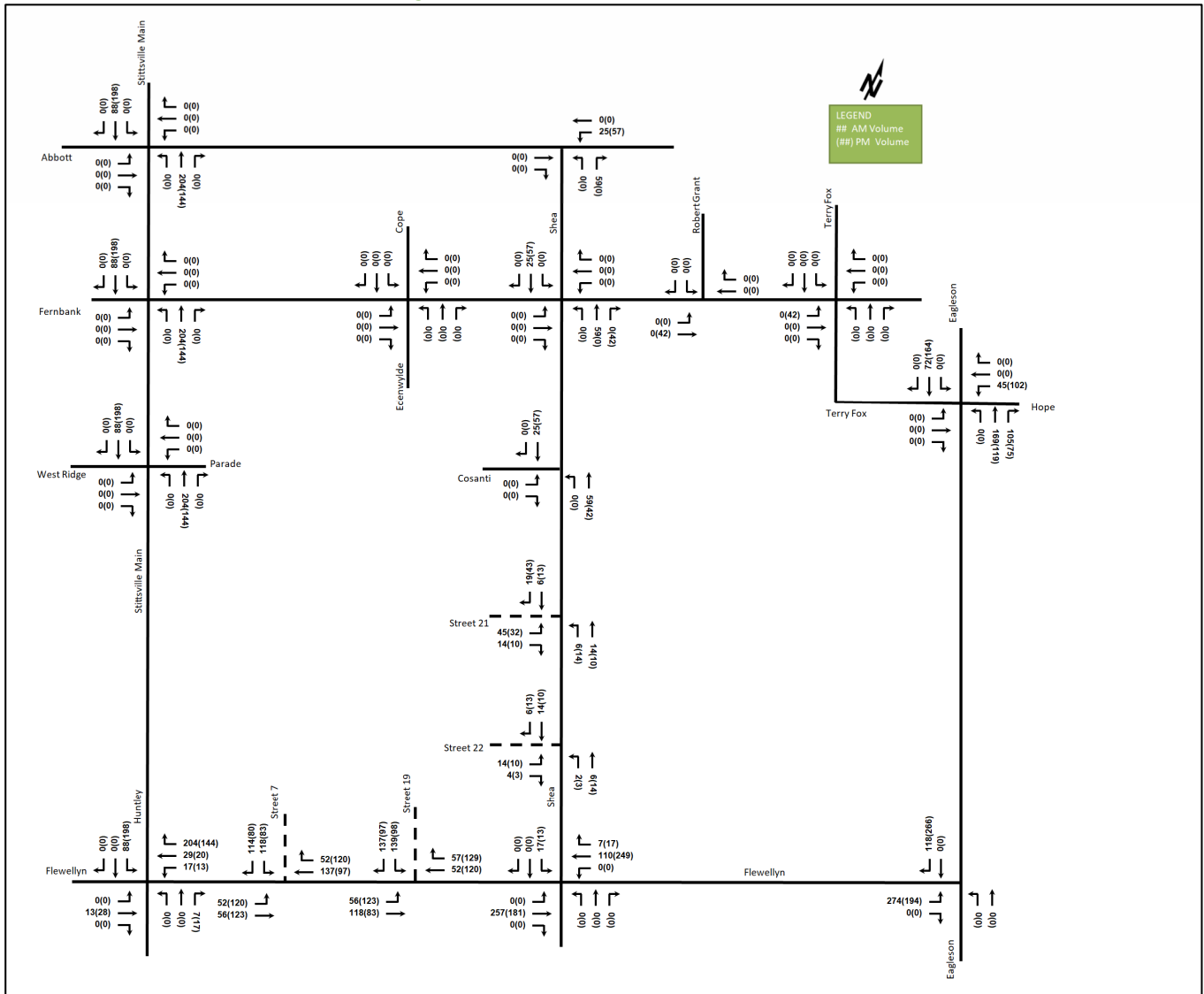
Table 16: OD Survey Distribution

To/From	Residential % of Trips	Inbound Via	Outbound Via
North	80%	35% via Stittsville Main north 10% via Abbott east 29% via Eagleson north 18% via Hope Side west	35% via Stittsville Main north 10% via Abbott east (AM)/10% via Fernbank east (PM) 29% via Eagleson north 18% via Hope Side west
South	3%	3% via Huntley	3% via Huntley
East	12%	12% via Eagleson north	12% via Eagleson north
West	5%	5% via Flewellyn	5% via Flewellyn
Total	100%	100%	100%

6.3.3 Trip Assignment

Using the distribution outlined in Section 8.2, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the study area road network. The assignment has also been based on the Section 7.3 Network Concept review and screenline capacities. Figure 24 illustrates the new site-generated volumes.

Figure 24: New Site Generation Auto Volumes



7 Network Operational Analysis

7.1 Future Background Network Operations

7.1.1 2030 Future Background Conditions

7.1.1.1 Warrant Analysis

As noted in the existing conditions, the intersection of Cope Drive at Fernbank Road, Shea Road at Flewellyn Road, and Shea Road at Cosanti Drive met the all-way stop control warrant in the existing condition. These intersections are recommended remain as minor stop-control conditions. All-way stop control warrant calculation sheets are provided in Appendix C.

Signal warrant analysis of Justifications 7 was performed for the intersections of Shea Road at Flewellyn Road, Stittsville Main Street / Huntley Road at Flewellyn Road, Cope Drive at Fernbank Road, and Shea Road at Abbott Street for 2030 future background conditions. None of the intersection met the Justifications 7 signal warrants. Signal warrant calculation sheets are provided in Appendix D.

The left-turn warrant analysis was performed for the intersections of Shea Road at Flewellyn Road, Stittsville Main Street / Huntley Road at Flewellyn Road, Shea Road at Abbott Street, and Shea Road at Cosanti Drive for 2030 future background conditions. As noted in the existing conditions, the westbound left turn at Shea Road at Abbott Street intersection met a left turn warrant, and the northbound left turn will meet warrants by the 2030 future background conditions. Therefore, a westbound left turn and a northbound left turn are recommended at the intersection of Shea Road at Abbott Street by 2030. The left-turn warrant calculation sheets are provided in Appendix E. The required storage lengths were calculated based on TAC.

7.1.1.2 Intersection Operations

Given that intersection count dates vary between 2022-2024, volumes along roadways have been balanced. As previously noted, the Eagleson Road at Flewellyn Road is anticipated to be a roundabout and will be included in the future horizons.

Capacity issues were noted at the intersection of Terry Fox Drive at Eagleson Road in existing conditions. As growth is anticipated along these roadways, it is recommended that the City evaluate options for improving this intersection by 2030. As the corridor links with the roundabout corridor for Hope Side Road-Richmond Road-Hunt Club Road, it is assumed future upgrades would be the conversion to a roundabout intersection. A roundabout will be analyzed at this intersection as a mitigation measure.

A 40-metre auxiliary northbound left turn and a 110-metre auxiliary westbound left turn are recommended at the intersection of Shea Road at Abbott Street in the 2030 future background conditions, and the mitigation measure at this intersection will be provided.

Figure 25 illustrates the 2030 future background volumes and Table 17 summarizes the 2030 future background intersection operations. Volumes have been balanced along the study area roadways. Synchro 11 has been used to model the unsignalized intersections and Sidra 8 to model the study area roundabout. HCM 2010 methodology was used for unsignalized intersection operations and Sidra HCM 6 was used for roundabout intersection operations. The synchro and sidra worksheets for the 2030 future background horizon are provided in Appendix I.

Figure 25: 2030 Future Background Volumes

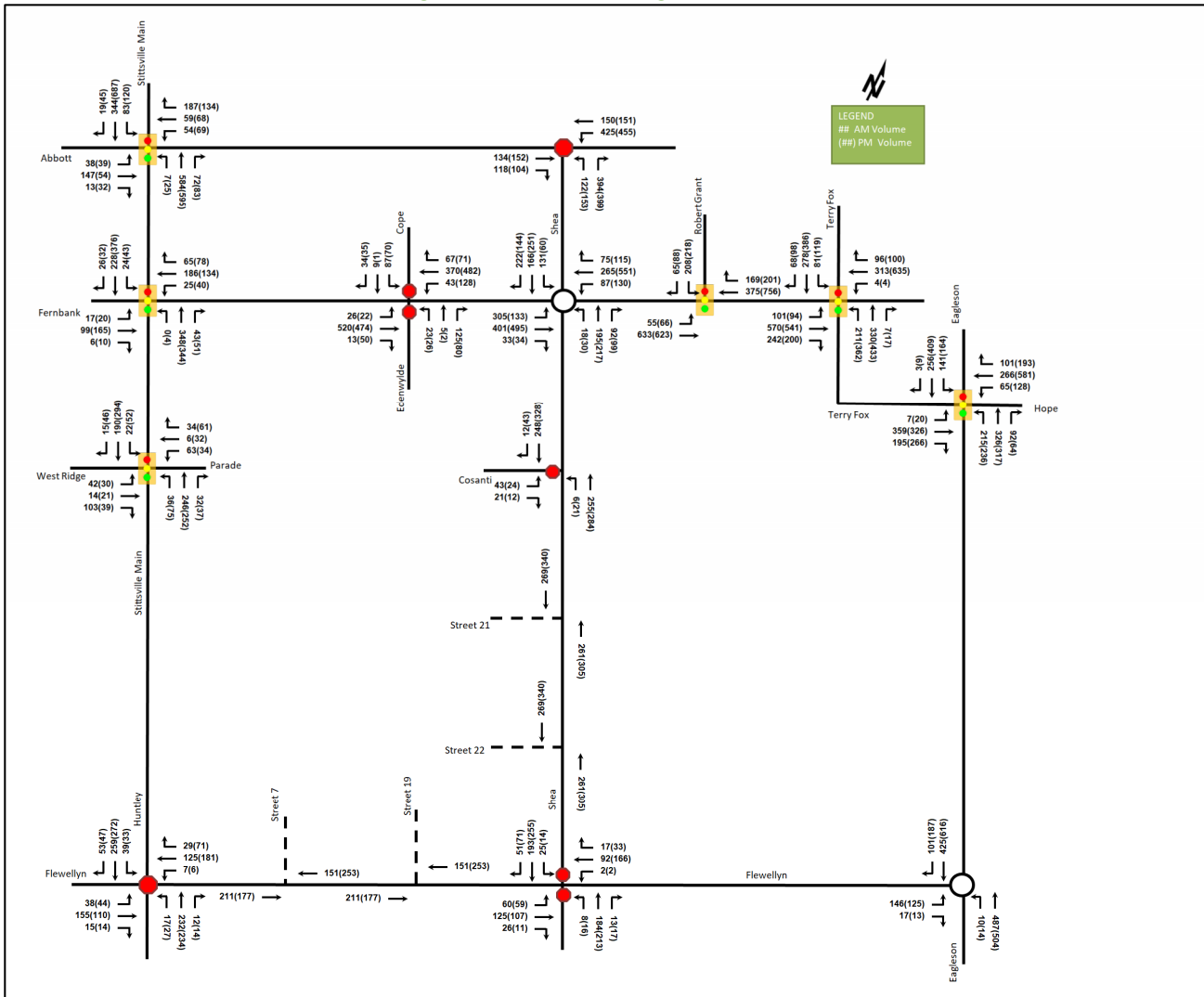


Table 17: 2030 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)
Stittsville Main Street at Abbott Street <i>Signalized</i>	EBL	A	0.33	34.4	11.9	A	0.29	35.7	13.8
	EBT/R	A	0.52	33.8	33.6	A	0.29	22.3	18.6
	WBL	A	0.30	31.2	14.9	A	0.34	35.3	20.5
	WBT/R	A	0.59	14.2	24.3	A	0.57	20.7	30.8
	NBL	A	0.01	5.9	1.9	A	0.06	6.3	4.6
	NBT	A	0.49	8.6	80.6	A	0.49	8.6	80.1
	NBR	A	0.07	3.4	6.9	A	0.08	3.5	7.4
	SBL	A	0.19	7.2	13.2	A	0.25	7.6	17.8
	SBT/R	A	0.32	6.6	43.2	A	0.59	10.3	111.5
Overall	A	0.50	12.5	-	A	0.56	12.3	-	

Intersection	Lane	AM Peak Hour				PM Peak Hour				
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)	
Stittsville Main Street at Fernbank Road <i>Signalized</i>	EBL	A	0.07	13.8	4.7	A	0.08	13.8	5.4	
	EBT/R	A	0.25	14.6	16.5	A	0.40	16.7	26.7	
	WBL	A	0.08	13.7	6.0	A	0.15	14.7	8.7	
	WBT	A	0.45	18.2	27.9	A	0.32	15.9	21.4	
	WBR	A	0.16	5.7	6.6	A	0.18	5.4	7.2	
	NBL	-	-	-	-	A	0.01	9.0	1.6	
	NBT/R	A	0.54	13.3	45.6	A	0.55	13.7	50.9	
	SBL	A	0.07	9.1	4.5	A	0.12	10.1	7.7	
	SBT/R	A	0.35	10.6	27.7	A	0.57	14.2	53.6	
Overall	A	0.50	13.1	-	A	0.50	13.9	-		
Stittsville Main Street at West Ridge Drive <i>Signalized</i>	EBL	A	0.13	14.1	7.8	A	0.10	13.8	6.2	
	EBT/R	A	0.26	5.9	8.8	A	0.15	7.8	7.0	
	WBL	A	0.22	15.5	10.7	A	0.12	14.1	6.7	
	WBT/R	A	0.10	6.7	5.0	A	0.22	7.7	9.2	
	NBL	A	0.06	8.9	7.1	A	0.13	9.3	12.5	
	NBT/R	A	0.29	9.4	36.8	A	0.29	9.2	37.7	
	SBL	A	0.04	8.9	5.1	A	0.09	9.0	9.4	
	SBT	A	0.20	9.1	25.9	A	0.29	9.6	39.5	
	SBR	A	0.02	1.4	1.2	A	0.05	3.9	4.9	
	Overall	A	0.30	9.2	-	A	0.27	9.2	-	
Stittsville Main Street / Huntley Road at Flewellyn Road <i>Unsignalized</i>	EB	B	0.35	12.2	11.3	B	0.30	12.1	9.0	
	WB	B	0.27	11.3	8.3	B	0.43	13.5	16.5	
	NB	B	0.43	13.3	15.8	B	0.46	14.0	18.0	
	SB	B	0.54	14.7	24.0	C	0.56	15.7	25.5	
	Overall	B	-	13.2	-	B	-	14.1	-	
Cope Drive/Edenwylde Drive at Fernbank Road <i>Unsignalized</i>	EBL	A	0.02	8.3	0.8	A	0.02	8.6	0.8	
	EBT/R	-	-	-	-	-	-	-	-	
	WBL	A	0.04	8.6	0.8	A	0.12	9.0	3.0	
	WBT/R	-	-	-	-	-	-	-	-	
	NB	C	0.40	20.3	14.3	D	0.41	28.0	14.3	
	SB	F	1.03	156.1	54.0	F	0.88	121.1	41.3	
Overall	B	-	18.2	-	B	-	11.9	-		
Shea Road at Abbott Street <i>Unsignalized</i>	EBT/R	C	0.46	15.1	18.0	C	0.48	15.6	18.0	
	WBL/T	F	1.01	66.7	113.3	F	1.07	84.1	132.8	
	NBL/R	E	0.87	37.5	75.0	E	0.93	44.5	85.5	
	Overall	E	-	45.8	-	F	-	56.2	-	
	Mitigation Measure: with 40m NBL & 110m WBL									
	EBT/R	C	0.46	15.1	18.0	C	0.48	15.7	18.8	
	WBL	E	0.83	36.9	63.8	E	0.91	47.5	78.8	
	WBT	B	0.28	11.8	8.3	B	0.28	12.1	8.3	
	NBL	B	0.26	12.8	7.5	B	0.32	13.9	10.5	
NBR	C	0.69	21.5	39.0	C	0.70	22.8	42.0		
Overall	C	-	23.3	-	D	-	27.4	-		

Intersection	Lane	AM Peak Hour				PM Peak Hour				
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)	
Shea Road at Fernbank Road Roundabout	EB	C	0.82	24.7	124.1	C	0.78	22.1	90.5	
	WB	B	0.55	13.0	30.5	D	0.88	31.9	175.5	
	NB	C	0.58	18.8	24.8	B	0.54	14.5	24.5	
	SB	B	0.58	12.2	38.8	C	0.73	23.5	46.2	
	Overall	C	0.82	18.0	124.1	C	0.88	24.7	175.5	
Shea Road at Flewellyn Road Unsignalized	EB	A	0.04	7.6	0.8	A	0.04	7.8	0.8	
	WB	A	0.00	7.5	0.0	A	0.00	7.5	0.0	
	NB	C	0.39	16.0	13.5	C	0.53	20.9	22.5	
	SB	C	0.49	17.7	20.3	C	0.65	23.4	34.5	
	Overall	B	-	10.7	-	B	-	14.1	-	
Robert Grant Avenue at Fernbank Road Signalized	EBL	A	0.37	49.1	22.4	A	0.41	49.4	25.6	
	EBT	A	0.52	8.4	88.1	A	0.50	8.2	84.2	
	WBT	A	0.41	14.4	73.8	C	0.74	23.4	#211.3	
	WBR	A	0.22	3.8	12.2	A	0.24	3.6	13.3	
	SBL	B	0.70	49.2	59.9	C	0.71	49.0	62.6	
	SBR	A	0.21	9.9	10.3	A	0.26	9.2	11.7	
	Overall	B	0.68	16.6	-	D	0.83	19.6	-	
Terry Fox Drive at Fernbank Road Signalized	EBL	A	0.32	17.8	17.0	A	0.50	30.5	23.6	
	EBT	D	0.81	32.6	103.4	C	0.78	38.2	143.0	
	EBR	A	0.34	3.2	10.9	A	0.29	4.2	13.7	
	WBL	A	0.03	23.5	2.8	A	0.03	31.0	3.5	
	WBT	B	0.68	38.1	70.6	F	1.37	213.6	#249.2	
	WBR	A	0.22	4.8	7.9	A	0.22	2.2	3.2	
	NBL	A	0.50	25.2	55.4	E	0.93	53.4	#105.8	
	NBT/R	A	0.43	20.5	71.7	A	0.53	22.1	93.2	
	SBL	A	0.23	20.1	21.8	A	0.54	45.4	41.7	
	SBT	A	0.36	19.5	58.5	D	0.84	56.5	#127.9	
	SBR	A	0.08	2.7	5.5	A	0.15	5.5	10.6	
Overall	B	0.70	23.1	-	F	1.13	72.7	-		
Terry Fox Drive at Eagleson Road Signalized	EBL	A	0.03	19.0	3.5	A	0.13	25.4	8.9	
	EBT/R	D	0.86	43.9	137.3	D	0.89	48.9	#195.1	
	WBL	A	0.49	38.3	23.5	A	0.49	20.3	23.9	
	WBT/R	A	0.56	28.1	78.3	D	0.85	33.8	202.0	
	NBL	A	0.47	21.4	46.3	E	1.00	95.1	#108.9	
	NBT/R	A	0.49	20.8	91.1	B	0.62	38.4	113.0	
	SBL	A	0.47	37.5	45.3	D	0.88	90.3	#79.5	
	SBT/R	A	0.45	33.3	69.3	F	1.20	157.8	#187.2	
	Overall	B	0.69	31.8	-	F	1.02	64.9	-	
	Mitigation Measure: Roundabout – 2 lane									
	EB	A	0.32	7.5	9.8	B	0.43	10.8	15.6	
	WB	A	0.26	7.2	7.6	B	0.56	12.6	29.0	
	NB	A	0.37	8.5	12.4	A	0.36	8.3	11.5	
SB	A	0.24	6.9	6.9	B	0.50	14.8	18.6		
Overall	A	0.37	7.6	12.4	B	0.56	11.7	29.0		

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)
Eagleson Road at Flewellyn Road Roundabout	EBL/R	A	0.20	6.3	6.1	A	0.20	7.3	5.8
	NBL/T	A	0.43	7.5	19.9	A	0.45	7.7	21.9
	SBT/R	A	0.41	5.8	21.0	B	0.60	6.1	43.1
	Overall	A	0.43	6.6	21.0	A	0.60	7.8	-
Shea Road at Cosanti Drive Unsignalized	EBL/R	B	0.11	12.0	3.0	B	0.08	13.2	1.5
	NBL/R	A	0.01	7.8	0.0	A	0.02	8.1	0.8
	SBT/R	-	-	-	-	-	-	-	-
	Overall	A	-	1.4	-	A	-	0.9	-

Notes: Saturation flow rate of 1800 veh/h/lane
 Queue is measured in metres
 Peak Hour Factor = 1.00

Delay = average vehicle delay in seconds
 m = metred queue
 # = volume for the 95th %ile cycle exceeds capacity

During both the AM and PM peak hours, the study area intersections operate well except for the intersections of Cope Drive at Fernbank Road, Shea Road at Abbott Street, Terry Fox Drive at Fernbank Road and at Eagleson Road.

At the intersection of Cope Drive at Fernbank Road, the southbound movements during both peak hours are anticipated to experience high delays. These delays are due to the demands of the background developments north of Fernbank Road and the high east-west volumes along Fernbank Road limiting southbound operations. No site-generated trips are anticipated at this intersection and any future study or improvements are unrelated to the urban expansion lands.

At the intersection of Shea Road at Abbott Street, the westbound share left turn/through movements are anticipated to experience high delays during both peak hours under the existing geometry. With the addition of auxiliary westbound and northbound left-turn lanes, this intersection is anticipated to be improved with overall v/c of C or D.

At the intersection of Robert Grant Avenue at Fernbank Road, the westbound through movement during the PM peak hour may experience extended queues.

At the intersection of Terry Fox Drive at Fernbank Road, during the PM peak hour, the overall intersection is over theoretical capacity and the southbound through movement may be subject to extended queues as noted in the existing conditions. The westbound through movement is the capacity constraint that is causing the poor overall operations, where the northbound left is the next highest demand having a v/c ratio of 0.93 and an LOS E. The capacity may be addressed through re-allocation of the signal phasing, or may require additional north-south capacity to permit addition time for the westbound approach.

At the intersection of Terry Fox Drive at Eagleson Road, the northbound left-turn during the PM peak hour is noted to reach the capacity. All other capacity and extended queues were noted in existing conditions. This intersection is expected to operate well with an overall v/c of A or B if converting to a roundabout.

7.1.1.3 Recommended Improvements

Based on the operational analysis provided, the following network improvements are indicated for consideration by the 2030 future background horizon:

- Shea Road at Abbott Street:
 - A 40-metre auxiliary northbound left turn lane
 - A 110-metre auxiliary westbound left turn lane
- Terry Fox Drive at Fernbank Road:

- Monitoring and signal timing improvements, with consideration for Terry Fox Drive capacity to alleviate constraints on the westbound approach
- Terry Fox Drive at Eagleson Road:
 - Conversion into a 2-lane roundabout
- Flewellyn Road at Eagleson Road:
 - Conversion into a single lane roundabout

7.1.2 2035 Future Background Conditions

7.1.2.1 Warrant Analysis

As noted in the existing conditions, the intersection of Cope Drive at Fernbank Road, Shea Road at Flewellyn Road, and Shea Road at Cosanti Drive are recommended remain as minor stop-control conditions. All-way stop control warrant calculation sheets are provided in Appendix C.

Signal warrant analysis of Justifications 7 was performed for the intersections of Shea Road at Flewellyn Road, Stittsville Main Street / Huntley Road at Flewellyn Road, Cope Drive at Fernbank Road, and Shea Road at Abbott Street for 2030 future background conditions. None of the intersection met the Justifications 7 signal warrants. Signal warrant calculation sheets are provided in Appendix D.

The left-turn warrant analysis was performed for the intersections of Shea Road at Flewellyn Road, Stittsville Main Street / Huntley Road at Flewellyn Road, Shea Road at Abbott Street, and Shea Road at Cosanti Drive for 2035 future background conditions. Except for those identified in the existing and 2030 future background conditions. No additional turn lane warrants were noted. The left-turn warrant calculation sheets are provided in Appendix E.

7.1.2.2 Intersection Operations

As previous noted, the Eagleson Road at Flewellyn Road is anticipated to be a roundabout and will be included in the future horizons.

Similar to the 2030 future background conditions, a 40-metre auxiliary northbound left turn and a 115-metre auxiliary westbound left turn, which were calculated based on TAC, at the intersection of Shea Road at Abbott Street. A roundabout at the intersection of Terry Fox Drive at Eagleson Road is be considered as a mitigation option for any operational issues noted.

Figure 26 illustrates the 2035 future background volumes and Table 18 summarizes the 2035 future background intersection operations. Volumes have been balanced along the study area roadways. Synchro 11 has been used to model the unsignalized intersections and Sidra 8 to model the study area roundabout. HCM 2010 methodology was used for unsignalized intersection operations and Sidra HCM 6 was used for roundabout intersection operations. The synchro and sidra worksheets for the 2035 future background horizon are provided in Appendix J.

Figure 26: 2035 Future Background Volumes

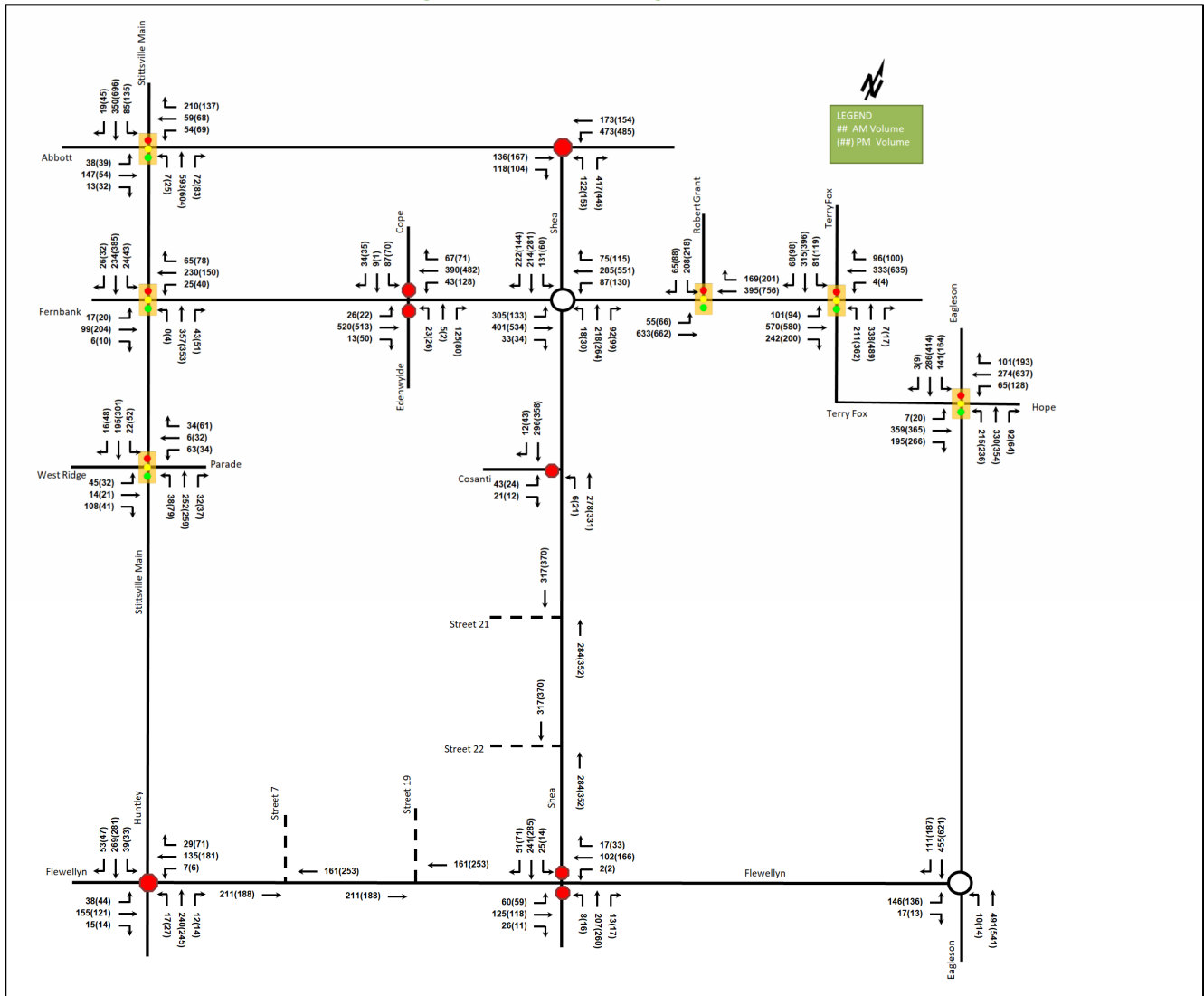


Table 18: 2035 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)
Stittsville Main Street at Abbott Street Signalized	EBL	A	0.38	38.4	12.3	A	0.30	35.9	13.8
	EBT/R	A	0.52	33.8	33.6	A	0.29	22.3	18.6
	WBL	A	0.30	31.2	14.9	A	0.34	35.3	20.5
	WBT/R	B	0.62	14.1	25.4	A	0.57	20.7	31.2
	NBL	A	0.01	5.9	1.9	A	0.07	6.3	4.6
	NBT	A	0.50	8.7	82.5	A	0.50	8.7	82.1
	NBR	A	0.07	3.4	6.9	A	0.08	3.5	7.5
	SBL	A	0.20	7.3	13.5	A	0.29	8.1	20.4
SBT/R	A	0.32	6.6	44.0	A	0.60	10.5	114.1	
Overall		A	0.50	12.7	-	A	0.57	12.4	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)
Stittsville Main Street at Fernbank Road <i>Signalized</i>	EBL	A	0.07	13.9	4.9	A	0.07	14.0	5.4
	EBT/R	A	0.23	14.4	17.0	A	0.47	18.0	32.9
	WBL	A	0.08	13.8	6.2	A	0.15	14.9	8.9
	WBT	A	0.52	19.3	35.6	A	0.34	16.3	24.0
	WBR	A	0.15	5.6	6.7	A	0.18	5.4	7.3
	NBL	-	-	-	-	A	0.01	9.2	1.6
	NBT/R	A	0.58	14.7	50.8	A	0.58	14.5	52.3
	SBL	A	0.07	9.8	4.9	A	0.13	10.4	7.7
	SBT/R	A	0.37	11.4	30.8	A	0.60	15.2	54.9
Overall	A	0.55	14.2	-	A	0.54	14.8	-	
Stittsville Main Street at West Ridge Drive <i>Signalized</i>	EBL	A	0.14	14.3	8.2	A	0.11	13.9	6.5
	EBT/R	A	0.27	5.8	9.0	A	0.15	7.8	7.2
	WBL	A	0.22	15.6	10.7	A	0.12	14.1	6.7
	WBT/R	A	0.10	6.7	5.0	A	0.22	7.7	9.2
	NBL	A	0.06	8.9	7.4	A	0.13	9.4	13.2
	NBT/R	A	0.30	9.5	37.6	A	0.30	9.3	38.7
	SBL	A	0.04	8.9	5.1	A	0.09	9.0	9.4
	SBT	A	0.21	9.2	26.5	A	0.30	9.6	40.6
	SBR	A	0.02	1.6	1.3	A	0.06	3.8	4.9
	Overall	A	0.31	9.2	-	A	0.27	9.2	-
Stittsville Main Street / Huntley Road at Flewellyn Road <i>Unsignalized</i>	EB	B	0.35	12.4	12.0	B	0.32	12.6	10.5
	WB	B	0.29	11.6	9.0	B	0.44	14.0	16.5
	NB	B	0.45	13.8	17.3	B	0.48	14.7	19.5
	SB	C	0.56	15.4	25.5	C	0.59	17.1	29.3
	Overall	B	-	13.7	-	B	-	15.0	-
Cope Drive/Edenwylde Drive at Fernbank Road <i>Unsignalized</i>	EBL	A	0.02	8.3	0.8	A	0.02	8.6	0.8
	EBT/R	-	-	-	-	-	-	-	-
	WBL	A	0.04	8.6	0.8	A	0.13	9.1	3.0
	WBT/R	-	-	-	-	-	-	-	-
	NB	C	0.40	20.7	14.3	D	0.44	30.3	15.8
	SB	F	1.07	169.1	56.3	F	0.95	142.7	44.3
Overall	B	-	19.2	-	B	-	13.3	-	

Intersection	Lane	AM Peak Hour				PM Peak Hour				
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)	
Shea Road at Abbott Street <i>Unsignalized</i>	EBT/R	C	0.48	15.6	18.0	C	0.54	17.4	21.8	
	WBL/T	F	1.14	109.8	161.3	F	1.18	122.4	169.5	
	NBL/R	E	0.93	42.8	81.0	F	1.05	64.7	111.0	
	Overall	F	-	68.1	-	F	-	80.6	-	
	Mitigation Measure: with 40m NBL & 115m WBL									
	EBT/R	C	0.48	15.9	18.8	C	0.53	17.5	22.5	
	WBL	F	0.94	55.8	88.5	F	1.00	67.5	99.8	
	WBT	B	0.32	12.6	10.5	B	0.30	12.6	9.0	
	NBL	B	0.26	13.2	7.5	B	0.33	14.3	10.5	
	NBR	D	0.75	25.8	48.0	D	0.81	31.1	58.5	
	Overall	D	-	31.2	-	E	-	36.8	-	
	Mitigation Measure: Singal Control, Cycle Length 90 seconds with 40m NBL & 115m WBL									
	EBT/R	A	0.22	3.3	18.0	A	0.22	3.9	21.5	
	WBL	B	0.63	12.1	85.6	B	0.65	12.8	89.7	
	WBT	A	0.14	4.5	17.4	A	0.12	4.7	15.8	
	NBL	A	0.55	43.9	33.7	A	0.59	44.0	40.4	
	NBR	C	0.73	11.9	24.8	C	0.73	11.2	25.3	
Overall	B	0.62	12.3	-	B	0.64	13.1	-		
Shea Road at Fernbank Road <i>Roundabout</i>	EB	D	0.87	31.2	143.2	D	0.86	30.2	124.0	
	WB	B	0.59	14.4	35.2	E	0.93	42.7	210.6	
	NB	C	0.62	20.7	28.3	C	0.63	18.5	33.0	
	SB	B	0.65	14.5	52.1	D	0.77	27.1	55.2	
	Overall	C	0.87	21.4	143.2	D	0.93	31.8	210.6	
Shea Road at Flewellyn Road <i>Unsignalized</i>	EB	A	0.04	7.6	0.8	A	0.04	7.8	0.8	
	WB	A	0.00	7.5	0.0	A	0.00	7.5	0.0	
	NB	C	0.44	17.4	16.5	D	0.64	25.8	33.0	
	SB	C	0.60	21.2	29.3	D	0.72	28.4	44.3	
	Overall	B	-	12.7	-	B	-	17.6	-	
Robert Grant Avenue at Fernbank Road <i>Signalized</i>	EBL	A	0.37	49.1	22.4	A	0.41	49.7	25.6	
	EBT	A	0.52	8.4	88.1	A	0.53	8.6	92.9	
	WBT	A	0.43	14.7	78.7	C	0.74	23.3	#211.3	
	WBR	A	0.22	3.8	12.2	A	0.24	3.6	13.3	
	SBL	B	0.70	49.2	59.9	C	0.71	49.5	62.6	
	SBR	A	0.21	9.9	10.3	A	0.26	9.2	11.7	
	Overall	B	0.68	16.6	-	D	0.84	19.5	-	

Intersection	Lane	AM Peak Hour				PM Peak Hour				
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)	
Terry Fox Drive at Fernbank Road <i>Signalized</i>	EBL	A	0.32	17.4	16.8	A	0.50	30.6	23.6	
	EBT	C	0.79	31.1	102.6	D	0.84	42.3	#169.5	
	EBR	A	0.33	3.1	10.8	A	0.29	4.2	13.7	
	WBL	A	0.03	23.0	2.8	A	0.03	31.2	3.5	
	WBT	C	0.71	38.6	75.5	F	1.37	212.6	#249.2	
	WBR	A	0.22	4.6	7.9	A	0.22	2.2	3.2	
	NBL	A	0.56	28.3	#64.2	E	0.94	58.0	#109.3	
	NBT/R	A	0.44	21.3	74.1	A	0.60	23.8	108.8	
	SBL	A	0.24	20.8	22.0	A	0.57	47.5	42.3	
	SBT	A	0.41	20.9	67.5	D	0.87	59.3	#132.8	
	SBR	A	0.08	2.8	5.6	A	0.15	5.5	10.6	
Overall	C	0.73	23.4	-	-	F	1.15	73.1	-	
Terry Fox Drive at Eagleson Road <i>Signalized</i>	EBL	A	0.03	19.1	3.6	A	0.13	26.6	9.3	
	EBT/R	D	0.86	44.0	137.4	D	0.90	49.1	#224.8	
	WBL	A	0.49	38.3	23.5	A	0.48	19.0	23.9	
	WBT/R	A	0.58	28.5	80.6	D	0.87	34.1	#252.0	
	NBL	A	0.50	22.1	46.2	F	1.24	174.0	#108.9	
	NBT/R	A	0.50	20.9	92.3	C	0.73	45.0	126.6	
	SBL	A	0.47	37.5	45.3	E	1.00	120.8	#85.2	
	SBT/R	A	0.50	34.5	77.8	F	1.22	162.9	#190.8	
	Overall	B	0.70	32.2	-	-	F	1.09	74.0	-
	Mitigation Measure: Roundabout – 2 lane									
	EB	A	0.33	7.8	10.1	B	0.46	11.5	17.6	
	WB	A	0.27	7.3	7.8	B	0.61	14.6	35.2	
	NB	A	0.37	8.5	12.5	A	0.39	9.1	14.0	
SB	A	0.26	7.2	7.5	C	0.53	16.4	20.0		
Overall	A	0.37	7.8	12.5	B	0.61	13.0	35.2		
Egleson Road at Flewellyn Road <i>Roundabout</i>	EBL/R	A	0.20	6.4	6.1	A	0.21	7.5	6.3	
	NBL/T	A	0.43	7.6	20.0	A	0.47	8.0	22.9	
	SBT/R	A	0.43	5.9	22.0	A	0.60	6.1	43.4	
	Overall	A	0.43	6.6	22.0	A	0.60	6.1	43.4	
Shea Road at Cosanti Drive <i>Unsignalized</i>	EBL/R	B	0.12	12.7	3.0	B	0.08	14.0	2.3	
	NBL/R	A	0.01	7.9	0.0	A	0.02	8.2	0.8	
	SBT/R	-	-	-	-	-	-	-	-	
	Overall	A	-	1.3	-	A	-	0.9	-	

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00

Delay = average vehicle delay in seconds
m = metred queue
= volume for the 95th %ile cycle exceeds capacity

With background growth along the roadways, the intersections in the study area perform more poorly than the projected 2030 future background conditions.

At the intersection of Cope Drive at Fernbank Road, high delays remain on the southbound movements during both peak hours.

With auxiliary westbound and northbound left turns at Shea Road at Abbott Street intersection, the intersection operations are anticipated to be improved; however, 55.8 seconds of delay during the AM peak hour and 67.5 seconds of delay during the PM peak hour were noted on the westbound left-turn movements during both peak hours. Although this intersection did not meet the signal warrants, a signalized intersection could address this

issue. Of note for this location, the continuation of the Robert Grant Avenue corridor to fully connect north of Hazeldean Road to Palladium Drive is anticipated to change traffic patterns at this location. The ability to have a link that provides a direction connection north, rather than using Abbott Street and Iber Road, may result in these improvements not being required in an ultimate condition. This is beyond the study for the W-4 context and should be given consideration during City planning and priorities within the TMP updates. Ultimately, monitoring and re-evaluation will need to be completed by the City as various Robert Grant Avenue segments are opened.

At the intersection of Robert Grant Avenue at Fernbank Road, the westbound through movement during the PM peak hour may experience extended queues.

Capacity issues remain the same as noted in the existing and 2030 future background conditions at the intersection of Terry Fox Drive at Fernbank Road. With additional growth, the northbound left-turn movement during the AM peak hour and the eastbound through movement during the PM peak hour may subject to extend queues.

At the intersection of Terry Fox Drive at Eagleson Road, the capacity and queues issues remain the same as noted in the existing conditions. With additional growth, the northbound left-turn and southbound left-turn movements during the PM peak hour are anticipated to be over or reach the theoretical capacity. This intersection is expected to operate well with an overall v/c of A or B if converted to a roundabout.

7.1.2.3 *Recommended Improvements*

Based on the operational analysis provided, the following network improvements are indicated for consideration by the 2035 future background horizon:

- Shea Road at Abbott Street:
 - Signalize the intersection
 - A 40-metre auxiliary northbound left turn lane, per 2030 future background recommendations
 - A 115-metre auxiliary westbound left turn lane, additional storage over 2030 future background recommendations
 - Consideration of Robert Grant Avenue will be required to confirm they are needed at this horizon
- Terry Fox Drive at Fernbank Road:
 - Monitoring and signal timing improvements, with consideration for Terry Fox Drive capacity to alleviate constraints on the westbound approach, per 2030 future background recommendations
- Terry Fox Drive at Eagleson Road:
 - Conversion into a 2-lane roundabout, per 2030 future background recommendations
- Flewellyn Road at Eagleson Road:
 - Conversion into a single lane roundabout, per 2030 future background recommendations

7.2 Future Network Travel Demand

7.2.1 2030 Future Total Conditions

7.2.1.1 *Warrant Analysis*

As noted in the existing conditions, the intersections of Cope Drive at Fernbank Road and Shea Road at Cosanti Drive met the all-way stop control warrants, and these intersections are recommended remain as minor stop-control conditions. The new intersections along Shea Road and Flewellyn Road met warrants for consideration of all-way stop-control. Although warrants are met, the operations are expected to be acceptable as a minor stop-control condition. All-way stop control warrant calculation sheets are provided in Appendix C.

The Shea Road at Flewellyn Road intersection met Signal Justification 7 in the 2030 future total conditions. Signal warrant calculation sheets are provided in Appendix D. Given the existing geometric offset at the intersection, it is recommended that the City expedite the acquisition of land to facilitate intersection improvements and a higher order of intersection control. This control could be signalization or a roundabout, depending on the property acquisition and funding allocation.

The southbound left turns met the warrant in the 2030 future total conditions during both peak hours at the intersection of Stittsville Main Street / Huntley Road at Flewellyn Road, and it is recommended that an auxiliary southbound left turn be provided at this intersection. The eastbound left turns at Shea Road at Flewellyn Road intersection met the left-turn warrants, although implementation of additional lanes is not recommended until the offset configuration has been addressed. The eastbound left turns at Flewellyn Road at Street 7 and at Street 19 during both peak hours met the left-turn warrants in the 2030 future total conditions. Although the warrant will be met for consideration, the queues are expected to be less than half a car and no turn lanes are recommended. The left-turn warrant calculation sheets are provided in Appendix E.

7.2.1.2 Intersection Operations

As noted in the existing and 2030 future background conditions, westbound and northbound left turn at the intersection of Shea Road at Abbott Street and roundabouts at Eagleson Road at Flewellyn Road and at Terry Fox Drive will be included in the 2030 future total conditions. The required storage lengths at the Shea Road at Abbott Street intersection were calculated based on TAC, and include a 40 metres of northbound left turn lane and a 130 metres of westbound left turn lane. Possible capacity constraints will also be considered through mitigation of a signalized intersection for Shea Road a Abbot Street.

Minor stop-control intersections with no additional turn lanes were assumed at the new intersections on the along Shea Road and Flewellyn Road. A 55-metre auxiliary northbound left turn at the intersection of Stittsville Main Street / Huntley Road at Flewellyn Road, and a roundabout at the intersection of Shea Road at Flewellyn Road will be considered as possible mitigation measures in the 2030 future total conditions.

The 2030 future total intersection volumes are illustrated in Figure 27 and the intersection operations are summarized below in Table 19. Synchro 11 has been used to model the unsignalized intersections and Sidra 8 to model the study area roundabout. HCM 2010 methodology was used for unsignalized intersection operations and Sidra HCM 6 was used for roundabout intersection operations. The synchro and sidra worksheets have been provided in Appendix K.

Figure 27: 2030 Future Total Volumes

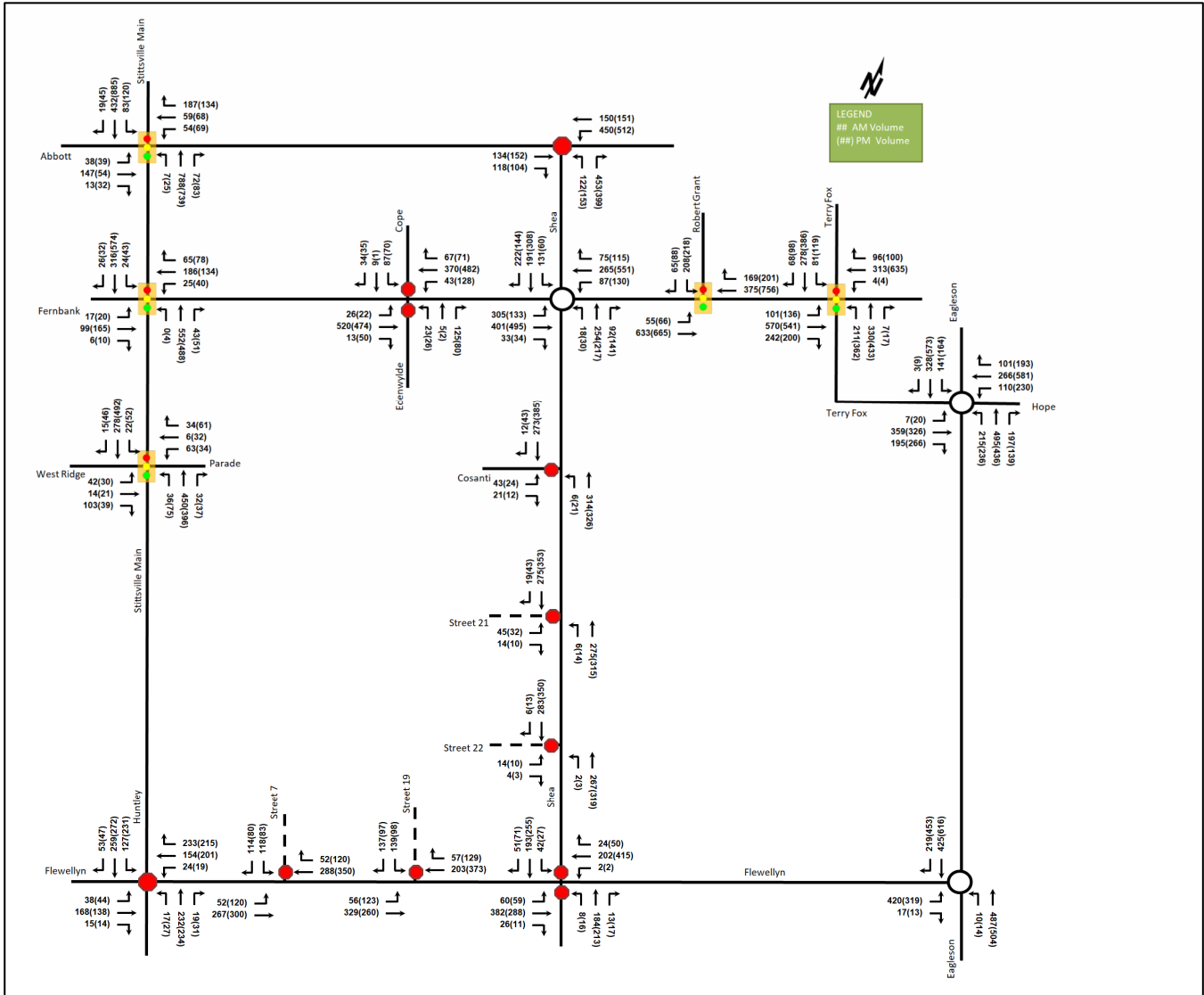


Table 19: 2030 Future Total Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)
Stittsville Main Street at Abbott Street Signalized	EBL	A	0.33	34.4	11.9	A	0.29	35.7	13.8
	EBT/R	A	0.52	33.8	33.6	A	0.29	22.3	18.6
	WBL	A	0.30	31.2	14.9	A	0.34	35.3	20.5
	WBT/R	B	0.63	18.0	28.5	A	0.57	20.7	30.8
	NBL	A	0.01	5.9	1.9	A	0.10	7.0	5.0
	NBT	B	0.66	12.1	135.9	B	0.61	10.7	115.7
	NBR	A	0.07	3.8	7.5	A	0.08	3.9	8.1
	SBL	A	0.27	9.3	15.5	A	0.31	9.2	20.3
	SBT/R	A	0.39	7.4	56.8	C	0.75	15.2	#210.0
Overall		B	0.63	14.1	-	B	0.69	14.6	-

Intersection	Lane	AM Peak Hour				PM Peak Hour				
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)	
Stittsville Main Street at Fernbank Road <i>Signalized</i>	EBL	A	0.08	19.2	6.3	A	0.08	19.2	7.1	
	EBT/R	A	0.26	19.5	22.5	A	0.44	22.0	35.9	
	WBL	A	0.09	19.1	8.0	A	0.17	20.2	11.6	
	WBT	A	0.48	23.5	38.5	A	0.34	21.1	28.6	
	WBR	A	0.17	7.4	8.3	A	0.20	7.1	9.1	
	NBL	-	-	-	-	A	0.02	7.8	1.5	
	NBT/R	C	0.73	17.1	84.1	B	0.66	14.8	72.9	
	SBL	A	0.09	8.8	4.8	A	0.14	9.3	7.5	
	SBT/R	A	0.42	10.6	39.7	C	0.74	17.4	87.8	
Overall	B	0.64	16.0	-	B	0.63	16.7	-		
Stittsville Main Street at West Ridge Drive <i>Signalized</i>	EBL	A	0.14	16.1	9.6	A	0.11	15.6	7.4	
	EBT/R	A	0.27	6.7	10.5	A	0.15	8.8	8.4	
	WBL	A	0.23	17.5	13.1	A	0.13	15.8	8.1	
	WBT/R	A	0.10	7.8	6.0	A	0.22	8.7	10.9	
	NBL	A	0.06	8.2	6.8	A	0.16	9.3	12.8	
	NBT/R	A	0.49	11.2	70.0	A	0.42	10.1	59.2	
	SBL	A	0.05	8.3	4.9	A	0.10	8.6	9.2	
	SBT	A	0.28	9.0	36.5	A	0.47	11.0	70.8	
	SBR	A	0.02	1.0	1.0	A	0.05	3.4	4.5	
	Overall	A	0.46	10.3	-	A	0.42	10.2	-	
Stittsville Main Street / Huntley Road at Flewellyn Road <i>Unsignalized</i>	EB	C	0.49	18.5	19.5	C	0.48	19.1	17.3	
	WB	D	0.80	33.3	57.8	E	0.91	43.3	68.3	
	NB	C	0.59	22.0	27.8	C	0.66	24.5	32.3	
	SB	E	0.87	43.4	72.0	F	1.11	109.1	142.5	
	Overall	D	-	31.9	-	F	-	60.9	-	
	Mitigation Measure: with 55m SBL									
	EB	C	0.46	17.0	18.0	C	0.44	17.3	16.5	
	WB	D	0.76	28.5	51.8	E	0.84	37.1	64.5	
	NB	C	0.57	20.6	26.3	C	0.63	22.9	31.5	
	SBL	B	0.29	14.0	9.0	C	0.53	19.9	22.5	
	SBT/R	C	0.65	22.8	33.8	C	0.67	24.8	36.8	
	Overall	C	-	22.3	-	D	-	26.3	-	
Cope Drive/Edenwyde Drive at Fernbank Road <i>Unsignalized</i>	EBL	A	0.02	8.3	0.8	A	0.02	8.6	0.8	
	EBT/R	-	-	-	-	-	-	-	-	
	WBL	A	0.04	8.6	0.8	A	0.12	9.0	3.0	
	WBT/R	-	-	-	-	-	-	-	-	
	NB	C	0.40	20.3	14.3	D	0.41	28.0	14.3	
	SB	F	1.03	156.1	54.0	F	0.88	121.1	41.3	
	Overall	B	-	18.2	-	B	-	11.9	-	

Intersection	Lane	AM Peak Hour				PM Peak Hour				
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)	
Shea Road at Abbott Street <i>Unsignalized</i>	EBT/R	C	0.48	16.0	18.8	C	0.49	16.2	19.5	
	WBL	E	0.92	49.6	79.5	F	1.02	74.8	110.3	
	WBT	B	0.29	12.3	9.0	B	0.28	12.2	9.0	
	NBL	B	0.26	13.1	7.5	B	0.33	14.2	10.5	
	NBR	D	0.80	30.1	57.8	C	0.72	24.4	44.3	
	Overall	D	-	30.4	-	E	-	38.2	-	
	Mitigation Measure: Singal Control, Cycle Length 90 seconds with 40m NBL & 115m WBL									
	EBT/R	A	0.22	3.4	18.8	A	0.22	3.4	18.8	
	WBL	B	0.61	11.6	82.3	B	0.61	11.6	82.3	
	WBT	A	0.12	4.7	16.2	A	0.12	4.7	16.2	
	NBL	A	0.54	42.7	32.8	A	0.54	42.7	32.8	
	NBR	C	0.75	11.9	25.6	C	0.75	11.9	25.6	
Overall	A	0.59	12.2	-	B	0.66	12.2	-		
Shea Road at Fernbank Road <i>Roundabout</i>	EB	D	0.85	27.7	133.3	D	0.83	27.9	103.8	
	WB	B	0.59	14.7	33.5	D	0.88	31.9	175.3	
	NB	C	0.69	24.3	35.1	C	0.60	16.7	30.8	
	SB	B	0.61	13.0	44.3	D	0.81	31.5	65.7	
	Overall	C	0.85	20.6	133.3	D	0.88	28.2	175.3	
Shea Road at Flewellyn Road <i>Unsignalized</i>	EB	A	0.05	7.9	0.8	A	0.06	8.5	1.5	
	WB	A	0.00	8.1	0.0	A	0.00	7.9	0.0	
	NB	E	0.66	36.9	33.0	F	1.32	226.5	105.8	
	SB	F	0.95	79.0	71.3	F	1.42	247.8	147.8	
	Overall	E	-	25.8	-	F	-	100.9	-	
	Mitigation Measure: Roundabout – 1 lane									
	EB	A	0.44	8.3	19.2	A	0.36	7.3	13.6	
	WB	A	0.22	5.5	7.4	A	0.46	8.9	19.9	
	NB	A	0.26	7.3	8.3	A	0.27	6.7	9.1	
	SB	A	0.26	5.8	9.6	A	0.41	9.0	15.9	
Overall	A	0.44	7.0	19.2	A	0.46	8.1	19.9		
Robert Grant Avenue at Fernbank Road <i>Signalized</i>	EBL	A	0.37	49.1	22.4	A	0.41	49.7	25.6	
	EBT	A	0.52	8.4	88.1	A	0.54	8.6	93.6	
	WBT	A	0.41	14.4	73.8	C	0.74	23.3	#211.3	
	WBR	A	0.22	3.8	12.2	A	0.24	3.6	13.3	
	SBL	B	0.70	49.2	59.9	C	0.71	49.5	62.6	
	SBR	A	0.21	9.9	10.3	A	0.26	9.2	11.7	
	Overall	B	0.68	16.6	-	D	0.84	19.5	-	

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)
Terry Fox Drive at Fernbank Road <i>Signalized</i>	EBL	A	0.32	17.8	17.0	B	0.70	42.3	#40.6
	EBT	D	0.81	32.6	103.4	C	0.78	38.2	143.0
	EBR	A	0.34	3.2	10.9	A	0.29	4.2	13.7
	WBL	A	0.03	23.5	2.8	A	0.03	31.0	3.5
	WBT	B	0.68	38.1	70.6	F	1.39	221.7	#249.2
	WBR	A	0.22	4.8	7.9	A	0.22	2.2	3.2
	NBL	A	0.50	25.2	55.4	E	0.93	53.5	#105.9
	NBT/R	A	0.43	20.5	71.7	A	0.53	22.1	93.2
	SBL	A	0.23	20.1	21.8	A	0.54	45.5	41.7
	SBT	A	0.36	19.5	58.5	D	0.85	56.8	#127.9
	SBR	A	0.08	2.7	5.5	A	0.15	5.5	10.6
Overall	B	0.70	23.1	-	-	F	1.14	74.4	-
Terry Fox Drive at Eagleson Road <i>Roundabout</i>	EB	A	0.35	8.7	11.3	C	0.54	16.5	21.0
	WB	A	0.34	9.3	10.3	C	0.69	18.8	44.3
	NB	B	0.53	11.4	27.1	B	0.47	10.2	20.7
	SB	A	0.30	7.9	8.7	D	0.71	25.5	34.0
	Overall	A	0.53	9.7	27.1	C	0.71	17.7	44.3
Egleson Road at Flewellyn Road <i>Roundabout</i>	EBL/R	B	0.51	11.0	27.2	B	0.47	11.7	20.4
	NBL/R	B	0.58	12.5	36.8	B	0.53	10.4	30.1
	SBT/R	A	0.48	6.5	27.8	B	0.79	11.3	107.9
	Overall	A	0.58	9.6	36.8	B	0.79	11.1	107.9
Shea Road at Cosanti Drive <i>Unsignalized</i>	EBL/R	B	0.12	12.8	3.0	B	0.09	14.4	2.3
	NBL/R	A	0.01	7.8	0.0	A	0.02	8.2	0.8
	SBT/R	-	-	-	-	-	-	-	-
	Overall	A	-	1.3	-	A	-	0.9	-
Shea Road at Street 21 <i>Unsignalized</i>	EB	B	0.11	12.7	3.0	B	0.10	14.2	2.3
	NB	A	0.01	7.9	0.0	A	0.01	8.1	0.0
	SB	-	-	-	-	-	-	-	-
	Overall	A	-	1.3	-	A	-	0.9	-
Shea Road at Street 22 <i>Unsignalized</i>	EB	B	0.03	12.0	0.8	B	0.03	13.1	0.8
	NB	A	0.00	7.8	0.0	A	0.00	8.0	0.0
	SB	-	-	-	-	-	-	-	-
	Overall	A	-	0.4	-	A	-	0.3	-
Flewellyn Road at Street 19 <i>Unsignalized</i>	EB	A	0.04	7.9	0.8	A	0.12	8.8	3.0
	WB	-	-	-	-	-	-	-	-
	SB	C	0.52	18.8	22.5	D	0.55	26.6	23.3
	Overall	A	-	6.1	-	A	-	5.8	-
Flewellyn Road at Street 7 <i>Unsignalized</i>	EB	A	0.04	8.1	0.8	A	0.11	8.7	3.0
	WB	-	-	-	-	-	-	-	-
	SB	C	0.46	18.0	18.0	C	0.46	23.2	17.3
	Overall	A	-	5.2	-	A	-	4.6	-

Notes: Saturation flow rate of 1800 veh/h/lane
 Queue is measured in metres
 Peak Hour Factor = 1.00

Delay = average vehicle delay in seconds
 m = metred queue
 # = volume for the 95th %ile cycle exceeds capacity

Overall, the study area intersections are anticipated to operate similar to the 2030 future background conditions. High delays and capacity issues identified in the 2030 future background conditions remain.

The Stittsville Main Street at Abbott Street will continue to operate well with the inclusion of the site trips. The queuing in the southbound shared through/right movement during the PM peak hour is anticipated to increase from 111.5 metres to 211.3 metres with site-generated trips.

With site-generated trips, high delays are anticipated on the southbound movements during the PM peak hour at the intersection of Stittsville Main Street / Huntley Road at Flewellyn Road if existing geometry remains. With auxiliary northbound left turn, all movements and the overall intersection are anticipated to operate well.

The intersection of Shea Road at Abbott Street will see an increase in the delay on the westbound left-turn movement during the PM peak hour with the site generated trips, increasing from 47.5 seconds to 74.8 seconds. As indicated in the 2035 future background conditions, a signalized intersection may help address this issue. Ultimately, monitoring and re-evaluation will need to be completed by the City as various Robert Grant Avenue segments are opened.

At the Shea Road at Flewellyn Road intersection, the southbound movement during both peak hours and the northbound movement during the PM peak hour may be subject to high delays if the existing geometry remains. The upgrade to a roundabout would improve operations on all approaches and have an overall level of service of A.

With site-generated trips at the intersection of Terry Fox Drive at Fernbank Road, the queue on the eastbound left-turn movement during the PM peak hour is anticipated to increase from 23.6 metres to 40.6 metres. As noted in the 2030 future background conditions, the westbound through movement the root of the operational constraints at the intersection and the same recommendations apply.

7.2.1.3 *Recommended Improvements*

Based on the operational analysis provided, the following network improvements are indicated for consideration by the 2030 future total horizon:

- Shea Road at Abbott Street:
 - Signalize the intersection, per 2035 future background recommendations
 - A 40-metre auxiliary northbound left turn lane
 - A 115-metre auxiliary westbound left turn lane, additional storage over 2030 future background recommendations
- Shea Road at Flewellyn Road:
 - Geometric improvements and upgrading to a roundabout/signal
- Stittsville Main Street/Huntley Road at Flewellyn Road:
 - A 55-metre auxiliary southbound left turn lane
- Terry Fox Drive at Fernbank Road:
 - Monitoring and signal timing improvements, with consideration for Terry Fox Drive capacity to alleviate constraints on the westbound approach
- Terry Fox Drive at Eagleson Road:
 - Conversion into a 2-lane roundabout, per 2030 future background recommendations

7.2.2 2035 Future Total Conditions

7.2.2.1 *Warrant Analysis*

As noted in the 2030 future total conditions, the intersections of Cope Drive at Fernbank Road and Shea Road at Cosanti Drive are recommended remain as minor stop-control conditions. The new intersections along Shea Road

and Flewellyn Road are assumed to be a minor stop-control condition. All-way stop control warrant calculation sheets are provided in Appendix C.

No additional signal warrants were met in 2035 future total conditions. Signal warrant calculation sheets are provided in Appendix D.

The southbound left turns at the intersection of Shea Road at Flewellyn Road met the warrants during both peak hours in 2035 future total conditions. As noted in the 2030 future background conditions, left-turn lanes are not recommended at Shea Road at Flewellyn Road intersection until the offset is removed at the intersection. The left-turn warrant calculation sheets are provided in Appendix E.

7.2.2.2 Intersection Operations

As noted in the existing and 2035 future background conditions, a signalized intersection with auxiliary westbound and northbound left turn lanes at the intersection of Shea Road at Abbott Street and roundabouts at Eagleson Road at Flewellyn Road and at Terry Fox Drive are recommended and will be included in the future total conditions. The required storage lengths at the Shea Road at Abbott Street intersection were calculated based on TAC, and include a 40 metres of northbound left turn lane and a 130 metres of westbound left turn lane.

Similar to the 2030 future total conditions, minor stop-control intersections with no additional turn lanes were assumed for the new intersections along Shea Road and Flewellyn Road. A 55-metre auxiliary northbound left turn at the intersection of Stittsville Main Street / Huntley Road at Flewellyn Road and roundabout at the intersection of Shea Road at Flewellyn Road will be considered as mitigation measures in the 2035 future total conditions.

The 2035 future total intersection volumes are illustrated in Figure 28 and the intersection operations are summarized below in Table 20. As noted in the 2030 future total conditions, the intersection of Shea Road and Flewellyn Road is recommended to be an all-way stop-controlled intersection, and it will be analyzed as such in the 2035 future total conditions. Synchro 11 has been used to model the unsignalized intersections and Sidra 8 to model the study area roundabout. HCM 2010 methodology was used for unsignalized intersection operations and Sidra HCM 6 was used for roundabout intersection operations. The synchro worksheets have been provided in Appendix L.

Figure 28: 2035 Future Total Volumes

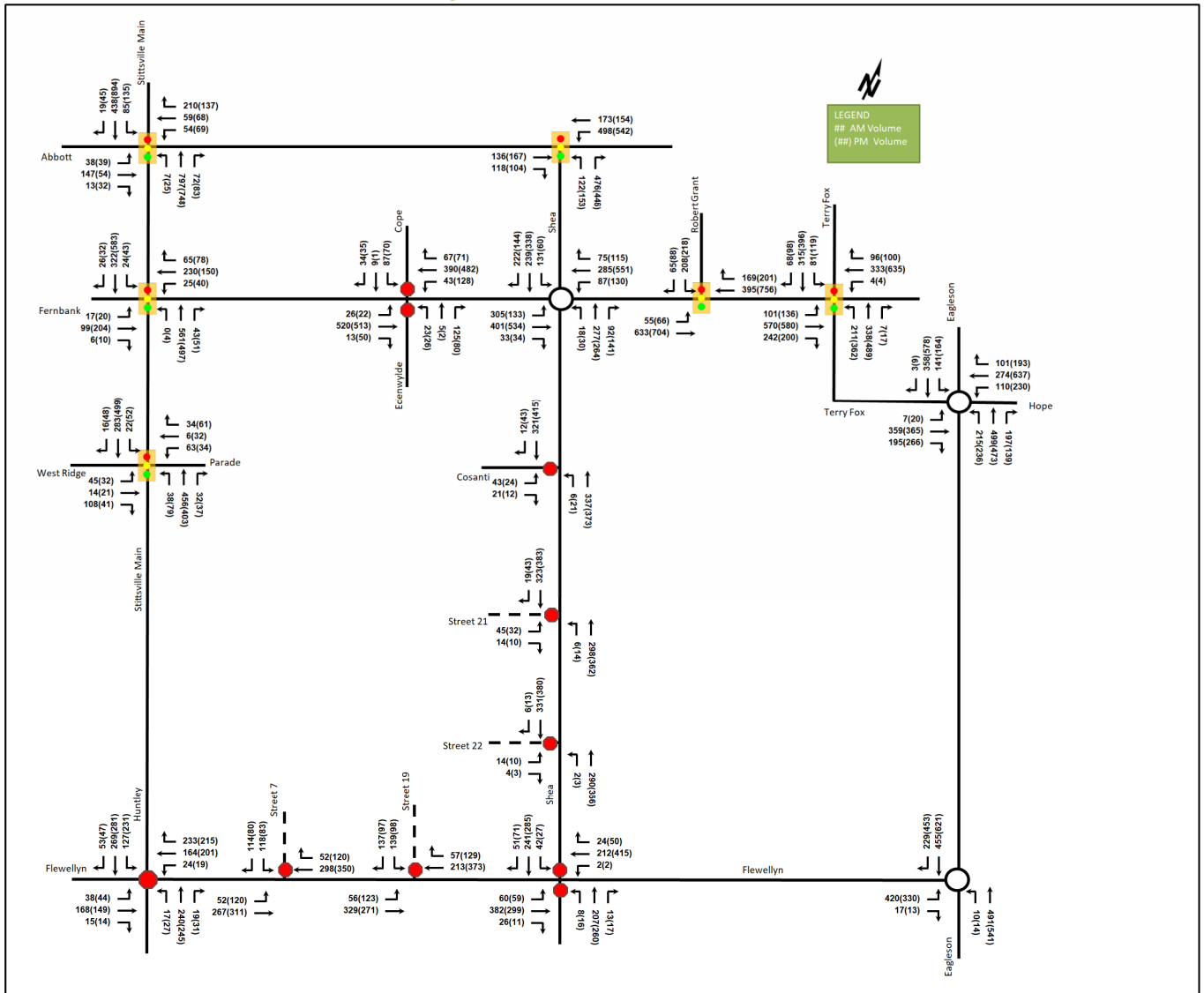


Table 20: 2035 Future Total Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour				
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)	
Stittsville Main Street at Abbott Street <i>Signalized</i>	EBL	A	0.37	37.4	12.3	A	0.30	35.9	13.8	
	EBT/R	A	0.51	33.3	33.6	A	0.29	22.3	18.6	
	WBL	A	0.30	30.7	14.9	A	0.34	35.3	20.5	
	WBT/R	B	0.69	21.8	34.2	A	0.57	20.7	31.2	
	NBL	A	0.01	5.9	1.9	A	0.10	7.1	5.0	
	NBT	B	0.67	12.5	#140.2	B	0.61	10.8	118.5	
	NBR	A	0.07	3.9	7.5	A	0.08	3.9	8.1	
	SBL	A	0.29	9.7	16.1	A	0.36	10.1	23.7	
	SBT/R	A	0.40	7.5	57.8	C	0.76	15.5	#213.7	
Overall	B	0.65	14.9	-	B	0.69	14.8	-		
Stittsville Main Street at Fernbank Road <i>Signalized</i>	EBL	A	0.07	19.1	6.4	A	0.08	19.4	7.0	
	EBT/R	A	0.24	19.2	22.5	A	0.51	23.6	43.7	
	WBL	A	0.08	19.0	8.1	A	0.16	20.3	11.7	
	WBT	A	0.55	24.8	47.4	A	0.37	21.6	31.8	
	WBR	A	0.16	7.0	8.2	A	0.19	7.0	9.0	
	NBL	-	-	-	-	A	0.02	8.0	1.5	
	NBT/R	C	0.76	19.6	94.6	B	0.69	16.0	75.6	
	SBL	A	0.10	9.9	5.3	A	0.15	9.8	7.6	
	SBT/R	A	0.44	11.7	44.4	C	0.77	19.2	91.0	
Overall	B	0.68	17.7	-	B	0.67	18.2	-		
Stittsville Main Street at West Ridge Drive <i>Signalized</i>	EBL	A	0.15	16.3	10.2	A	0.12	15.8	7.7	
	EBT/R	A	0.27	6.7	10.8	A	0.16	8.8	8.5	
	WBL	A	0.23	17.7	13.3	A	0.13	15.9	8.2	
	WBT/R	A	0.10	7.8	6.0	A	0.22	8.7	11.1	
	NBL	A	0.07	8.2	7.1	A	0.17	9.4	13.4	
	NBT/R	A	0.50	11.3	71.5	A	0.43	10.2	60.6	
	SBL	A	0.05	8.3	4.9	A	0.10	8.6	9.2	
	SBT	A	0.29	9.0	37.1	A	0.48	11.0	72.0	
	SBR	A	0.02	1.1	1.1	A	0.06	3.3	4.7	
Overall	A	0.47	10.3	-	A	0.42	10.3	-		
Stittsville Main Street / Huntley Road at Flewellyn Road <i>Unsignalized</i>	EB	C	0.51	19.4	21.0	C	0.52	20.4	19.5	
	WB	E	0.84	38.2	64.5	E	0.94	46.7	71.3	
	NB	C	0.62	23.9	30.8	D	0.71	27.0	36.0	
	SB	F	0.92	50.4	80.3	F	1.16	120.9	150.8	
	Overall	E	-	36.3	-	F	-	66.7	-	
	Mitigation Measure: with 55m SBL									
	EB	C	0.47	17.6	18.8	C	0.47	18.5	18.8	
	WB	D	0.79	31.4	56.3	E	0.86	40.6	68.3	
	NB	C	0.60	22.0	28.5	D	0.66	25.2	35.3	
	SBL	B	0.29	14.2	9.0	C	0.54	20.6	23.3	
	SBT/R	C	0.68	24.9	37.5	D	0.70	27.3	41.3	
Overall	C	-	24.2	-	D	-	28.5	-		

Intersection	Lane	AM Peak Hour				PM Peak Hour				
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)	
Cope Drive/Edenwylde Drive at Fernbank Road <i>Unsignalized</i>	EBL	A	0.02	8.3	0.8	A	0.02	8.6	0.8	
	EBT/R	-	-	-	-	-	-	-	-	
	WBL	A	0.04	8.6	0.8	A	0.13	9.1	3.0	
	WBT/R	-	-	-	-	-	-	-	-	
	NB	C	0.40	20.7	14.3	D	0.44	30.3	15.8	
	SB	F	1.07	169.1	56.3	F	0.95	142.7	44.3	
	Overall	B	-	19.2	-	B	-	13.3	-	
Shea Road at Abbott Street <i>Signalized</i>	EBT/R	A	0.22	3.5	19.3	A	0.22	3.9	21.5	
	WBL	B	0.67	13.9	#104.4	C	0.72	16.0	#133.3	
	WBT	A	0.14	4.8	18.5	A	0.12	4.7	15.8	
	NBL	A	0.54	42.7	32.8	A	0.59	44.0	40.4	
	NBR	C	0.77	12.2	26.5	C	0.73	11.2	25.3	
	Overall	B	0.65	12.9	-	B	0.70	14.2	-	
Shea Road at Fernbank Road <i>Roundabout</i>	EB	E	0.89	35.9	156.4	E	0.90	41.2	151.2	
	WB	C	0.63	16.6	38.6	E	0.93	42.7	210.2	
	NB	D	0.73	27.4	40.5	C	0.70	22.2	41.9	
	SB	C	0.68	15.6	59.3	E	0.86	38.1	81.9	
	Overall	C	0.89	24.8	156.4	E	0.93	37.7	210.2	
Shea Road at Flewellyn Road <i>Unsignalized</i>	EB	A	0.05	7.9	0.8	A	0.06	8.5	1.5	
	WB	A	0.00	8.1	0.0	A	0.00	7.9	0.0	
	NB	E	0.78	49.3	45.0	-	-	-	-	
	SB	F	1.17	146.6	110.3	F	3.61	1260.1	288.0	
	Overall	F	-	47.9	-	F	-	319.5	-	
	Mitigation Measure: Roundabout									
	EB	A	0.47	9.0	20.1	A	0.38	7.8	14.6	
	WB	A	0.23	5.8	8.0	A	0.49	9.6	23.7	
	NB	A	0.29	7.7	9.4	A	0.32	7.4	11.4	
	SB	A	0.31	6.4	11.8	A	0.44	9.6	19.2	
	Overall	A	0.47	7.5	20.1	A	0.49	8.7	23.7	
Robert Grant Avenue at Fernbank Road <i>Signalized</i>	EBL	A	0.37	49.1	22.4	A	0.41	49.9	25.6	
	EBT	A	0.52	8.4	88.1	A	0.57	9.1	103.1	
	WBT	A	0.43	14.7	78.7	C	0.74	23.2	#211.3	
	WBR	A	0.22	3.8	12.2	A	0.24	3.6	13.3	
	SBL	B	0.70	49.2	59.9	C	0.71	49.7	62.6	
	SBR	A	0.21	9.9	10.3	A	0.26	9.2	11.7	
	Overall	B	0.68	16.6	-	D	0.84	19.5	-	

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95 th)	LOS	V/C	Delay	Q (95 th)
Terry Fox Drive at Fernbank Road <i>Signalized</i>	EBL	A	0.32	17.4	16.8	B	0.70	42.4	#40.6
	EBT	C	0.79	31.1	102.6	D	0.84	42.3	#169.5
	EBR	A	0.33	3.1	10.8	A	0.29	4.2	13.7
	WBL	A	0.03	23.0	2.8	A	0.03	31.2	3.5
	WBT	C	0.71	38.6	75.5	F	1.39	221.5	#249.2
	WBR	A	0.22	4.6	7.9	A	0.22	2.2	3.2
	NBL	A	0.56	28.3	#64.2	E	0.94	57.9	#109.0
	NBT/R	A	0.44	21.3	74.1	A	0.60	23.8	108.8
	SBL	A	0.24	20.8	22.0	A	0.57	47.4	42.3
	SBT	A	0.41	20.9	67.5	D	0.87	59.0	#132.8
	SBR	A	0.08	2.8	5.6	A	0.15	5.5	10.6
Overall	C	0.73	23.4	-	-	F	1.15	74.8	-
Terry Fox Drive at Eagleson Road <i>Roundabout</i>	EB	A	0.36	9.1	11.9	A	0.58	17.9	23.6
	WB	A	0.34	9.5	10.7	C	0.75	23.2	54.7
	NB	B	0.53	11.5	27.4	B	0.51	11.3	24.2
	SB	A	0.32	8.2	9.4	D	0.75	30.1	37.3
	Overall	A	0.53	9.9	27.4	C	0.75	20.7	54.7
Eagleson Road at Flewellyn Road <i>Roundabout</i>	EBL/R	B	0.53	11.6	29.0	B	0.48	12.2	21.9
	NBL/R	B	0.58	12.7	37.6	B	0.57	11.5	38.5
	SBT/R	A	0.51	6.8	31.3	B	0.80	11.4	110.3
	Overall	A	0.58	9.9	37.6	B	0.80	11.6	110.3
Shea Road at Cosanti Drive <i>Unsignalized</i>	EBL/R	B	0.13	13.6	3.8	C	0.09	15.4	2.3
	NBL/R	A	0.01	8.0	0.0	A	0.02	8.3	0.8
	SBT/R	-	-	-	-	-	-	-	-
	Overall	A	-	1.2	-	A	-	0.8	-
Shea Road at Street 21 <i>Unsignalized</i>	EB	B	0.12	13.6	3.0	C	0.11	15.2	3.0
	NB	A	0.01	8.0	0.0	A	0.01	8.2	0.0
	SB	-	-	-	-	-	-	-	-
	Overall	A	-	1.2	-	A	-	0.9	-
Shea Road at Street 22 <i>Unsignalized</i>	EB	B	0.04	12.7	0.8	B	0.03	14.0	0.8
	NB	A	0.00	8.0	0.0	A	0.00	8.1	0.0
	SB	-	-	-	-	-	-	-	-
	Overall	A	-	0.4	-	A	-	0.3	-
Flewellyn Road at Street 19 <i>Unsignalized</i>	EB	A	0.04	7.9	0.8	A	0.12	8.8	3.0
	WB	-	-	-	-	-	-	-	-
	SB	C	0.53	19.2	22.5	D	0.55	27.1	24.0
	Overall	A	-	6.2	-	A	-	5.9	-
Flewellyn Road at Street 7 <i>Unsignalized</i>	EB	A	0.04	8.1	0.8	A	0.11	8.7	3.0
	WB	-	-	-	-	-	-	-	-
	SB	C	0.46	18.3	18.0	C	0.46	23.7	17.3
	Overall	A	-	5.2	-	A	-	4.6	-

Notes: Saturation flow rate of 1800 veh/h/lane
 Queue is measured in metres
 Peak Hour Factor = 1.00

Delay = average vehicle delay in seconds
 m = metred queue
 # = volume for the 95th %ile cycle exceeds capacity

Overall, the study area intersections are anticipated to operate similar to the 2035 future background conditions. High delays and capacity issues identified in the 2035 future background conditions remain.

In the 2035 future total conditions, the Stittsville Main Street at Abbott Street northbound through movement during the AM peak hour and the southbound shared through/right-turn movement during the PM peak hour at

intersection may be subject to extended queues. As noted in the 2035 future background horizon, the completion of the Robert Grant Avenue corridor may improve operations at this intersection and should be confirmed during the study of Robert Grant Avenue or during planning of improvements for this location.

Similar to 2030 future total conditions, and the southbound approach of Stittsville Main Street / Huntley Road at Flewellyn Road intersection will be over capacity with the existing geometry and requires a southbound left-turn lane to mitigate this issue.

The intersection of Shea Road at Flewellyn Road will operate similar to 2030 future total conditions with the existing geometry, with the southbound movements and overall intersection at during both peak hours anticipated to experience high delays. This intersection is expected to operate well with an overall level of service A if converted to a roundabout.

7.2.2.3 Recommended Improvements

Based on the operational analysis provided, the following network improvements are indicated for consideration by the 2035 future total horizon:

- Shea Road at Abbott Street:
 - Signalize the intersection, per 2035 future background recommendations
 - A 40-metre auxiliary northbound left turn lane, per 2030 future background recommendations
 - A 130-metre auxiliary westbound left turn lane, additional storage over 2030 future background recommendations
 - Consideration of Robert Grant Avenue will be required to confirm they are needed at this horizon
- Shea Road at Flewellyn Road:
 - Geometric improvements and upgrading to a roundabout/signal, per 2030 future total recommendations
- Stittsville Main Street/Huntley Road at Flewellyn Road:
 - A 55-metre auxiliary southbound left turn lane, per 2030 future total recommendations
- Terry Fox Drive at Fernbank Road:
 - Monitoring and signal timing improvements, with consideration for Terry Fox Drive capacity to alleviate constraints on the westbound approach, per 2030 future background recommendations
- Terry Fox Drive at Eagleson Road:
 - Conversion into a 2-lane roundabout, per 2030 future background recommendations
- Flewellyn Road at Eagleson Road:
 - Conversion into a single lane roundabout

7.3 Network Road Capacity

To assess the future road capacity of the area network, a local screenline was created around the study area, which is illustrated in Section 4.2.2. The same analysis was done to access the future volumes, and utilization of the roadway corridors in the immediate study area, and it is summarized in Table 21.

Table 21: Local Area Screenline Road Capacity

Horizon	Roadway	Classification	Estimated Lane Capacity	Volumes	Percent Utilization
2030 Future Background	Stittsville Main Street	Arterial	1000 cars/hour	275-455	27-46%
	Shea Road	Collector	800 cars/hour	455-575	56-72%
	Fernbank Road	Arterial	800 cars/hour	425-800	53- 100%
	Flewellyn Road	Collector	800 cars/hour	110-205	13-26%

Horizon	Roadway	Classification	Estimated Lane Capacity	Volumes	Percent Utilization
2035 Future Background	Stittsville Main Street	Arterial	1000 cars/hour	280-460	28-46%
	Shea Road	Collector	800 cars/hour	485-600	60-75%
	Fernbank Road	Arterial	800 cars/hour	445-800	55-100%
	Flewellyn Road	Collector	800 cars/hour	120-205	15-26%
2030 Future Total	Stittsville Main Street	Arterial	1000 cars/hour	365-650	36-65%
	Shea Road	Collector	800 cars/hour	510-635	63-80%
	Fernbank Road	Arterial	800 cars/hour	425-800	53-100%
	Flewellyn Road	Collector	800 cars/hour	225-470	28-59%
2035 Future Total	Stittsville Main Street	Arterial	1000 cars/hour	370-660	37-66%
	Shea Road	Collector	800 cars/hour	540-660	67-83%
	Fernbank Road	Arterial	800 cars/hour	445-890	55-100%
	Flewellyn Road	Collector	800 cars/hour	235-470	29-59%

Lane Capacity = single lane estimate

Notes: Volumes = directional volume range during AM or PM peak hours

Percent Utilization = utilization range based on Volume for lane

Stittsville Main Street, Shea Road, and Flewellyn Road have residual capacity in both the future background and total conditions. Although Shea Road has the residual capacity, it is noted to reach over 75% in the future background conditions and over 80% of its capacity in the future total conditions in the northbound direction during the AM peak hour.

Fernbank Road, east of Shea Road, is expected to reach the TRANS capacity during the PM peak hour in the westbound direction in all of the future conditions. No site-generated trips have been assigned to travel via Fernbank Road east of Shea Road based on the capacity review.

8 Mobility Plan

8.1 Road Pattern and Connectivity

The W-4 lands road connections permit three collector road and a local road connection to the surrounding road network, with a local road extensions from the community to the north from Parade Drive and Painted Sky Way. While the collector roads provide for wider connectivity for the subdivision, the local road connections allow permeability between the existing community and the new subdivision and ability to share area amenities.

Within the W-4 boundary, the

8.2 Active Mode Connectivity

The active mode network for the W-4 Lands consists of sidewalks on the collector and local roads, multi-use pathways along the collectors and pathways through the Hydro Corridor, stormwater ponds, and open space. The multi-use pathways and sidewalks on the new roadways will connect to the boundary of the W-4 Lands and future facilities that may extend down Shea Road and Flewellyn Road. The sidewalks link the existing community through Parade Drive, the park adjacent to Painted Sky Way, the Hydro Corridor and the existing SWM pond.

The links to the north will provide safe access for the new community to key destinations such as elementary schools, childcare centers, and parks, while also permitting the existing community to link to new amenities with the W-4 Lands.

In addition, the provided facilities will provide safe and direct access to local transit stops.

8.3 Traffic Calming Design

The traffic calming elements within the W-4 Lands will reduce vehicle speeds and improve safety for non-motorized users. The safer environment for pedestrians and cyclists that is created will encourage walking and cycling as sustainable and healthier mobility options within the community. The improved overall road safety will make it easier for people of all ages and abilities to access key destinations such as parks and transit stops.

The design of the traffic calming elements will not restrict or disrupt transit service, permitting adequate clearance for buses to navigate smoothly, without causing delays. The traffic calming elements also can be integrated into the transit stop locations, permitted pedestrian crossings and reducing vehicle passing.

8.4 Transportation Demand Management

The subject site has been assumed to rely predominantly on auto travel, followed by transit, walking, and cycling, and those assumptions have been carried through the analysis. Although the intersections in the study area are anticipated to have residual capacity from an auto travel perspective, specific routes will be at capacity (Fernbank Road during the PM peak) or nearing capacity (Shea Road during the AM peak). To achieve the forecasted mode shares and allow an increase in sustainable travel within Ottawa, supporting TDM measures are recommended to encourage shifts toward sustainable modes and mitigate the risks associated with failing to meet mode share targets.

The key TDM measures recommended are divided into measures for the entirety of the W-4 Land and specific elements that are recommended for higher density site plan blocks within the lands:

W-4 Lands as a whole:

- Provide a multimodal travel option information package to new residents
- Provide transit incentives for new residents
- Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels

Stacked townhome blocks:

- Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations
- Provide safe, direct and attractive walking routes from building entrances to nearby transit stops
- Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible
- Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h
- Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible
- Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area
- Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for

8.5 Local Transit Service

Based on the transit stops locations shown in Figure 23, the majority of residential units within the W-4 Lands are situated within 400 metres of the proposed transit stops, ensuring convenient and accessible public transportation options for the vast majority of new residents. It is expected that this will align closely to OC Transpo's service policy, which states that the street network in new subdivision plans must be designed to accommodate direct

transit routes through the neighborhood, with the goal that 95 percent of all households are within a 400-metre walking distance of a transit stop

In Section 6.3, the trip generation by mode was estimated, including an estimate of the number of transit trips that will be generated by the proposed development. Table 22 summarizes the transit trip generation.

Table 22: Trip Generation by Transit Mode

Travel Mode	Mode Share AM (PM)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Transit	Varies	117	273	390	159	117	276

The proposed development is anticipated to generate 390 AM and 276 PM peak hour two-way transit trips. From the trip distribution found in Section 6.3 and given existing bus routing to the north and east of the site, these values were split to the north and east relative to the site. Table 23 summarizes the forecasted site-generated transit ridership trips by direction relative to the site and provides equivalent bus loads based on this ridership.

Table 23: Forecasted Site-Generated Transit Ridership

General Destination To/From (relative to the site)	AM Peak Hour		PM Peak Hour		Service Type	Approximate Equivalent Peak Hour/Peak Direction Bus Loads
	In	Out	In	Out		
North	103	238	138	101	Bus	Four and one-third of standard buses
East	14	35	21	16	Bus	Half of a standard bus

In total, a 10-15-minute AM peak hour service level is estimated to be required for the proposed lands to meet the transit demand, and a 15-20-minute PM peak hour service level. Ultimately these routes are expected to form local service extending from the BRT station at Fernbank and Robert Grant Avenue. In the near term, a combination of a new dedicated route combined with the extension of the peak hour services to 15–20-minute service in the area (e.g. routes #61, #262, #263) would provide the service required for the community.

As outlined in Section 3.1.1, the policies related to urban expansion lands focus on ensuring adequate infrastructure to surpass the new Official Plan's target of achieving an overall sustainable mode share across the City of 50% or higher by 2046. Given the forecasted mode shares, and assuming no significant increase in walking/cycling modes, the transit mode share would generally need to increase by 15% during the AM peak and 26% during the PM peak to bridge that gap in sustainable mode shares. This would represent an increase transit service demand of four additional AM buses (based on outbound demand) and five additional buses during the PM peak (based on inbound demand).

8.6 Transit Priority

No transit priority is required along the boundary or within the W-4 lands. Within the regional network, the westbound road capacity along Fernbank Road may require localized widening to improve transit service from Robert Grant Avenue to Shea Road to maintain service times along this segment of roadway. The single lane roundabout at Fernbank Road and Shea Road restricts the ability to provide priority measures for turning movements, therefore any widening for westbound travel would be for transit to queue jump the general travel lanes on Fernbank Road and access the roundabout quicker.

8.7 Multi-Modal Level of Service Review

Table 24 summarizes the multi-modal level of service (MMLOS) analysis for the boundary streets of Shea Road and Flewellyn Road, and the internal roads of new local and collector roads. As Shea Road Flewellyn Road are within “General Rural Area”, no MMLOS targets for the existing conditions. It is expected all roadways will be

within the “General Urban Area”, and the MMLOS targets are present for future conditions. The MMLOS worksheets have been provided in Appendix M.

Table 24: Boundary Street MMLOS Analysis

	Segment	Condition	Pedestrian LOS		Bicycle LOS	
			PLOS	Target	BLOS	Target
Boundary Roadways	Shea Road	Existing	F	No target	F	No target
		Future	F	C	F	D
	Flewellyn Road	Existing	F	No target	F	No target
		Future	F	C	F	D
Internal Roadways	New local road (with sidewalk)	Future	A	C	B	D
	New local road (without sidewalk)	Future	C	C	B	D
	New collector road	Future	A	C	A	D

Both Shea Road and Flewellyn Road have a level of service (LOS) F for pedestrian and bicycle modes in the existing conditions and no improvements are noted along the full extent of the roadways to improve this in the future. The City TMP paved shoulder improvement along Flewellyn Road has negligible impact on the LOS for the future conditions.

To meet the theoretical pedestrian LOS target on Shea Road and Flewellyn Road, a 2.0 metres sidewalk and a speed reduction to less than a 50 km/h operating speed would need to be implemented on both roadways. Barriers to implementation of the sidewalk include the rural cross-sections of both roadways, the hydro transmission poles along Shea Road and the Faulkner Municipal Drain along a significant portion of Flewellyn Road. The lowering of speed limits would need transition zones to facilitate the lowering of the posted speed from 80 km/h to 50 km/h, and coordination through speed reduction programs to ensure compliance.

To meet the theoretical bicycle LOS target on Shea Road and Flewellyn Road, physically separated cycling facilities or operating speed lower or equal to 40 km/h would be needed. The barriers to implementation are the same as those noted for the pedestrian LOS.

The internal local roads with a sidewalk will have an LOS of A for pedestrian and LOS B for bicycle, and the local roads without a sidewalk will have an LOS of C for pedestrian and LOS B for bicycle. The collector roads will have LOS of A for both pedestrian and bicycle. Therefore, all of the internal roadways will meet the MMLOS targets.

The transit LOS and truck LOS are not applicable for the boundary roads and internal roadways, per the application of the MMLOS Guidelines.

9 Implementation Strategy

9.1 Network Review and Identified Improvements

Based on the operational analysis for the forecasted conditions, in both the background and total conditions, the following network improvements have been identified for planning and possible implementation:

- Shea Road at Abbott Street:
 - A 40-metre auxiliary northbound left turn lane by 2030
 - A 130-metre auxiliary westbound left turn lane by 2030
 - Signalization by 2030
 - Monitoring and re-evaluation of the above improvements will be required as Robert Grant Avenue is extended to the north for changes in travel patterns of the new roadway
- Stittsville Main Street/Huntley Road at Flewellyn Road:

- A 55-metre auxiliary southbound left turn lane by 2030
- Shea Road at Flewellyn Road:
 - Geometric improvements and upgrading to a roundabout/signal by 2030
- Terry Fox Drive at Fernbank Road:
 - Monitoring and signal timing improvements, with consideration for Terry Fox Drive capacity to alleviate constraints on the westbound approach by 2030
- Terry Fox Drive at Eagleson Road:
 - Conversion into a 2-lane roundabout by 2030
- Flewellyn Road at Eagleson Road:
 - Conversion into a single lane roundabout by 2030

9.2 Improving Active Mode Network Connectivity

The review of the missing active mode links in the greater study area includes the list of facilities below. No time horizon is noted for these facilities and they should be implemented as needed to facilitate access to local amenities or achieve the City sustainable travel goals.

- Sidewalks along:
 - Shea Road between Flewellyn Road and CARDELREC Recreation Complex
 - Fernbank between Hartsmere Drive and Terry Fox Drive
 - Stittsville Main Street between West Ridge Drive and Flewellyn Road
 - Eagleson Road between Bridgestone Drive
 - Eagleson Road between 460 Brigitta Street and between Romina Street and Flewellyn Road
- Cycling facilities along:
 - Shea Road from Flewellyn Road to Abbott Street
 - Flewellyn Road between Stittsville Main Street and Eagleson Road
 - Eagleson Road between Flewellyn Road and Terry Fox Road
 - Stittsville Main Street north of Fernbank Road

9.3 Improving Transit Network Connectivity

Robert Grant Avenue will be extended from Abbott Street to Hazeldean Road Fernbank Road, with potential further expansion to Huntmar Drive. The completion of this corridor will facilitate increased transit connectivity to Stittsville and the W-4 Lands. The addition of the park-and-ride facility at the intersection of Fernbank Road and Robert Grant Avenue would also create the hub in which local service or first/last mile trips could be directed. This will remain a priority for over City transit service and mobility goals.

Beyond the Robert Grant Avenue corridor, widening along Fernbank Road may be required to permit queue bypassing for transit vehicles in the westbound approaching the roundabout intersection at Shea Road.

10 Conclusion

The proposed concept plan for the W-4 Lands meets the City policy direction for a new community and can be supported the planned transportation network and local/intersection upgrades. The future regional improvements by the City of Ottawa will ultimately assist in the evolution of the community and Stittsville as whole, and achieve a more sustainable travel mode profile.

Given the analysis, recommendations and implementation strategy outlined above, the New Community Overlay be removed for the subject lands from a transportation perspective.

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Appendix A

Turning Movement Counts



Project #24-160 - CGH Transportation

Intersection Count Report

Intersection: Stittsville Main St & Abbott St
Municipality: Ottawa
Count Date: Tuesday, Apr 23, 2024
Site Code: 241600001
Count Categories: Cars, Trucks, Bicycles, Pedestrians
Count Period: 07:00-10:00, 11:30-13:30, 15:00-18:00
Weather: Clear
Comments:



Traffic Count Summary

Intersection: Stittsville Main St & Abbott St
Site Code: 241600001
Municipality: Ottawa
Count Date: Apr 23, 2024

Stittsville Main St - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	66	297	13	0	376	0	8	503	67	0	578	15	954
08:00 - 09:00	57	360	22	0	439	9	7	525	63	0	595	16	1034
09:00 - 10:00	64	399	28	0	491	1	32	524	61	0	617	15	1108
BREAK													
11:30 - 12:00	31	242	11	0	284	1	9	271	27	0	307	8	591
12:00 - 13:00	80	527	33	0	640	3	21	525	72	0	618	17	1258
13:00 - 13:30	39	233	19	0	291	1	6	233	22	0	261	7	552
BREAK													
15:00 - 16:00	66	593	33	0	692	8	16	484	50	0	550	20	1242
16:00 - 17:00	90	675	45	0	810	4	25	586	83	0	694	22	1504
17:00 - 18:00	101	616	50	0	767	5	14	495	54	0	563	12	1330
GRAND TOTAL	594	3942	254	0	4790	32	138	4146	499	0	4783	132	9573



Traffic Count Data

Intersection: Stittsville Main St & Abbott St
 Site Code: 2416000001
 Municipality: Ottawa
 Count Date: Apr 23, 2024

North Approach - Stittsville Main St

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
11:30	21	100	3	0	124	0	3	0	0	3	0	0	0	0	0	1
11:45	10	130	8	0	148	0	9	0	0	9	0	0	0	0	0	0
12:00	16	109	10	0	135	0	3	2	0	5	0	2	0	0	2	1
12:15	18	130	6	0	154	0	14	0	0	14	0	0	0	0	0	1
12:30	18	122	5	0	145	1	4	0	0	5	0	0	0	0	0	0
12:45	27	140	9	0	176	0	3	1	0	4	0	0	0	0	0	1
13:00	19	103	12	0	134	0	4	1	0	5	0	0	0	0	0	0
13:15	19	121	6	0	146	1	5	0	0	6	0	0	0	0	0	1
SUBTOTAL	148	955	59	0	1162	2	45	4	0	51	0	2	0	0	2	5



Traffic Count Data

Intersection: Stittsville Main St & Abbott St
 Site Code: 2416000001
 Municipality: Ottawa
 Count Date: Apr 23, 2024

North Approach - Stittsville Main St

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
15:00	20	141	10	0	171	0	5	0	0	5	0	0	0	0	0	0
15:15	7	140	6	0	153	0	4	0	0	4	0	0	0	0	0	2
15:30	21	142	8	0	171	0	3	0	0	3	0	0	0	0	0	4
15:45	17	150	9	0	176	1	8	0	0	9	0	0	0	0	0	2
16:00	26	178	5	0	209	1	3	0	0	4	0	0	0	0	0	0
16:15	16	157	15	0	188	0	3	0	0	3	0	0	0	0	0	2
16:30	25	169	11	0	205	0	8	0	0	8	0	0	0	0	0	2
16:45	22	156	14	0	192	0	1	0	0	1	0	0	0	0	0	0
17:00	22	165	14	0	201	0	3	0	0	3	0	0	0	0	0	1
17:15	26	159	12	0	197	0	2	0	0	2	0	0	0	0	0	1
17:30	18	160	14	0	192	0	1	0	0	1	0	0	0	0	0	0
17:45	34	123	10	0	167	1	3	0	0	4	0	0	0	0	0	3
SUBTOTAL	254	1840	128	0	2222	3	44	0	0	47	0	0	0	0	0	17
GRAND TOTAL	573	3782	246	0	4601	21	158	8	0	187	0	2	0	0	2	32



Traffic Count Data

Intersection: Stittsville Main St & Abbott St
 Site Code: 2416000001
 Municipality: Ottawa
 Count Date: Apr 23, 2024

South Approach - Stittsville Main St

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
07:00	1	86	9	0	96	0	4	0	0	4	0	1	0	0	1	4
07:15	1	102	17	0	120	0	2	1	0	3	0	1	0	0	1	1
07:30	4	138	20	0	162	0	5	2	0	7	0	2	0	0	2	7
07:45	1	149	18	0	168	1	12	0	0	13	0	1	0	0	1	3
08:00	1	114	24	0	139	0	6	1	0	7	0	2	0	0	2	0
08:15	0	139	7	0	146	0	2	0	0	2	0	5	0	0	5	1
08:30	1	133	19	0	153	0	8	0	0	8	0	1	0	0	1	7
08:45	5	106	10	0	121	0	6	2	0	8	0	3	0	0	3	8
09:00	16	137	19	0	172	0	11	2	0	13	0	2	0	0	2	6
09:15	4	126	10	0	140	0	5	1	0	6	0	1	0	0	1	2
09:30	6	115	10	0	131	0	1	0	0	1	0	4	0	0	4	4
09:45	6	118	19	0	143	0	3	0	0	3	0	1	0	0	1	3
SUBTOTAL	46	1463	182	0	1691	1	65	9	0	75	0	24	0	0	24	46



Traffic Count Data

Intersection: Stittsville Main St & Abbott St
 Site Code: 2416000001
 Municipality: Ottawa
 Count Date: Apr 23, 2024

South Approach - Stittsville Main St

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
11:30	2	132	15	0	149	0	3	2	0	5	0	2	0	0	2	5
11:45	7	129	9	0	145	0	2	1	0	3	0	3	0	0	3	3
12:00	3	123	22	0	148	0	7	0	0	7	0	1	0	0	1	2
12:15	2	110	8	0	120	1	5	0	0	6	0	2	0	0	2	2
12:30	8	111	20	0	139	0	7	3	0	10	0	1	0	0	1	8
12:45	7	147	19	0	173	0	8	0	0	8	0	3	0	0	3	5
13:00	2	104	7	0	113	0	6	0	0	6	0	1	0	0	1	4
13:15	4	116	14	0	134	0	4	1	0	5	0	2	0	0	2	3
SUBTOTAL	35	972	114	0	1121	1	42	7	0	50	0	15	0	0	15	32



Traffic Count Data

Intersection: Stittsville Main St & Abbott St
 Site Code: 2416000001
 Municipality: Ottawa
 Count Date: Apr 23, 2024

South Approach - Stittsville Main St

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
15:00	3	112	12	0	127	0	4	0	0	4	0	2	0	0	2	3
15:15	4	102	10	0	116	0	4	0	0	4	0	1	0	0	1	3
15:30	4	118	16	0	138	0	6	1	0	7	0	2	0	0	2	8
15:45	5	127	11	0	143	0	3	0	0	3	0	3	0	0	3	6
16:00	7	147	15	0	169	0	2	3	0	5	0	1	0	0	1	5
16:15	11	133	27	0	171	0	7	2	0	9	0	2	0	0	2	6
16:30	4	133	17	0	154	0	6	1	0	7	0	1	0	0	1	6
16:45	3	146	18	0	167	0	6	0	0	6	0	2	0	0	2	5
17:00	6	134	19	0	159	0	3	0	0	3	0	1	0	0	1	3
17:15	2	127	10	0	139	0	2	0	0	2	0	2	0	0	2	0
17:30	3	104	10	0	117	0	3	0	0	3	0	3	0	0	3	0
17:45	3	114	15	0	132	0	1	0	0	1	0	1	0	0	1	9
SUBTOTAL	55	1497	180	0	1732	0	47	7	0	54	0	21	0	0	21	54
GRAND TOTAL	136	3932	476	0	4544	2	154	23	0	179	0	60	0	0	60	132



Traffic Count Data

Intersection: Stittsville Main St & Abbott St
 Site Code: 2416000001
 Municipality: Ottawa
 Count Date: Apr 23, 2024

East Approach - Abbott St

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
07:00	3	2	6	0	11	0	1	2	0	3	0	0	0	0	0	3
07:15	4	2	8	0	14	1	1	0	0	2	0	0	0	0	0	4
07:30	12	12	25	0	49	0	1	2	0	3	0	0	0	0	0	1
07:45	16	17	34	0	67	0	0	3	0	3	0	0	0	0	0	1
08:00	10	21	43	0	74	1	0	1	0	2	0	1	0	0	1	0
08:15	14	4	23	0	41	1	0	0	0	1	0	0	0	0	0	3
08:30	10	7	23	0	40	0	2	1	0	3	0	0	0	0	0	0
08:45	14	9	27	0	50	1	2	3	0	6	0	0	0	0	0	2
09:00	10	7	22	0	39	1	0	0	0	1	0	0	0	0	0	1
09:15	10	4	29	0	43	0	0	0	0	0	0	0	0	0	0	3
09:30	14	6	32	0	52	0	0	2	0	2	0	0	0	0	0	0
09:45	17	6	19	0	42	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	134	97	291	0	522	5	7	15	0	27	0	1	0	0	1	18



Traffic Count Data

Intersection: Sittsville Main St & Abbott St
 Site Code: 2416000001
 Municipality: Ottawa
 Count Date: Apr 23, 2024

East Approach - Abbott St

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
11:30	14	6	26	0	46	0	0	1	0	1	0	0	0	0	0	2
11:45	16	8	19	0	43	0	0	2	0	2	0	0	0	0	0	2
12:00	17	10	22	0	49	0	0	2	0	2	0	0	0	0	0	3
12:15	18	6	24	0	48	0	0	1	0	1	0	0	0	0	0	1
12:30	22	11	47	0	80	0	0	0	0	0	0	0	0	0	0	5
12:45	20	13	36	0	69	0	0	2	0	2	0	0	0	0	0	2
13:00	12	9	28	0	49	0	0	3	0	3	0	0	0	0	0	2
13:15	8	6	14	0	28	1	0	0	0	1	0	0	0	0	0	2
SUBTOTAL	127	69	216	0	412	1	0	11	0	12	0	0	0	0	0	19



Traffic Count Data

Intersection: Sittsville Main St & Abbott St
 Site Code: 2416000001
 Municipality: Ottawa
 Count Date: Apr 23, 2024

East Approach - Abbott St

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
15:00	12	10	23	0	45	0	0	0	0	0	0	0	0	0	0	2
15:15	12	13	27	0	52	0	0	1	0	1	0	0	0	0	0	3
15:30	14	11	34	0	59	0	0	1	0	1	0	0	0	0	0	7
15:45	24	21	36	0	81	0	0	1	0	1	0	0	0	0	0	3
16:00	14	16	21	0	51	0	0	0	0	0	0	0	0	0	0	4
16:15	18	14	31	0	63	1	1	1	0	3	0	0	0	0	0	4
16:30	20	11	30	0	61	0	1	0	0	1	0	0	0	0	0	1
16:45	16	10	31	0	57	0	0	1	0	1	0	0	0	0	0	0
17:00	20	17	26	0	63	0	0	0	0	0	0	0	0	0	0	6
17:15	13	10	40	0	63	0	0	1	0	1	0	0	0	0	0	1
17:30	16	10	25	0	51	0	0	0	0	0	0	0	0	0	0	0
17:45	16	13	21	0	50	0	0	1	0	1	0	0	0	0	0	5
SUBTOTAL	195	156	345	0	696	1	2	7	0	10	0	0	0	0	0	36
GRAND TOTAL	456	322	852	0	1630	7	9	33	0	49	0	1	0	0	1	73



Traffic Count Data

Intersection: Sittsville Main St & Abbott St
 Site Code: 2416000001
 Municipality: Ottawa
 Count Date: Apr 23, 2024

West Approach - Abbott St

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
07:00	4	4	1	0	9	0	1	0	0	1	0	0	0	0	0	0
07:15	5	22	1	0	28	1	0	2	0	3	0	1	0	0	1	5
07:30	8	38	4	0	50	1	1	0	0	2	0	1	0	0	1	1
07:45	9	72	5	0	86	0	1	0	0	1	0	0	0	0	0	2
08:00	11	12	2	0	25	0	0	0	0	0	0	0	0	0	0	2
08:15	9	12	2	0	23	0	0	0	0	0	0	1	0	0	1	2
08:30	5	15	11	0	31	0	0	1	0	1	0	0	0	0	0	1
08:45	4	10	1	0	15	1	1	1	0	3	0	0	0	0	0	1
09:00	4	7	5	0	16	0	0	0	0	0	0	0	0	0	0	1
09:15	8	14	5	0	27	0	0	0	0	0	0	0	1	0	1	0
09:30	6	8	6	0	20	0	0	0	0	0	0	0	0	0	0	1
09:45	9	7	7	0	23	0	0	0	0	0	0	0	0	0	0	3
SUBTOTAL	82	221	50	0	353	3	4	4	0	11	0	3	1	0	4	19



Traffic Count Data

Intersection: Sittsville Main St & Abbott St
 Site Code: 2416000001
 Municipality: Ottawa
 Count Date: Apr 23, 2024

West Approach - Abbott St

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
11:30	6	12	4	0	22	0	0	0	0	0	0	1	0	0	1	0
11:45	5	6	4	0	15	0	0	0	0	0	0	0	0	0	0	2
12:00	3	7	7	0	17	0	0	1	0	1	0	0	0	0	0	2
12:15	2	6	9	0	17	0	0	0	0	0	0	0	0	0	0	10
12:30	7	8	2	0	17	1	0	0	0	1	0	0	0	0	0	3
12:45	2	13	1	0	16	0	0	0	0	0	0	2	0	0	2	4
13:00	6	4	8	0	18	0	0	0	0	0	0	0	0	0	0	3
13:15	5	8	1	0	14	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	36	64	36	0	136	1	0	2	0	3	0	3	0	0	3	24



Traffic Count Data

Intersection: Stittsville Main St & Abbott St
 Site Code: 2416000001
 Municipality: Ottawa
 Count Date: Apr 23, 2024

West Approach - Abbott St

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
15:00	8	9	5	0	22	1	0	1	0	2	0	0	0	0	0	1
15:15	2	11	5	0	18	0	0	0	0	0	0	0	0	0	0	0
15:30	12	7	8	0	27	1	0	1	0	2	0	0	0	0	0	2
15:45	3	4	9	0	16	0	0	1	0	1	0	0	0	0	0	4
16:00	11	11	6	0	28	0	1	0	0	1	0	0	0	0	0	3
16:15	12	8	6	0	26	0	1	0	0	1	0	0	0	0	0	2
16:30	4	10	9	0	23	1	0	1	0	2	0	0	0	0	0	1
16:45	10	8	10	0	28	1	0	0	0	1	0	0	0	0	0	0
17:00	11	13	6	0	30	0	0	0	0	0	0	0	0	0	0	3
17:15	9	11	3	0	23	0	0	0	0	0	0	0	0	0	0	2
17:30	10	7	3	0	20	0	0	0	0	0	0	0	0	0	0	2
17:45	9	23	6	0	38	0	0	0	0	0	0	0	0	0	0	2
SUBTOTAL	101	122	76	0	299	4	2	4	0	10	0	0	0	0	0	22
GRAND TOTAL	219	407	162	0	788	8	6	10	0	24	0	6	1	0	7	65



Peak Hour Diagram

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

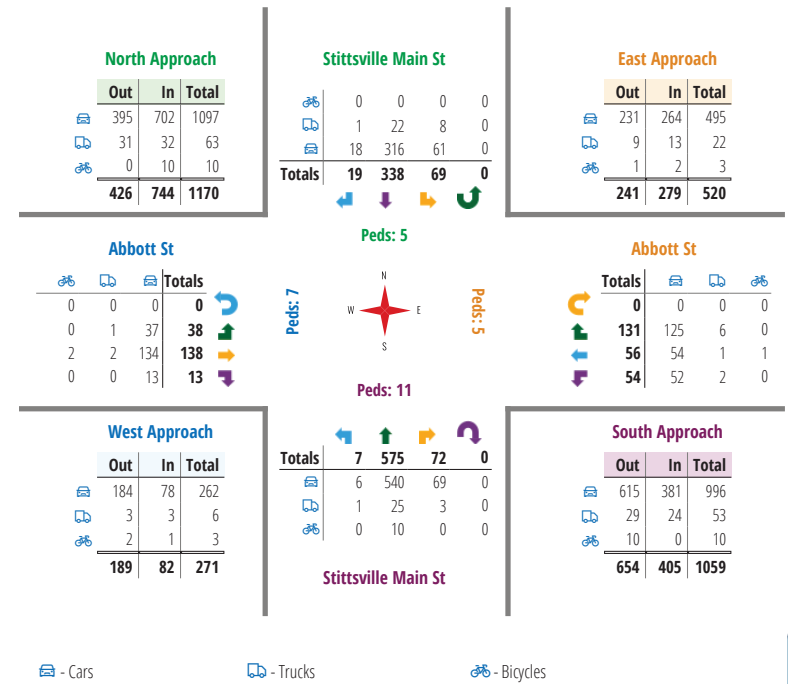
One Hour Peak
 From: 07:30:00
 To: 08:30:00

Intersection: Stittsville Main St & Abbott St
 Site Code: 2416000001
 Count Date: Apr 23, 2024

Weather conditions: Clear

** Signalized Intersection **

Major Road: Stittsville Main St runs N/S



Comments



Peak Hour Summary

Intersection: Stittsville Main St & Abbott St
 Site Code: 2416000001
 Count Date: Apr 23, 2024
 Period: 07:00 - 10:00

Peak Hour Data (07:30 - 08:30)

Start Time	North Approach Stittsville Main St				South Approach Stittsville Main St				East Approach Abbott St				West Approach Abbott St				Total Vehicles								
	Peds	Total	Peds	Total	Peds	Total	Peds	Total	Peds	Total	Peds	Total	Peds	Total											
07:30	21	91	3	0	0	115	4	145	22	0	7	171	12	13	27	0	1	52	9	40	4	0	1	53	391
07:45	20	78	4	0	0	102	2	162	18	0	3	182	16	17	37	0	1	70	9	73	5	0	2	87	441
08:00	12	84	3	0	2	99	1	122	25	0	0	148	11	22	44	0	0	77	11	12	2	0	2	25	349
08:15	16	85	9	0	3	110	0	146	7	0	1	153	15	4	23	0	3	42	9	13	2	0	2	24	329
Grand Total	69	338	19	0	5	426	7	575	72	0	11	654	54	56	131	0	5	241	38	138	13	0	7	189	1510
Approach %	16.2	79.3	4.5	0	-	1.1	87.9	11	0	-	22.4	23.2	54.4	0	-	20.1	73	6.9	0	-	-	-	-	-	-
Totals %	4.6	22.4	1.3	0	28.2	0.5	38.1	4.8	0	43.3	3.6	3.7	8.7	0	16	2.5	9.1	0.9	0	12.5					
PHF	0.82	0.93	0.53	0	0.93	0.44	0.89	0.72	0	0.9	0.84	0.64	0.74	0	0.78	0.86	0.47	0.65	0	0.54	0.86				
Cars	61	316	18	0	395	6	540	69	0	615	52	54	125	0	231	37	134	13	0	184	1425				
% Cars	88.4	93.5	94.7	0	92.7	85.7	93.9	95.8	0	94	96.3	96.4	95.4	0	95.9	97.4	97.1	100	0	97.4	94.4				
Trucks	8	22	1	0	31	1	25	3	0	29	2	1	6	0	9	1	2	0	0	3	72				
% Trucks	11.6	6.5	5.3	0	7.3	14.3	4.3	4.2	0	4.4	3.7	1.8	4.6	0	3.7	2.6	1.4	0	0	1.6	4.8				
Bicycles	0	0	0	0	0	0	10	0	0	10	0	1	0	0	1	0	2	0	0	2	13				
% Bicycles	0	0	0	0	0	0	1.7	0	0	1.5	0	1.8	0	0	0.4	0	1.4	0	0	1.1	0.9				
Peds	0	0	0	0	5	-	11	-	11	-	5	-	7	-	28					7	-				
% Peds	0	0	0	0	17.9	-	39.3	-	39.3	-	17.9	-	25	-	18.5					25	-				



Peak Hour Diagram

Specified Period
 From: 11:30:00
 To: 13:30:00

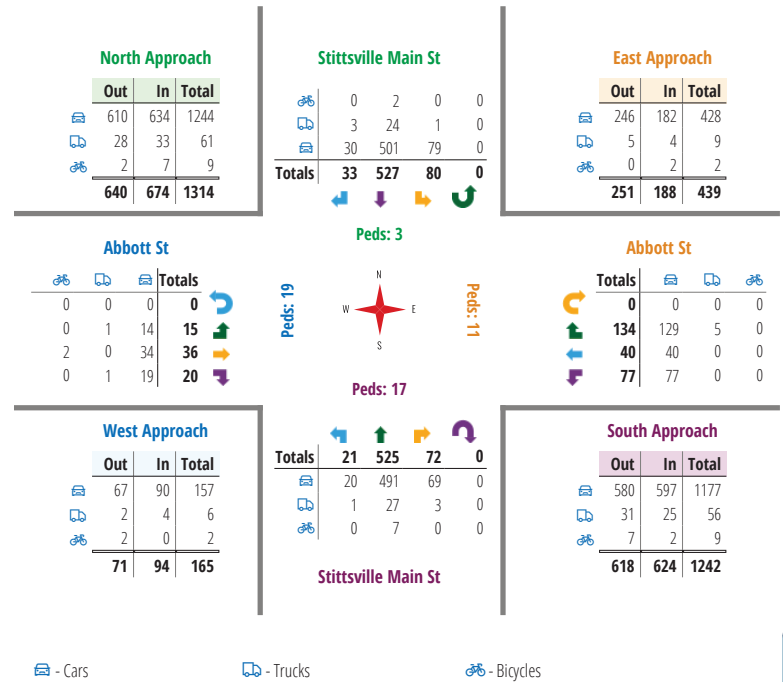
One Hour Peak
 From: 12:00:00
 To: 13:00:00

Intersection: Stittsville Main St & Abbott St
Site Code: 2416000001
Count Date: Apr 23, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Stittsville Main St runs N/S



Comments



Peak Hour Summary

Intersection: Stittsville Main St & Abbott St
 Site Code: 2416000001
 Count Date: Apr 23, 2024
 Period: 11:30 - 13:30

Peak Hour Data (12:00 - 13:00)

Start Time	North Approach Stittsville Main St				South Approach Stittsville Main St				East Approach Abbott St				West Approach Abbott St				Total Vehicles				
	Peds	Trucks	Cars	Total	Peds	Trucks	Cars	Total	Peds	Trucks	Cars	Total	Peds	Trucks	Cars	Total					
12:00	16	114	12	142	3	131	22	156	2	156	17	10	24	51	3	7	8	18	367		
12:15	18	144	6	168	3	117	8	128	18	6	25	49	2	6	9	10	17	362			
12:30	19	126	5	150	8	119	23	150	22	11	47	80	8	8	2	3	18	398			
12:45	27	143	10	180	7	158	19	184	20	13	38	71	2	15	1	4	18	453			
Grand Total	80	527	33	640	21	525	72	618	77	40	134	251	15	36	20	71	1580				
Approach %	12.5	82.3	5.2	-	3.4	85	11.7	-	30.7	15.9	53.4	-	21.1	50.7	28.2	-	-				
Totals %	5.1	33.4	2.1	40.5	1.3	33.2	4.6	39.1	4.9	2.5	8.5	15.9	0.9	2.3	1.3	4.5					
PHF	0.74	0.91	0.69	0	0.89	0.66	0.83	0.78	0	0.84	0.88	0.77	0.71	0	0.78	0.47	0.6	0.56	0	0.99	0.87
Cars	79	501	30	610	20	491	69	580	77	40	129	246	14	34	19	67	1503				
% Cars	98.8	95.1	90.9	95.3	95.2	93.5	95.8	93.9	100	100	96.3	98	93.3	94.4	95	94.4	95.1				
Trucks	1	24	3	28	1	27	3	31	0	0	5	5	1	0	1	2	66				
% Trucks	1.3	4.6	9.1	4.4	4.8	5.1	4.2	5	0	0	3.7	2	6.7	0	5	2.8	4.2				
Bicycles	0	2	0	2	0	7	0	7	0	0	0	0	0	2	0	0	2	11			
% Bicycles	0	0.4	0	0.3	0	1.3	0	1.1	0	0	0	0	0	5.6	0	0	2.8	0.7			
Peds	3	-	-	-	17	-	-	11	-	-	-	19	-	-	-	-	50				
% Peds	6	-	-	-	34	-	-	22	-	-	-	38	-	-	-	-	15				



Peak Hour Diagram

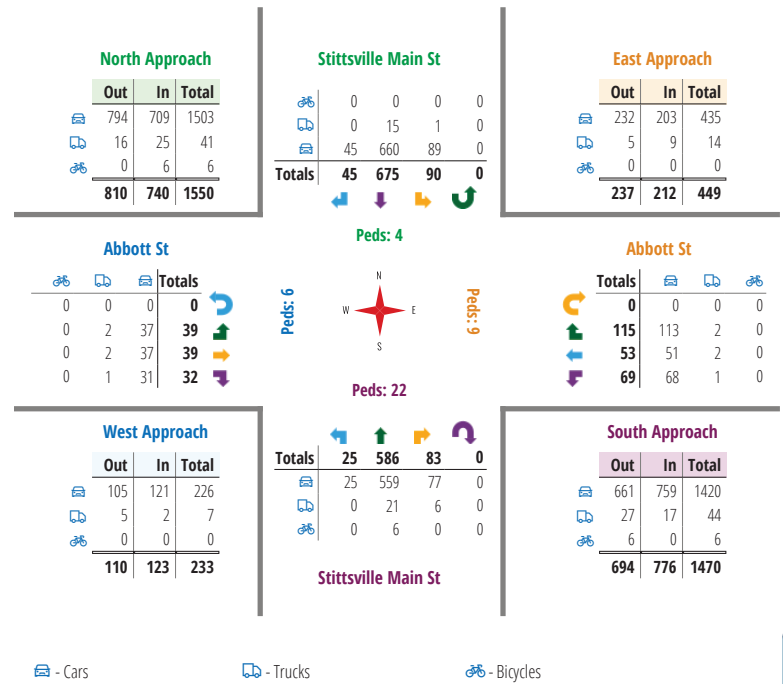
Specified Period
 From: 15:00:00
 To: 18:00:00
One Hour Peak
 From: 16:00:00
 To: 17:00:00

Intersection: Stittsville Main St & Abbott St
 Site Code: 2416000001
 Count Date: Apr 23, 2024

Weather conditions: Clear

** Signalized Intersection **

Major Road: Stittsville Main St runs N/S



Comments



Project #24-160 - CGH Transportation

Intersection Count Report

Intersection: Stittsville Main St & Fernbank Rd
Municipality: Ottawa
Count Date: Tuesday, Apr 23, 2024
Site Code: 241600002
Count Categories: Cars, Trucks, Bicycles, Pedestrians
Count Period: 07:00-10:00, 11:30-13:30, 15:00-18:00
Weather: Clear
Comments:



Peak Hour Summary

Intersection: Stittsville Main St & Abbott St
Site Code: 241600001
Count Date: Apr 23, 2024
Period: 15:00 - 18:00

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Stittsville Main St				South Approach Stittsville Main St				East Approach Abbott St				West Approach Abbott St				Total Vehicles								
	Peds	Total	Peds	Total	Peds	Total	Peds	Total	Peds	Total	Peds	Total													
16:00	27	181	5	0	0	213	7	150	18	0	5	175	14	16	21	0	4	51	11	12	6	0	3	29	468
16:15	16	160	15	0	2	191	11	142	29	0	6	182	19	15	32	0	4	66	12	9	6	0	2	27	466
16:30	25	177	11	0	2	213	4	140	18	0	6	162	20	12	30	0	1	62	5	10	10	0	1	25	462
16:45	22	157	14	0	0	193	3	154	18	0	5	175	16	10	32	0	0	58	11	8	10	0	0	29	455
Grand Total	90	675	45	0	4	810	25	586	83	0	22	694	69	53	115	0	9	237	39	39	32	0	6	110	1851
Approach %	11.1	83.3	5.6	0	-	3.6	84.4	12	0	-	29.1	22.4	48.5	0	-	35.5	35.5	29.1	0	-	-	-	-	-	-
Totals %	4.9	36.5	2.4	0	0	43.8	1.4	31.7	4.5	0	0	37.5	3.7	2.9	6.2	0	12.8	2.1	2.1	1.7	0	0	5.9	5.9	
PHF	0.83	0.93	0.75	0	0	0.95	0.57	0.95	0.72	0	0	0.95	0.86	0.83	0.9	0	0.9	0.81	0.81	0.8	0	0	0.95	0.99	
Cars	89	660	45	0	0	794	25	559	77	0	0	661	68	51	113	0	0	232	37	37	31	0	0	105	1792
% Cars	98.9	97.8	100	0	0	98	100	95.4	92.8	0	0	95.2	98.6	96.2	98.3	0	0	97.9	94.9	94.9	96.9	0	0	95.5	96.8
Trucks	1	15	0	0	0	16	0	21	6	0	0	27	1	2	2	0	0	5	2	2	1	0	0	5	53
% Trucks	1.1	2.2	0	0	0	2	0	3.6	7.2	0	0	3.9	1.4	3.8	1.7	0	0	2.1	5.1	5.1	3.1	0	0	4.5	2.9
Bicycles	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
% Bicycles	0	0	0	0	0	0	0	1	0	0	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0.3
Peds	0	0	0	0	4	-	0	0	0	0	22	-	0	0	0	0	0	9	-	0	0	0	6	-	41
% Peds	0	0	0	0	9.8	-	0	0	0	0	53.7	-	0	0	0	0	0	22	-	0	0	0	14.6	-	



Traffic Count Summary

Intersection: Stittsville Main St & Fernbank Rd
 Site Code: 2416000002
 Municipality: Ottawa
 Count Date: Apr 23, 2024

Stittsville Main St - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	29	196	19	0	244	2	0	275	39	0	314	0	558
08:00 - 09:00	29	204	24	0	257	2	2	307	25	0	334	0	591
09:00 - 10:00	50	196	20	0	266	1	6	272	35	0	313	0	579
BREAK													
11:30 - 12:00	22	116	14	0	152	0	2	119	10	0	131	2	283
12:00 - 13:00	43	243	34	0	320	0	1	210	20	0	231	0	551
13:00 - 13:30	24	108	15	0	147	0	0	124	4	0	128	0	275
BREAK													
15:00 - 16:00	50	324	21	0	395	0	2	255	34	0	291	0	686
16:00 - 17:00	36	361	33	0	430	4	4	357	38	0	399	4	829
17:00 - 18:00	34	317	42	0	393	0	6	250	21	0	277	0	670
GRAND TOTAL	317	2065	222	0	2604	9	23	2169	226	0	2418	6	5022



Traffic Count Summary

Intersection: Stittsville Main St & Fernbank Rd
 Site Code: 2416000002
 Municipality: Ottawa
 Count Date: Apr 23, 2024

Fernbank Rd - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	20	28	38	0	86	4	20	65	4	0	89	1	175
08:00 - 09:00	11	51	62	0	124	5	10	47	12	0	69	4	193
09:00 - 10:00	25	36	72	0	133	2	17	32	6	0	55	2	188
BREAK													
11:30 - 12:00	6	10	30	0	46	5	8	5	1	0	14	2	60
12:00 - 13:00	19	29	55	0	103	3	23	26	1	0	50	0	153
13:00 - 13:30	3	10	31	0	44	0	7	3	2	0	12	0	56
BREAK													
15:00 - 16:00	35	58	67	0	160	3	19	53	7	0	79	0	239
16:00 - 17:00	28	71	71	0	170	2	17	35	6	0	58	1	228
17:00 - 18:00	29	54	50	0	133	2	22	36	5	0	63	2	196
GRAND TOTAL	176	347	476	0	999	26	143	302	44	0	489	12	1488



Traffic Count Data

Intersection: Stittsville Main St & Fernbank Rd
 Site Code: 2416000002
 Municipality: Ottawa
 Count Date: Apr 23, 2024

North Approach - Stittsville Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	3	24	1	0	28	2	6	0	0	8	0	0	0	0	0	1
07:15	5	43	3	0	51	3	8	2	0	13	0	0	0	0	0	1
07:30	5	50	4	0	59	1	2	1	0	4	0	0	0	0	0	0
07:45	9	58	7	0	74	1	5	1	0	7	0	0	0	0	0	0
08:00	2	56	8	0	66	0	2	1	0	3	0	0	0	0	0	0
08:15	5	46	4	0	55	1	3	0	0	4	0	0	0	0	0	0
08:30	14	44	8	0	66	0	3	0	0	3	0	0	0	0	0	0
08:45	6	49	3	0	58	1	1	0	0	2	0	0	0	0	0	2
09:00	19	55	4	0	78	1	9	1	0	11	0	0	0	0	0	1
09:15	11	36	4	0	51	2	1	1	0	4	0	0	0	0	0	0
09:30	8	54	1	0	63	1	3	1	0	5	0	0	0	0	0	0
09:45	8	37	5	0	50	0	1	3	0	4	0	0	0	0	0	0
SUBTOTAL	95	552	52	0	699	13	44	11	0	68	0	0	0	0	0	5



Traffic Count Data

Intersection: Stittsville Main St & Fernbank Rd
 Site Code: 2416000002
 Municipality: Ottawa
 Count Date: Apr 23, 2024

North Approach - Stittsville Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:30	11	47	6	0	64	0	3	0	0	3	0	0	0	0	0	0
11:45	9	63	8	0	80	2	3	0	0	5	0	0	0	0	0	0
12:00	16	62	4	0	82	0	0	1	0	1	0	0	0	0	0	0
12:15	8	58	8	0	74	1	3	2	0	6	0	0	0	0	0	0
12:30	9	55	6	0	70	0	2	0	0	2	0	0	0	0	0	0
12:45	8	61	12	0	81	1	2	1	0	4	0	0	0	0	0	0
13:00	11	51	5	0	67	0	2	0	0	2	0	0	0	0	0	0
13:15	12	52	7	0	71	1	3	3	0	7	0	0	0	0	0	0
SUBTOTAL	84	449	56	0	589	5	18	7	0	30	0	0	0	0	0	0



Traffic Count Data

Intersection: Stittsville Main St & Fernbank Rd
 Site Code: 2416000002
 Municipality: Ottawa
 Count Date: Apr 23, 2024

North Approach - Stittsville Main St

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
15:00	11	82	4	0	97	1	2	2	0	5	0	0	0	0	0	0
15:15	14	74	6	0	94	0	1	1	0	2	0	0	0	0	0	0
15:30	12	72	2	0	86	0	4	0	0	4	0	0	0	0	0	0
15:45	11	82	5	0	98	1	7	1	0	9	0	0	0	0	0	0
16:00	6	91	6	0	103	0	2	1	0	3	0	0	0	0	0	0
16:15	9	92	9	0	110	0	3	0	0	3	0	0	0	0	0	0
16:30	13	84	9	0	106	3	3	1	0	7	0	0	0	0	0	3
16:45	4	86	7	0	97	1	0	0	0	1	0	0	0	0	0	1
17:00	10	85	13	0	108	0	2	0	0	2	0	0	0	0	0	0
17:15	8	67	13	0	88	2	0	0	0	2	0	0	0	0	0	0
17:30	7	83	11	0	101	1	1	0	0	2	0	0	0	0	0	0
17:45	5	78	5	0	88	1	1	0	0	2	0	0	0	0	0	0
SUBTOTAL	110	976	90	0	1176	10	26	6	0	42	0	0	0	0	0	4
GRAND TOTAL	289	1977	198	0	2464	28	88	24	0	140	0	0	0	0	0	9



Traffic Count Data

Intersection: Stittsville Main St & Fernbank Rd
 Site Code: 2416000002
 Municipality: Ottawa
 Count Date: Apr 23, 2024

South Approach - Stittsville Main St

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
07:00	0	37	3	0	40	0	3	2	0	5	0	0	0	0	0	0
07:15	0	54	8	0	62	0	0	0	0	0	0	0	0	0	0	0
07:30	0	80	16	0	96	0	3	1	0	4	0	0	0	0	0	0
07:45	0	87	8	0	95	0	11	1	0	12	0	0	0	0	0	0
08:00	0	71	4	0	75	0	4	0	0	4	0	0	0	0	0	0
08:15	0	82	10	0	92	0	1	0	0	1	0	0	0	0	0	0
08:30	2	76	6	0	84	0	5	0	0	5	0	0	0	0	0	0
08:45	0	64	5	0	69	0	4	0	0	4	0	0	0	0	0	0
09:00	1	77	18	0	96	0	7	0	0	7	0	0	0	0	0	0
09:15	2	65	7	0	74	0	2	0	0	2	0	0	0	0	0	0
09:30	1	48	8	0	57	1	1	1	0	3	0	0	0	0	0	0
09:45	1	68	1	0	70	0	4	0	0	4	0	0	0	0	0	0
SUBTOTAL	7	809	94	0	910	1	45	5	0	51	0	0	0	0	0	0



Peak Hour Diagram

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

Intersection: Stittsville Main St & Fernbank Rd
Site Code: 2416000002
Count Date: Apr 23, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Stittsville Main St runs N/S



Peak Hour Summary

Intersection: Stittsville Main St & Fernbank Rd
Site Code: 2416000002
Count Date: Apr 23, 2024
Period: 11:30 - 13:30

Peak Hour Data (12:00 - 13:00)

Start Time	North Approach Stittsville Main St				South Approach Stittsville Main St				East Approach Fernbank Rd				West Approach Fernbank Rd				Total Vehicles								
	Car	Truck	Bicycle	Peds	Car	Truck	Bicycle	Peds	Car	Truck	Bicycle	Peds	Car	Truck	Bicycle	Peds									
12:00	16	62	5	0	83	0	52	3	0	0	55	5	5	16	0	0	26	4	8	0	0	0	12	176	
12:15	9	61	10	0	80	1	56	9	0	0	66	3	10	13	0	2	26	4	4	1	0	0	9	181	
12:30	9	57	6	0	72	0	39	4	0	0	43	5	5	14	0	1	24	10	7	0	0	0	17	156	
12:45	9	63	13	0	85	0	63	4	0	0	67	6	9	12	0	0	27	5	7	0	0	0	12	191	
Grand Total	43	243	34	0	320	1	210	20	0	0	231	19	29	55	0	3	103	23	26	1	0	0	50	704	
Approach %	13.4	75.9	10.6	0	-	0.4	90.9	8.7	0	-	18.4	28.2	53.4	0	-	46	52	2	0	-	-	-	-	-	
Totals %	6.1	34.5	4.8	0	45.5	0.1	29.8	2.8	0	32.8	2.7	4.1	7.8	0	14.6	3.3	3.7	0.1	0	7.1	-	-	-	-	
PHF	0.67	0.96	0.65	0	0.94	0.25	0.83	0.56	0	0.86	0.79	0.73	0.86	0	0.95	0.58	0.81	0.25	0	0.74	0.92	-	-	-	
Cars	41	236	30	0	307	1	199	18	0	218	17	28	53	0	98	20	25	1	0	46	669	-	-	-	
% Cars	95.3	97.1	88.2	0	95.9	100	94.8	90	0	94.4	89.5	96.6	96.4	0	95.1	87	96.2	100	0	92	95	-	-	-	
Trucks	2	7	4	0	13	0	11	2	0	13	2	1	2	0	5	3	1	0	0	4	35	-	-	-	
% Trucks	4.7	2.9	11.8	0	4.1	0	5.2	10	0	5.6	10.5	3.4	3.6	0	4.9	13	3.8	0	0	8	5	-	-	-	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	-	-	-	-	0	-	3	-	-	
% Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	-	-	-	-	0	-	0	-	-	

Comments



Peak Hour Diagram

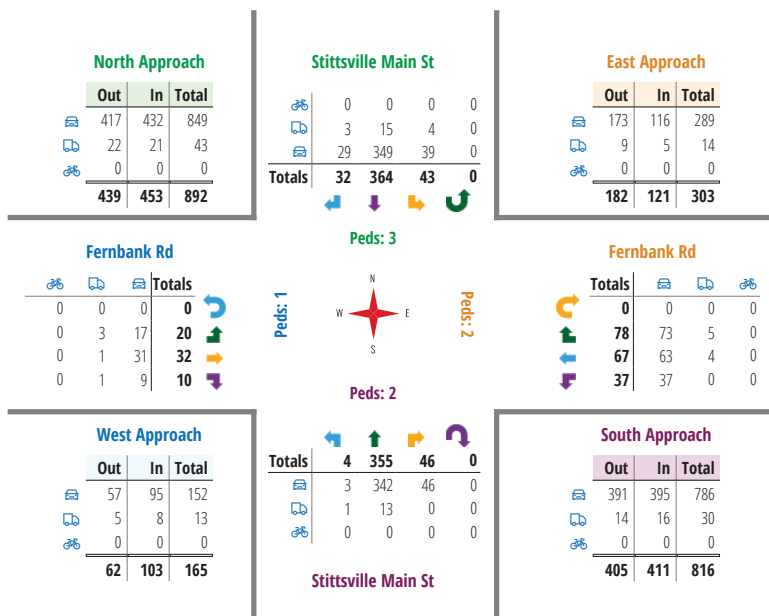
Specified Period **One Hour Peak**
 From: 15:00:00 From: 15:45:00
 To: 18:00:00 To: 16:45:00

Intersection: Stittsville Main St & Fernbank Rd
Site Code: 2416000002
Count Date: Apr 23, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Stittsville Main St runs N/S



- Cars

- Trucks

- Bicycles

Comments



Peak Hour Summary

Intersection: Stittsville Main St & Fernbank Rd
Site Code: 2416000002
Count Date: Apr 23, 2024
Period: 15:00 - 18:00

Peak Hour Data (15:45 - 16:45)

Start Time	North Approach Stittsville Main St				South Approach Stittsville Main St				East Approach Fernbank Rd				West Approach Fernbank Rd				Total Vehicles				
	↑	↓	↔	Peds	↑	↓	↔	Peds	↑	↓	↔	Peds	↑	↓	↔	Peds					
15:45	12	89	6	0	2	74	15	0	16	17	22	0	7	9	5	0	21	274			
16:00	6	93	7	0	1	81	11	0	5	18	18	0	4	10	1	0	15	255			
16:15	9	95	9	0	0	113	10	0	2	110	8	19	5	7	1	0	13	289			
16:30	16	87	10	0	1	100	10	0	8	13	12	0	4	6	3	0	13	220			
Grand Total	43	364	32	0	4	355	46	0	2	405	37	67	20	32	10	0	62	1088			
Approach %	9.8	82.9	7.3	0	-	1	87.7	11.4	0	-	20.3	36.8	42.9	0	-	32.3	51.6	16.1	0	-	
Totals %	4	33.5	2.9	0	40.3	0.4	32.6	4.2	0	37.2	3.4	6.2	7.2	0	16.7	1.8	2.9	0.9	0	5.7	
PHF	0.67	0.96	0.8	0	0.97	0.5	0.89	0.77	0	0.91	0.58	0.88	0.75	0	0.83	0.71	0.8	0.5	0	0.74	0.94
Cars	39	349	29	0	417	3	342	46	0	391	37	63	73	0	173	17	31	9	0	57	1038
% Cars	90.7	95.9	90.6	0	95	75	96.3	100	0	96.5	100	94	93.6	0	95.1	85	96.9	90	0	91.9	95.4
Trucks	4	15	3	0	22	1	13	0	0	14	0	4	5	0	9	3	1	1	0	5	50
% Trucks	9.3	4.1	9.4	0	5	25	3.7	0	0	3.5	0	6	6.4	0	4.9	15	3.1	10	0	8.1	4.6
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peds	0	0	0	0	3	-	-	-	-	2	-	-	-	-	2	-	-	-	-	1	-
% Peds	0	0	0	0	37.5	-	-	-	-	25	-	-	-	-	25	-	-	-	-	12.5	-



Transportation Services - Traffic Services

Turning Movement Count - Study Results

STITTSVILLE MAIN ST @ WEST RIDGE DR/PARADE DR

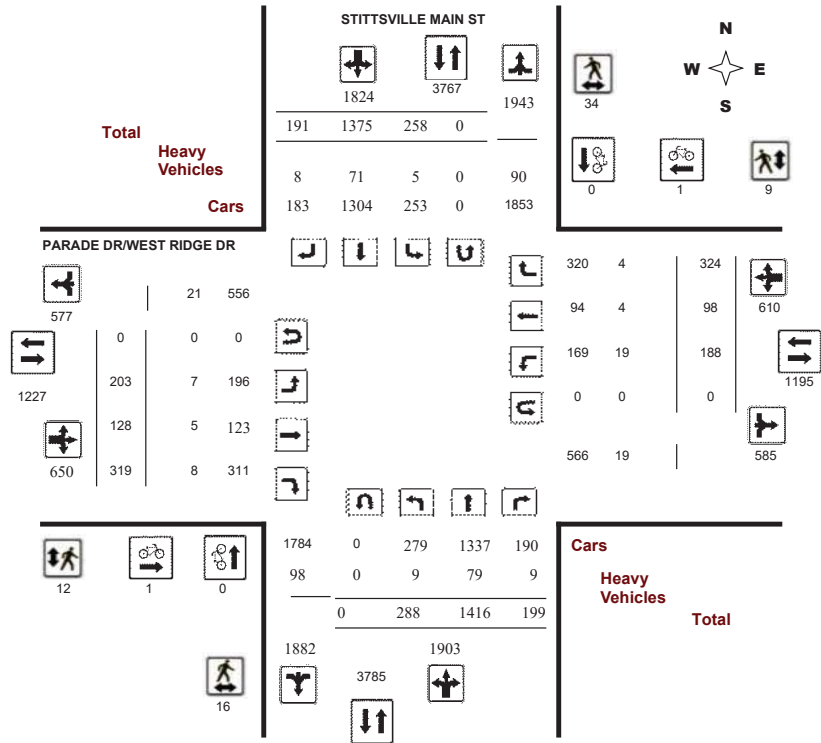
Survey Date: Wednesday, March 08, 2023

WO No: 40860

Start Time: 07:00

Device: Miovision

Full Study Diagram



Transportation Services - Traffic Services

Turning Movement Count - Study Results

STITTSVILLE MAIN ST @ WEST RIDGE DR/PARADE DR

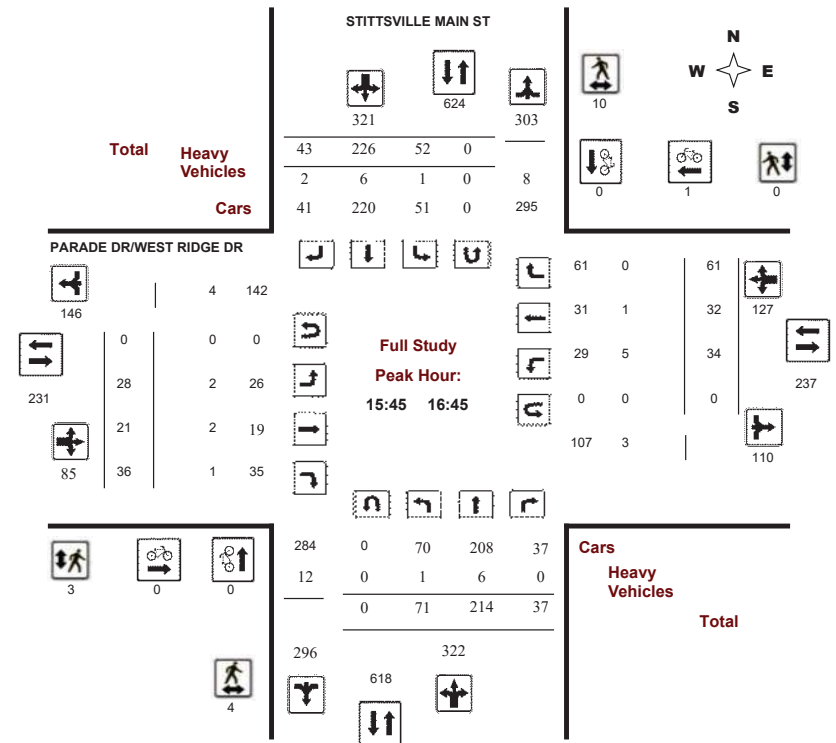
Survey Date: Wednesday, March 08, 2023

WO No: 40860

Start Time: 07:00

Device: Miovision

Full Study Peak Hour Diagram





Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

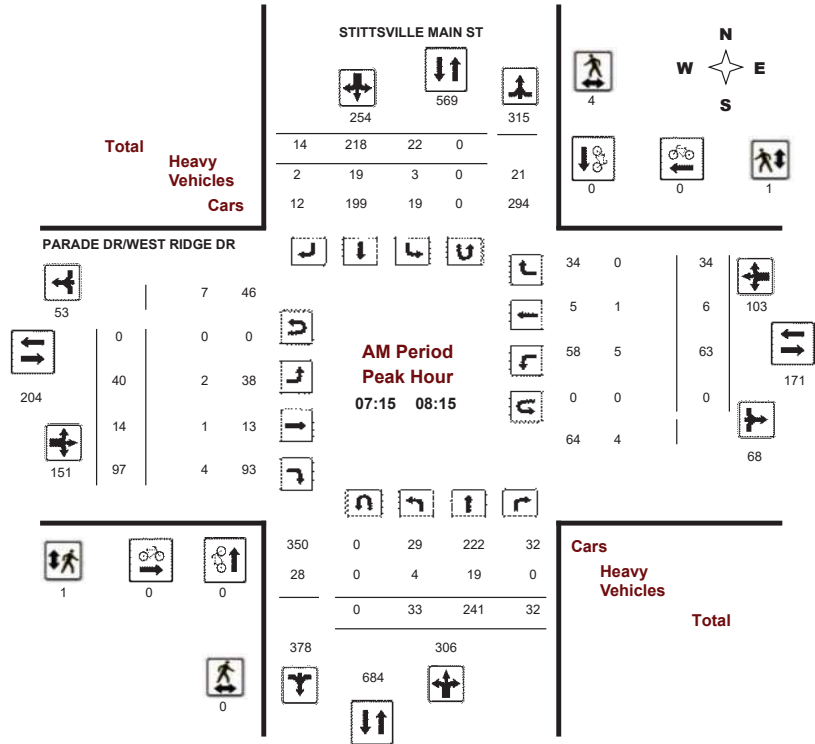
STITTSVILLE MAIN ST @ WEST RIDGE DR/PARADE DR

Survey Date: Wednesday, March 08, 2023

Start Time: 07:00

WO No: 40860

Device: Miovision



Comments:



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

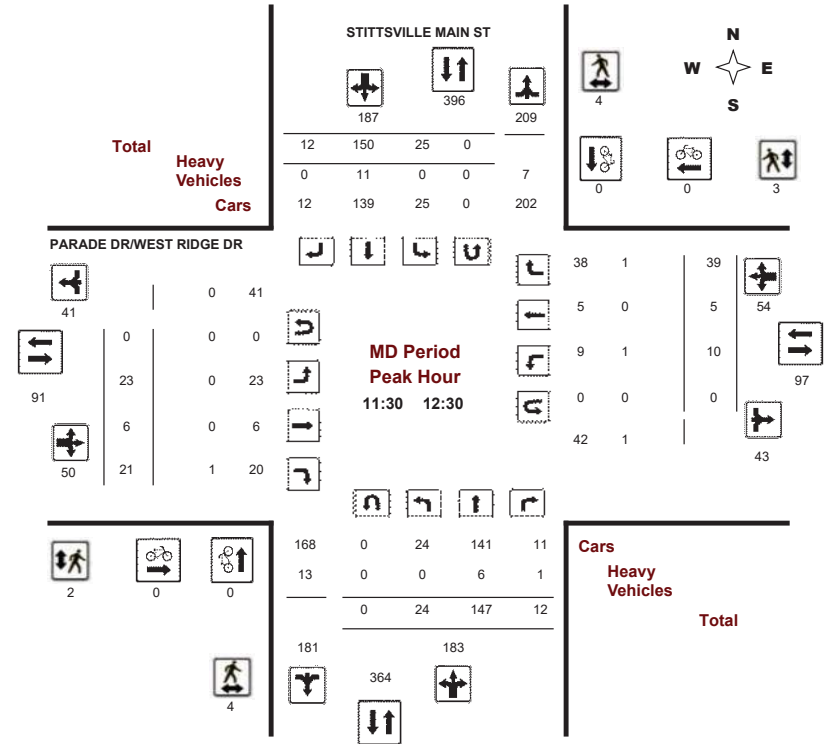
STITTSVILLE MAIN ST @ WEST RIDGE DR/PARADE DR

Survey Date: Wednesday, March 08, 2023

Start Time: 07:00

WO No: 40860

Device: Miovision



Comments:



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

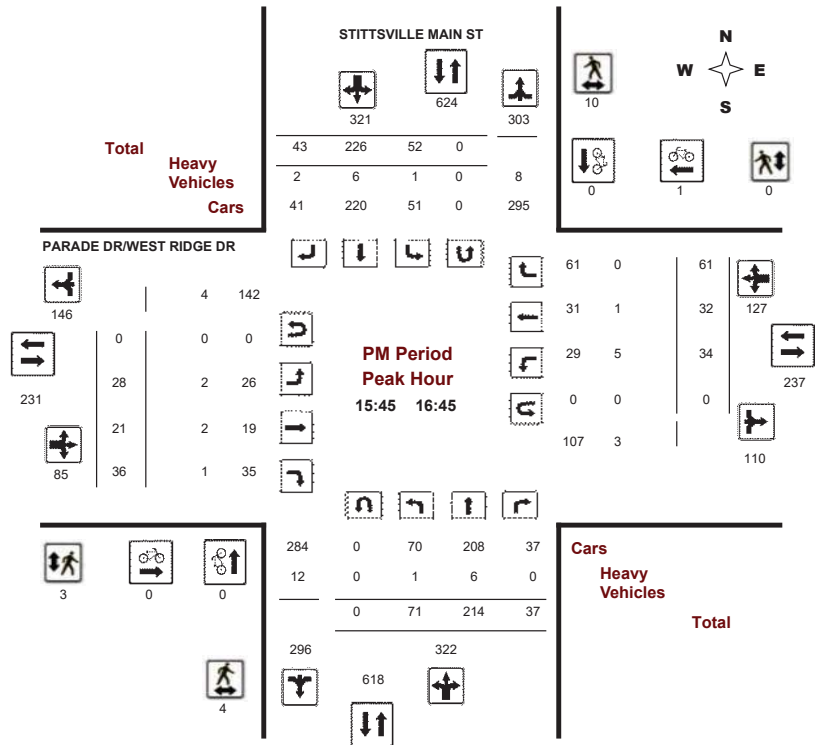
STITTSVILLE MAIN ST @ WEST RIDGE DR/PARADE DR

Survey Date: Wednesday, March 08, 2023

Start Time: 07:00

WO No: 40860

Device: Miovision



Comments:



Transportation Services - Traffic Services

Turning Movement Count - Study Results

STITTSVILLE MAIN ST @ WEST RIDGE DR/PARADE DR

Survey Date: Wednesday, March 08, 2023

Start Time: 07:00

WO No: 40860

Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, March 08, 2023

Total Observed U-Turns

Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 0

AADT Factor

1.00

Period	STITTSVILLE MAIN ST								PARADE DR/WEST RIDGE DR								WB TOT	STR TOT	Grand Total
	Northbound				Southbound				Eastbound				Westbound						
	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT			
07:00-08:00	33	196	21	250	15	212	8	235	485	39	12	92	143	49	5	30	84	227	712
08:00-09:00	31	224	31	286	28	132	21	181	467	31	15	42	88	32	11	38	81	169	636
09:00-10:00	14	166	21	201	21	144	14	179	380	18	27	29	74	24	18	40	82	156	536
11:30-12:30	24	147	12	183	25	150	12	187	370	23	6	21	50	10	5	39	54	104	474
12:30-13:30	10	143	10	163	31	144	19	194	357	12	8	28	48	8	2	41	51	99	456
15:00-16:00	41	177	31	249	43	170	34	247	496	32	29	34	95	21	28	37	86	181	677
16:00-17:00	78	202	44	324	46	227	37	310	634	25	19	33	77	26	12	56	94	171	805
17:00-18:00	57	161	29	247	49	196	46	291	538	23	12	40	75	18	17	43	78	153	691
Sub Total	288	1416	199	1903	258	1375	191	1824	3727	203	128	319	650	188	98	324	610	1260	4987
U Turns				0				0	0				0				0	0	0
Total	288	1416	199	1903	258	1375	191	1824	3727	203	128	319	650	188	98	324	610	1260	4987
EQ 12Hr	400	1968	277	2645	359	1911	265	2535	5181	282	178	443	903	261	136	450	848	1751	6932
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													1.39						
AVG 12Hr	400	1968	277	2645	359	2504	348	2535	5181	282	178	443	903	261	136	450	848	1751	6932
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													1.00						
AVG 24Hr	524	2578	363	3465	470	3280	456	3321	6787	369	233	580	1183	342	178	590	1111	2294	9081
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													1.31						
Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.																			



Transportation Services - Traffic Services

Turning Movement Count - Study Results

STITTSVILLE MAIN ST @ WEST RIDGE DR/PARADE DR

Survey Date: Wednesday, March 08, 2023

WO No: 40860

Start Time: 07:00

Device: Miovision

Full Study 15 Minute Increments

STITTSVILLE MAIN ST										PARADE DR/WEST RIDGE DR										Grand Total
Northbound					Southbound					Eastbound					Westbound					
Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT		
07:00	07:15	5	20	2	27	1	27	1	29	56	8	1	12	21	4	2	4	10	31	87
07:15	07:30	4	41	3	48	1	55	1	57	105	9	3	22	34	11	0	9	20	54	159
07:30	07:45	8	61	6	75	4	66	3	73	148	11	0	34	45	19	1	10	30	75	223
07:45	08:00	16	74	10	100	9	64	3	76	176	11	8	24	43	15	2	7	24	67	243
08:00	08:15	5	55	3	63	7	32	8	47	110	9	2	13	24	3	2	13	18	42	152
08:15	08:30	4	54	12	70	4	43	0	47	117	8	19	9	36	11	12	16	39	75	192
08:30	08:45	6	44	5	55	7	26	2	35	90	2	5	12	19	7	4	9	20	39	129
08:45	09:00	2	34	3	39	6	37	4	47	86	7	1	4	12	2	0	9	11	23	109
08:45	10:00	2	34	1	37	4	38	8	50	87	1	2	4	7	4	2	6	12	19	106
11:45	12:00	7	34	2	43	6	39	3	48	91	5	1	8	14	3	0	11	14	28	119
12:15	12:30	8	35	2	45	10	41	2	53	98	7	1	6	14	3	2	8	13	27	125
12:30	12:45	3	38	2	43	9	40	1	50	93	1	1	13	15	4	0	12	16	31	124
13:00	13:15	2	38	3	43	9	28	6	43	86	3	4	2	9	1	0	8	9	18	104
16:15	16:30	19	64	11	94	12	52	9	73	167	11	7	7	25	3	2	16	21	46	213
16:45	17:00	19	44	13	76	12	50	8	70	146	5	4	7	16	6	1	9	16	32	178
17:00	17:15	12	37	10	59	14	52	12	78	137	5	2	8	15	9	7	13	29	44	181
17:30	17:45	9	34	8	51	18	43	12	73	124	6	4	7	17	4	4	6	14	31	155
17:45	18:00	17	44	6	67	11	51	11	73	140	6	3	12	21	2	3	12	17	38	178
08:00	08:15	5	65	13	83	8	33	7	48	131	9	3	17	29	18	3	8	29	58	189
15:45	16:00	12	56	6	74	18	49	14	81	155	8	6	10	24	14	21	14	49	73	228
08:15	08:30	12	57	8	77	6	33	3	42	119	7	1	6	14	4	2	11	17	31	150
08:45	09:00	9	47	7	63	7	34	3	44	107	6	9	6	21	7	4	6	17	38	145
15:00	15:15	9	47	10	66	6	31	2	39	105	8	2	6	16	3	1	7	11	27	132
11:30	11:45	6	54	3	63	5	37	5	47	110	6	3	5	14	0	3	10	13	27	137
17:15	17:30	19	46	5	70	6	50	11	67	137	6	3	13	22	3	3	12	18	40	177
12:00	12:15	3	24	5	32	4	33	2	39	71	5	1	2	8	4	0	10	14	22	93
12:45	13:00	0	43	2	45	4	34	5	43	88	6	0	6	12	0	1	12	13	25	113
15:30	15:45	11	45	8	64	10	48	7	65	129	5	8	9	22	1	2	11	14	36	165
13:15	13:30	5	24	3	32	9	42	7	58	90	2	3	7	12	3	1	9	13	25	115
15:15	15:30	9	29	7	45	9	42	11	62	107	11	13	9	33	3	4	5	12	45	152
16:00	16:15	19	48	12	79	9	73	9	91	170	4	2	9	15	8	4	17	29	44	214
16:30	16:45	21	46	8	75	13	52	11	76	151	5	6	10	21	9	5	14	28	49	200
Total:		288	1416	199	1903	258	1375	191	1824	3727	203	128	319	650	188	98	324	610	1260	4,987

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

STITTSVILLE MAIN ST @ WEST RIDGE DR/PARADE DR

Survey Date: Wednesday, March 08, 2023

WO No: 40860

Start Time: 07:00

Device: Miovision

Full Study Cyclist Volume

STITTSVILLE MAIN ST			PARADE DR/WEST RIDGE DR			Grand Total		
Time Period	Northbound	Southbound	Street Total	Eastbound	Westbound		Street Total	
07:00	07:15	0	0	0	0	0		
07:15	07:30	0	0	0	0	0		
07:30	07:45	0	0	0	0	0		
07:45	08:00	0	0	0	0	0		
08:00	08:15	0	0	0	0	0		
08:15	08:30	0	0	0	0	0		
08:30	08:45	0	0	0	0	0		
08:45	09:00	0	0	0	0	0		
09:00	09:15	0	0	0	0	0		
09:15	09:30	0	0	0	0	0		
09:30	09:45	0	0	0	0	0		
09:45	10:00	0	0	0	0	0		
11:45	12:00	0	0	0	0	0		
12:00	12:15	0	0	0	0	0		
12:15	12:30	0	0	0	0	0		
12:30	12:45	0	0	0	0	0		
12:45	13:00	0	0	0	0	0		
13:00	13:15	0	0	0	0	0		
13:15	13:30	0	0	0	0	0		
13:30	13:45	0	0	0	0	0		
16:15	16:30	0	0	0	0	0		
16:30	16:45	0	0	0	0	0		
17:00	17:15	0	0	1	0	1		
17:15	17:30	0	0	0	0	0		
17:30	17:45	0	0	0	0	0		
17:45	18:00	0	0	0	0	0		
08:00	08:15	0	0	0	0	0		
15:45	16:00	0	0	0	0	0		
08:15	08:30	0	0	0	0	0		
08:45	09:00	0	0	0	0	0		
15:00	15:15	0	0	0	0	0		
11:30	11:45	0	0	0	0	0		
17:15	17:30	0	0	0	0	0		
12:00	12:15	0	0	0	0	0		
12:45	13:00	0	0	0	0	0		
15:30	15:45	0	0	0	0	0		
13:15	13:30	0	0	0	0	0		
15:15	15:30	0	0	0	0	0		
16:00	16:15	0	0	0	1	1		
16:30	16:45	0	0	0	0	0		
Total		0	0	0	1	1	2	2



Transportation Services - Traffic Services

Turning Movement Count - Study Results

STITTSVILLE MAIN ST @ WEST RIDGE DR/PARADE DR

Survey Date: Wednesday, March 08, 2023

WO No: 40860

Start Time: 07:00

Device: Miovision

Full Study Pedestrian Volume

STITTSVILLE MAIN ST PARADE DR/WEST RIDGE DR

Table with columns: Time Period, NB Approach (E or W Crossing), SB Approach (E or W Crossing), Total, EB Approach (N or S Crossing), WB Approach (N or S Crossing), Total, Grand Total. Rows show pedestrian counts for various time intervals from 07:00 to 16:30.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

STITTSVILLE MAIN ST @ WEST RIDGE DR/PARADE DR

Survey Date: Wednesday, March 08, 2023

WO No: 40860

Start Time: 07:00

Device: Miovision

Full Study Heavy Vehicles

STITTSVILLE MAIN ST PARADE DR/WEST RIDGE DR

Table with columns: Time Period, Northbound (LT, ST, RT, N TOT), Southbound (LT, ST, RT, S TOT, STR TOT), Eastbound (LT, ST, RT, E TOT), Westbound (LT, ST, RT, W TOT, STR TOT), Grand Total. Rows show heavy vehicle counts for various time intervals from 07:00 to 16:30.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

STITTSVILLE MAIN ST @ WEST RIDGE DR/PARADE DR

Survey Date: Wednesday, March 08, 2023

WO No: 40860

Start Time: 07:00

Device: Miovision

Full Study 15 Minute U-Turn Total

Time Period	STITTSVILLE MAIN ST		PARADE DR/WEST RIDGE DR		Total
	Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	
07:00 - 07:15	0	0	0	0	0
07:15 - 07:30	0	0	0	0	0
07:30 - 07:45	0	0	0	0	0
07:45 - 08:00	0	0	0	0	0
08:00 - 08:45	0	0	0	0	0
09:00 - 09:15	0	0	0	0	0
09:15 - 09:30	0	0	0	0	0
09:30 - 09:45	0	0	0	0	0
09:45 - 10:00	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0
13:00 - 13:15	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0
08:00 - 08:15	0	0	0	0	0
15:45 - 16:00	0	0	0	0	0
08:15 - 08:30	0	0	0	0	0
08:45 - 09:00	0	0	0	0	0
15:00 - 15:15	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0
12:00 - 12:15	0	0	0	0	0
12:45 - 13:00	0	0	0	0	0
15:30 - 15:45	0	0	0	0	0
13:15 - 13:30	0	0	0	0	0
15:15 - 15:30	0	0	0	0	0
16:00 - 16:15	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0
Total	0	0	0	0	0



Turning Movement Count
Summary Report Including Peak Hours,
AADT and Expansion Factors
All Vehicles Except Bicycles



Flewellyn Road & Huntley Road/Stittsville Main Street Stittsville, ON

Survey Date: Thursday, August 10, 2023

Start Time: 0700 AADT Factor: 0.9

Weather AM: Mostly Cloudy 18° C

Survey Duration: 8 Hrs.

Survey Hours: 0700-1000, 1130-1330 & 1500-1800

Weather PM: Light/Moderate Rain 18° C

Surveyor(s): T. Carmody

Time Period	Flewellyn Rd.				Flewellyn Rd.				Huntley Rd.				Stittsville Main St.				Street Total	Grand Total					
	Eastbound		Westbound		Northbound		Southbound		S/B Tot	Street Total	Gr. Tot												
	LT	ST	RT	UT	LT	ST	RT	UT				LT	ST	RT	UT								
0700-0800	29	72	20	0	121	7	48	16	0	71	192	6	145	7	0	158	52	130	25	0	207	365	557
0800-0900	38	69	15	0	122	7	43	29	0	79	201	17	176	12	0	205	39	188	53	0	280	485	686
0900-1000	36	69	8	0	113	4	38	26	0	68	181	14	170	10	0	194	29	171	37	0	237	431	612
1130-1230	41	46	15	0	102	5	43	32	0	80	182	18	202	16	0	236	31	241	50	0	322	558	740
1230-1330	35	63	13	0	111	5	51	29	0	85	196	13	158	10	0	181	27	212	51	0	290	471	667
1500-1600	28	66	15	0	109	8	63	43	0	114	223	24	195	9	0	228	37	203	55	0	295	523	746
1600-1700	39	50	10	0	99	7	72	66	0	145	244	21	248	12	0	281	31	263	46	0	340	621	865
1700-1800	39	50	19	0	108	6	69	41	0	116	224	13	180	13	0	206	43	200	64	0	307	513	737
Totals	285	485	115	0	885	49	427	282	0	758	1643	126	1474	89	0	1689	289	1608	381	0	2278	3967	5610

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor
Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 → 12 expansion factor of 1.39																							
Equ. 12 Hr	396	674	160	0	1230	68	594	392	0	1054	2284	175	2049	124	0	2348	402	2235	530	0	3166	5514	7798

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 0.9																							
AADT 12-hr	357	607	144	0	1107	61	534	353	0	948	2055	158	1844	111	0	2113	362	2012	477	0	2850	4963	7018

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 → 24 expansion factor of 1.31																							
AADT 24 Hr	467	795	188	0	1450	80	700	462	0	1242	2693	206	2416	146	0	2768	474	2635	624	0	3733	6501	9194

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor	Highest Hourly Vehicle Volume Between 0700h & 1000h																							
0.86	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	Str. Tot.												
AM Peak Hr	38	69	15	0	122	79	7	43	29	0	79	201	17	176	12	0	205	39	188	53	0	280	485	686
OFF Peak Hour Factor	Highest Hourly Vehicle Volume Between 1130h & 1330h																							
0.92	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	Str. Tot.												
OFF Peak Hr	39	50	15	0	104	72	3	42	27	0	72	176	16	201	17	0	234	33	250	51	0	334	568	744
PM Peak Hour Factor	Highest Hourly Vehicle Volume Between 1500h & 1800h																							
0.91	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	Str. Tot.												
PM Peak Hr	44	56	14	0	114	148	6	71	71	0	148	262	27	256	14	0	297	33	255	47	0	335	632	894

Comments:

OC Transpo and Para Transpo buses, private buses and school buses comprise 4.37% of the heavy vehicle traffic. No pedestrian crossings were observed.

Notes:

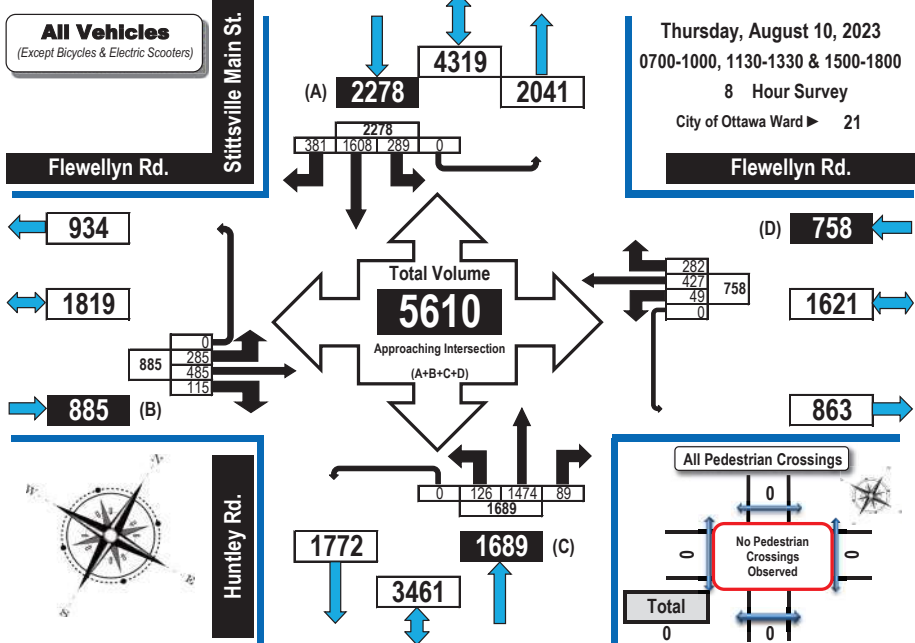
1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.



Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams



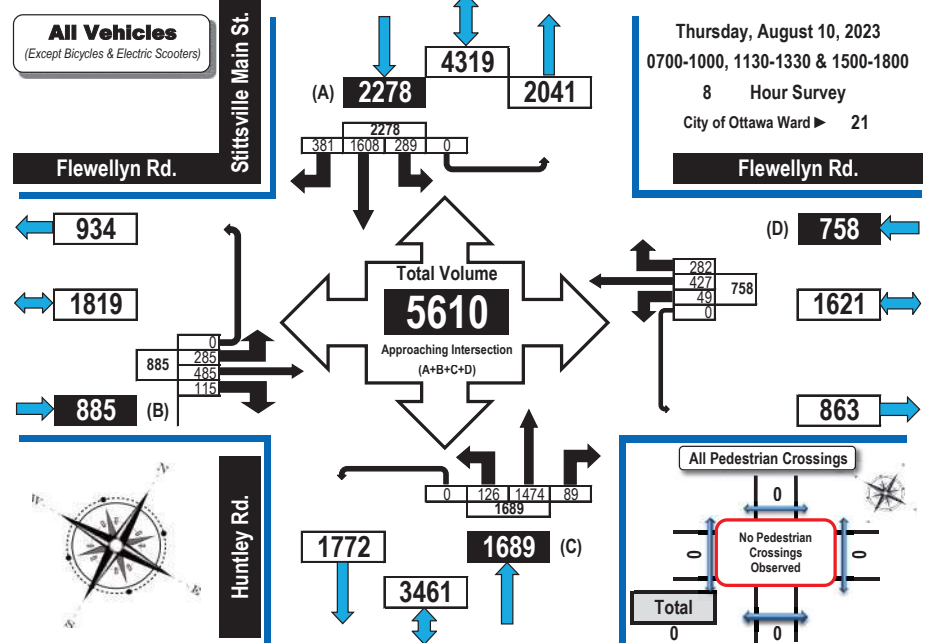
Flewellyn Road & Huntley Road/Stittville Main Street Stittville, ON



Turning Movement Count Summary, OFF and EVENING Peak Hour Flow Diagrams

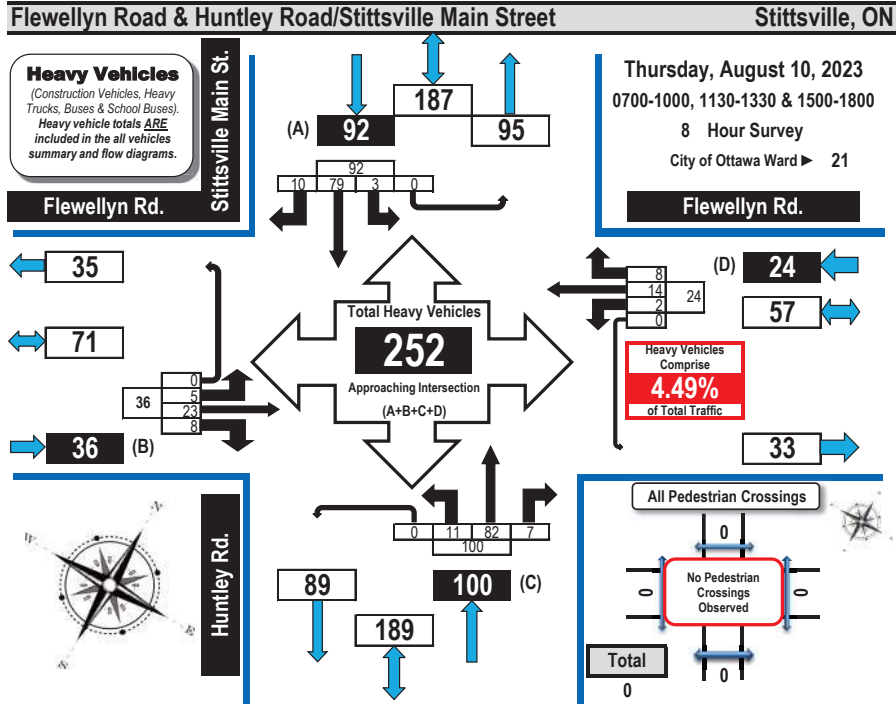


Flewellyn Road & Huntley Road/Stittville Main Street Stittville, ON





Turning Movement Count Heavy Vehicle Summary (FHWA Class 4-13) Flow Diagram

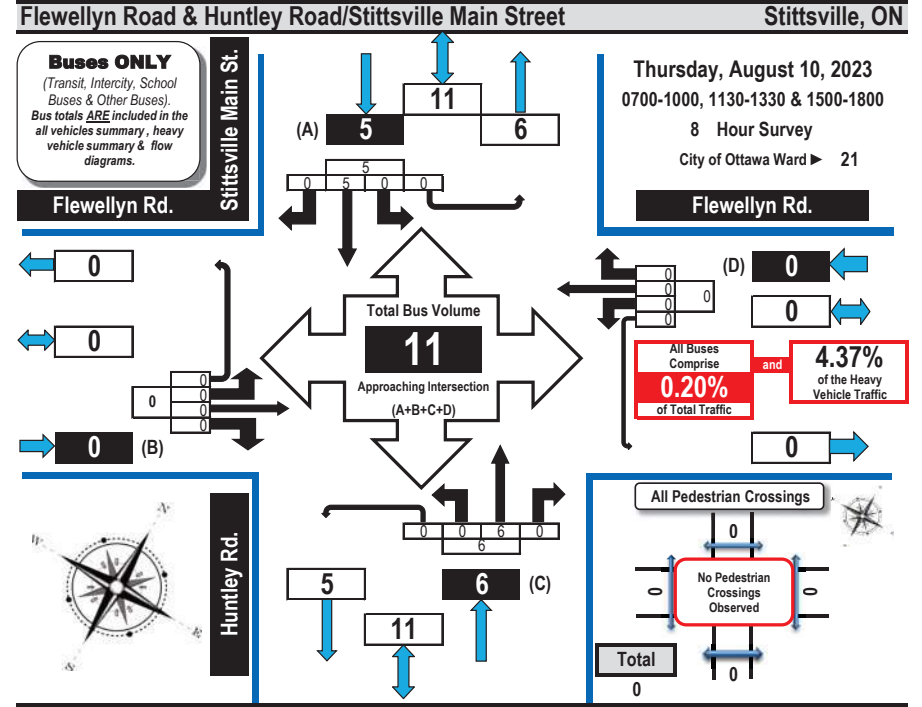


Time Period	Flewellyn Rd. Eastbound				Flewellyn Rd. Westbound				Huntley Rd. Northbound				Stittville Main St. Southbound				SB Tot	GR Tot			
	LT	ST	RT	UT	LT	ST	RT	UT	LT	ST	RT	UT	LT	ST	RT	UT					
0700-0800	0	3	0	0	3	1	2	1	0	4	2	12	0	0	14	0	6	1	0	7	28
0800-0900	0	3	0	0	3	0	0	1	0	1	3	18	0	0	21	1	10	1	0	12	37
0900-1000	1	7	2	0	10	1	0	1	0	2	0	15	0	0	15	0	10	0	0	10	37
1130-1230	1	2	1	0	4	0	1	3	0	4	2	12	4	0	18	0	19	5	0	24	50
1230-1330	1	3	3	0	7	0	6	1	0	7	1	10	1	0	12	2	15	2	0	19	45
1500-1600	2	4	0	0	6	0	3	0	0	3	2	8	0	0	10	0	11	1	0	12	31
1600-1700	0	1	1	0	2	0	1	1	0	2	1	5	1	0	7	0	5	0	0	5	16
1700-1800	0	0	1	0	1	0	1	0	0	1	0	2	1	0	3	0	3	0	0	3	8
Totals	5	23	8	0	36	2	14	8	0	24	11	82	7	0	100	3	79	10	0	92	252

Comments:
OC Transpo and Para Transpo buses, private buses and school buses comprise 4.37% of the heavy vehicle traffic. No pedestrian crossings were observed.



Turning Movement Count All Buses Summary (FHWA Class 4 ONLY) Flow Diagram



Time Period	Flewellyn Rd. Eastbound				Flewellyn Rd. Westbound				Huntley Rd. Northbound				Stittville Main St. Southbound				SB Tot	GR Tot			
	LT	ST	RT	UT	LT	ST	RT	UT	LT	ST	RT	UT	LT	ST	RT	UT					
0700-0800	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
0800-0900	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
0900-1000	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
1130-1230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1230-1330	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
1600-1700	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Totals	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	0	5	0	0	5	11

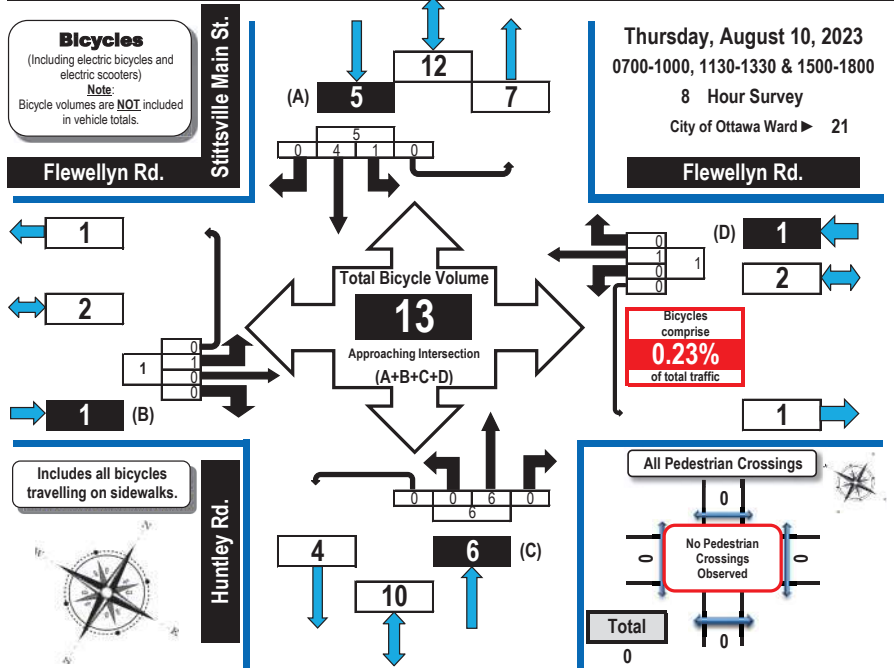
Comments:
OC Transpo and Para Transpo buses, private buses and school buses comprise 4.37% of the heavy vehicle traffic. No pedestrian crossings were observed.



Turning Movement Count Bicycle Summary Flow Diagram



Flewellyn Road & Huntley Road/Stittville Main Street Stittville, ON



Time Period	Flewellyn Rd. Eastbound				Flewellyn Rd. Westbound				Huntley Rd. Northbound				Stittville Main St. Southbound				WB Tot	NB Tot	SB Tot	GR Tot
	LT	ST	RT	UT	LT	ST	RT	UT	LT	ST	RT	UT	LT	ST	RT	UT				
	EB Tot	WB Tot	NB Tot	SB Tot																
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0800-0900	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	3
0900-1000	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	1	1	0	2	6
1130-1230	1	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	2	2
1230-1330	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
1500-1600	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
1600-1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	1	0	0	0	1	0	1	0	0	1	0	6	0	0	6	1	4	0	5	13

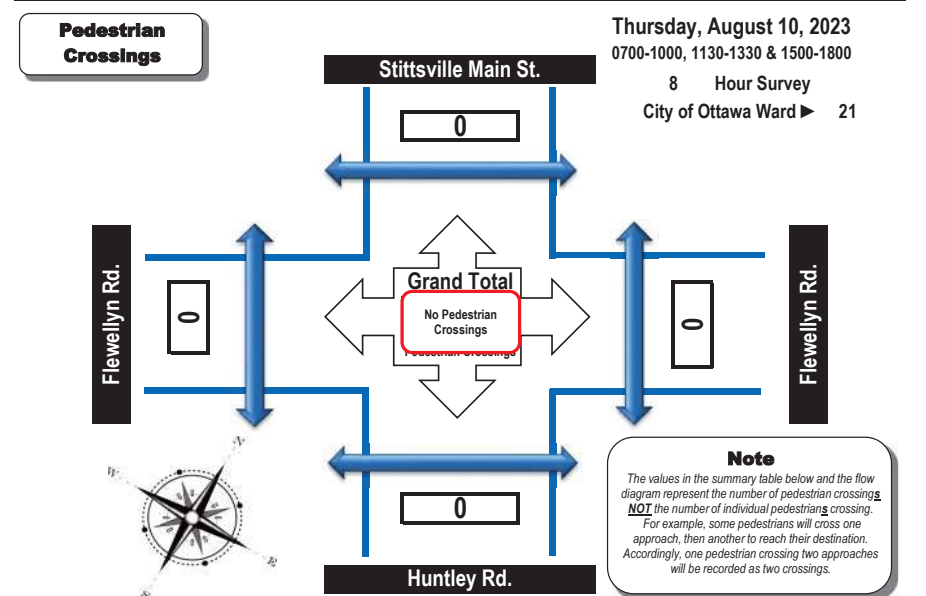
Comments:
OC Transpo and Para Transpo buses, private buses and school buses comprise 4.37% of the heavy vehicle traffic. No pedestrian crossings were observed.



Turning Movement Count Pedestrian Crossings Summary and Flow Diagram



Flewellyn Road & Huntley Road/Stittville Main Street Stittville, ON



Time Period	West Side Crossing	East Side Crossing	Street Total	South Side Crossing	North Side Crossing	Street Total	Grand Total
	Flewellyn Rd.	Flewellyn Rd.		Huntley Rd.	Stittville Main St.		
0700-0800	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0
1130-1230	0	0	No Pedestrian Crossings	0	0	0	0
1230-1330	0	0	No Pedestrian Crossings	0	0	0	0
1500-1600	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	0
1700-1800	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0

Comments:
OC Transpo and Para Transpo buses, private buses and school buses comprise 4.37% of the heavy vehicle traffic. No pedestrian crossings were observed.



Project #24-160 - CGH Transportation

Intersection Count Report

Intersection: Cope Dr - Edenwyld Dr & Fernbank Rd
Municipality: Ottawa
Count Date: Tuesday, Apr 23, 2024
Site Code: 241600003
Count Categories: Cars, Trucks, Bicycles, Pedestrians
Count Period: 07:00-10:00, 11:30-13:30, 15:00-18:00
Weather: Clear
Comments:



Traffic Count Summary

Intersection: Cope Dr - Edenwyld Dr & Fernbank Rd
Site Code: 241600003
Municipality: Ottawa
Count Date: Apr 23, 2024

Cope Dr - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	21	9	3	0	33	2	13	7	108	0	128	1	161
08:00 - 09:00	21	7	3	0	31	3	31	5	78	0	114	0	145
09:00 - 10:00	18	5	6	0	29	2	36	3	67	0	106	0	135
BREAK													
11:30 - 12:00	10	2	2	0	14	0	3	2	24	0	29	0	43
12:00 - 13:00	32	4	6	0	42	0	17	8	59	0	84	0	126
13:00 - 13:30	8	1	3	0	12	0	9	2	24	0	35	0	47
BREAK													
15:00 - 16:00	39	2	11	0	52	0	19	2	65	0	86	0	138
16:00 - 17:00	15	2	10	0	27	1	26	1	71	0	98	2	125
17:00 - 18:00	9	1	1	0	11	0	32	0	84	0	116	0	127
GRAND TOTAL	173	33	45	0	251	8	186	30	580	0	796	3	1047



Traffic Count Data

Intersection: Cope Dr - Edenvylde Dr & Fernbank Rd
 Site Code: 2416000003
 Municipality: Ottawa
 Count Date: Apr 23, 2024

East Approach - Fernbank Rd

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
11:30	5	44	3	0	52	0	8	5	0	13	0	0	0	0	0	0
11:45	15	53	2	0	70	0	5	6	0	11	0	0	0	0	0	0
12:00	11	50	1	0	62	0	0	2	0	2	0	1	0	0	1	0
12:15	16	74	2	0	92	1	5	7	0	13	0	0	0	0	0	0
12:30	8	51	2	0	61	1	0	7	0	8	0	0	0	0	0	0
12:45	23	59	1	0	83	0	2	5	0	7	0	0	0	0	0	0
13:00	16	56	1	0	73	0	0	5	0	5	0	0	0	0	0	0
13:15	13	40	2	0	55	1	3	8	0	12	0	0	0	0	0	0
SUBTOTAL	107	427	14	0	548	3	23	45	0	71	0	1	0	0	1	0



Traffic Count Data

Intersection: Cope Dr - Edenvylde Dr & Fernbank Rd
 Site Code: 2416000003
 Municipality: Ottawa
 Count Date: Apr 23, 2024

East Approach - Fernbank Rd

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
15:00	11	67	0	0	78	0	1	4	0	5	0	0	0	0	0	0
15:15	18	84	2	0	104	0	1	4	0	5	0	0	0	0	0	0
15:30	24	98	0	0	122	0	5	4	0	9	0	0	0	0	0	0
15:45	26	90	0	0	116	0	7	5	0	12	0	0	0	0	0	0
16:00	39	107	0	1	147	1	1	0	0	2	0	0	0	0	0	0
16:15	24	121	1	0	146	0	0	0	0	0	0	1	0	0	1	0
16:30	26	103	0	0	129	0	4	0	0	4	0	0	0	0	0	1
16:45	26	95	0	0	121	0	1	0	0	1	0	0	0	0	0	0
17:00	37	94	0	0	131	0	1	0	0	1	0	0	0	0	0	0
17:15	26	94	1	0	121	0	0	0	0	0	0	0	0	0	0	0
17:30	18	83	0	0	101	0	2	0	0	2	0	0	0	0	0	0
17:45	29	79	1	0	109	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	304	1115	5	1	1425	1	24	17	0	42	0	1	0	0	1	1
GRAND TOTAL	521	2133	73	1	2728	10	96	127	0	233	0	2	0	0	2	3



Traffic Count Data

Intersection: Cope Dr - Edenwylde Dr & Fernbank Rd
 Site Code: 2416000003
 Municipality: Ottawa
 Count Date: Apr 23, 2024

West Approach - Fernbank Rd

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
07:00	3	55	4	0	62	2	2	0	0	4	0	0	0	0	0	0
07:15	1	114	2	0	117	0	5	1	0	6	0	0	0	0	0	1
07:30	2	130	1	0	133	0	5	2	0	7	0	0	0	0	0	1
07:45	0	168	3	0	171	0	7	0	0	7	0	0	0	0	0	2
08:00	1	79	3	0	83	0	5	0	0	5	0	0	0	0	0	0
08:15	1	69	5	0	75	0	5	0	0	5	0	0	0	0	0	0
08:30	0	88	3	0	91	0	3	0	0	3	0	1	0	0	1	0
08:45	0	66	1	0	67	0	5	0	0	5	0	0	0	0	0	2
09:00	3	116	11	0	130	1	8	1	0	10	0	0	0	0	0	1
09:15	3	76	4	0	83	0	8	0	0	8	0	0	0	0	0	2
09:30	0	68	4	0	72	0	10	0	0	10	0	0	0	0	0	0
09:45	2	37	8	0	47	0	8	1	0	9	0	0	0	0	0	1
SUBTOTAL	16	1066	49	0	1131	3	71	5	0	79	0	1	0	0	1	10



Traffic Count Data

Intersection: Cope Dr - Edenwylde Dr & Fernbank Rd
 Site Code: 2416000003
 Municipality: Ottawa
 Count Date: Apr 23, 2024

West Approach - Fernbank Rd

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
11:30	1	49	4	0	54	0	8	0	0	8	0	0	0	0	0	0
11:45	1	41	5	0	47	1	5	0	0	6	0	1	0	0	1	1
12:00	0	52	3	0	55	0	6	0	0	6	0	0	0	0	0	0
12:15	0	53	4	0	57	0	5	1	0	6	0	0	0	0	0	0
12:30	3	45	6	0	54	0	2	1	0	3	0	1	0	0	1	0
12:45	0	44	6	0	50	0	4	0	0	4	0	0	0	0	0	0
13:00	1	36	4	0	41	0	3	2	0	5	0	0	0	0	0	2
13:15	0	36	4	0	40	0	4	0	0	4	0	0	0	0	0	0
SUBTOTAL	6	356	36	0	398	1	37	4	0	42	0	2	0	0	2	3



Traffic Count Data

Intersection: Cope Dr - Edenwylyde Dr & Fernbank Rd
 Site Code: 2416000003
 Municipality: Ottawa
 Count Date: Apr 23, 2024

West Approach - Fernbank Rd

Start Time	Cars				Trucks				Bicycles				Total Peds		
	←	↑	→	↻	←	↑	→	↻	←	↑	→	↻			
15:00	0	54	2	0	56	0	6	0	0	6	0	0	0	0	0
15:15	1	59	6	0	66	0	1	0	0	1	0	0	0	0	0
15:30	0	58	11	0	69	0	1	0	0	1	0	0	0	0	0
15:45	1	108	15	0	124	0	4	0	0	4	0	0	1	0	1
16:00	0	87	8	0	95	0	1	1	0	2	0	0	0	0	0
16:15	0	79	6	0	85	0	0	0	0	0	0	0	0	0	0
16:30	0	77	16	0	93	0	4	0	0	4	0	0	0	0	0
16:45	1	71	10	0	82	0	2	0	0	2	0	0	0	0	0
17:00	1	73	7	0	81	0	0	0	0	0	0	0	0	0	0
17:15	0	64	9	0	73	0	4	0	0	4	0	0	0	0	0
17:30	0	52	7	0	59	0	1	0	0	1	0	0	0	0	0
17:45	0	67	8	0	75	0	3	0	0	3	0	0	0	0	0
SUBTOTAL	4	849	105	0	958	0	27	1	0	28	0	0	1	0	1
GRAND TOTAL	26	2271	190	0	2487	4	135	10	0	149	0	3	1	0	4



Peak Hour Diagram

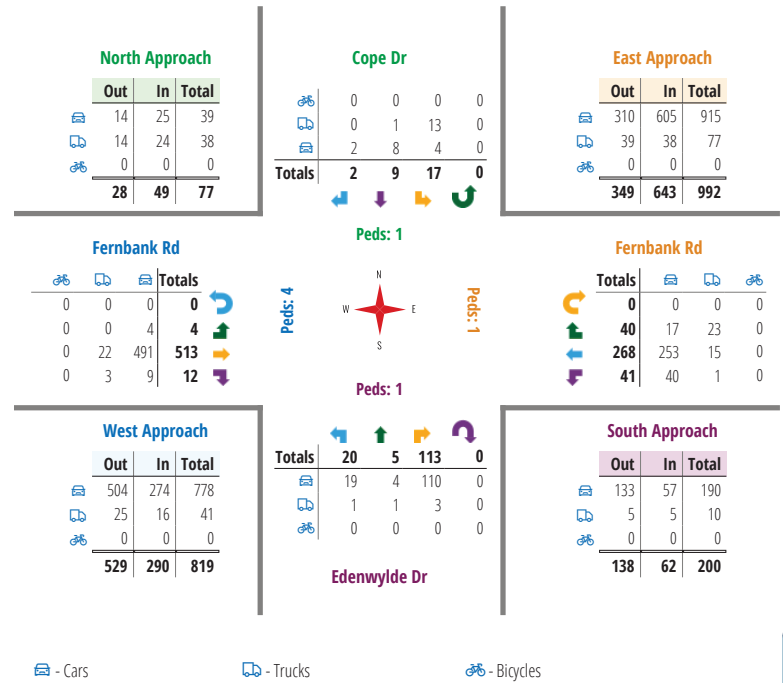
Specified Period
 From: 07:00:00
 To: 10:00:00
One Hour Peak
 From: 07:15:00
 To: 08:15:00

Intersection: Cope Dr - Edenwylyde Dr & Fernbank Rd
Site Code: 2416000003
Count Date: Apr 23, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Fernbank Rd runs E/W



Comments



Peak Hour Summary

Intersection: Cope Dr - Edenwyld Dr & Fernbank Rd
 Site Code: 2416000003
 Count Date: Apr 23, 2024
 Period: 07:00 - 10:00

Peak Hour Data (07:15 - 08:15)

Start Time	North Approach Cope Dr				South Approach Edenwyld Dr				East Approach Fernbank Rd				West Approach Fernbank Rd				Total Vehicles				
	Out	In	Total	Peds	Out	In	Total	Peds	Out	In	Total	Peds	Out	In	Total	Peds					
07:15	2	2	0	0	3	2	24	0	4	35	7	0	1	119	3	0	1	123	202		
07:30	3	1	0	0	4	0	33	0	11	53	13	0	2	135	3	0	1	140	258		
07:45	8	2	2	0	4	2	34	0	10	85	10	0	0	175	3	0	2	178	335		
08:00	4	4	0	0	9	1	22	0	16	95	10	0	1	84	3	0	0	88	249		
Grand Total	17	9	2	0	20	5	113	0	41	268	40	0	4	513	12	0	4	529	1044		
Approach %	60.7	32.1	7.1	0	14.5	3.6	81.9	0	11.7	76.8	11.5	0	0.8	97	2.3	0	-	-	-		
Totals %	1.6	0.9	0.2	0	1.9	0.5	10.8	0	3.4	25.7	3.8	0	0.4	49.1	1.1	0	50.7	-	-		
PHF	0.53	0.56	0.25	0	0.58	0.56	0.63	0.83	0.86	0.64	0.71	0.77	0	0.72	0.5	0.73	1	0.74	0.78		
Cars	4	8	2	0	14	19	4	110	0	133	40	253	17	0	310	4	491	9	0	504	961
% Cars	23.5	88.9	100	0	50	95	80	97.3	0	96.4	97.6	94.4	42.5	0	88.8	100	95.7	75	0	95.3	92
Trucks	13	1	0	0	14	1	1	3	0	5	1	15	23	0	39	0	22	3	0	25	83
% Trucks	76.5	11.1	0	0	50	5	20	2.7	0	3.6	2.4	5.6	57.5	0	11.2	0	4.3	25	0	4.7	8
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Peak Hour Diagram

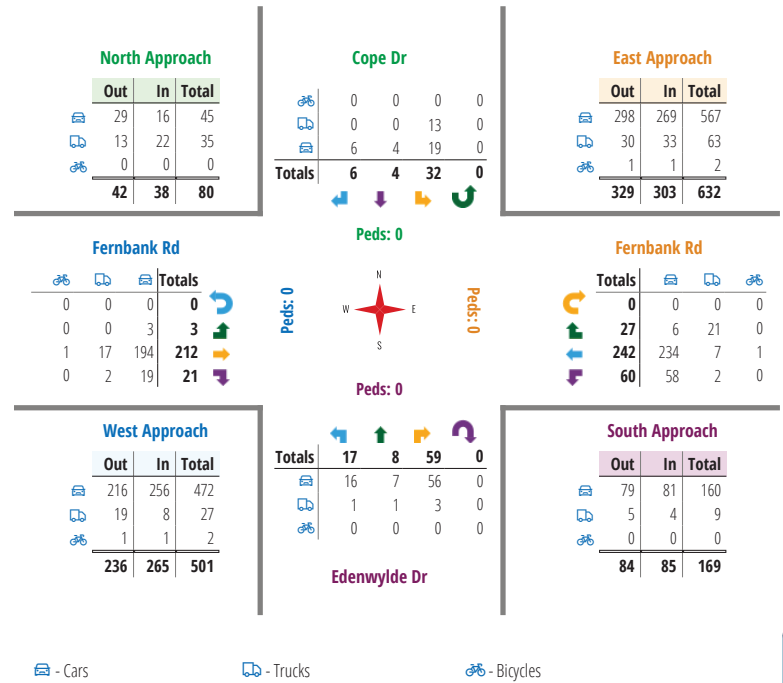
Specified Period
 From: 11:30:00 To: 13:30:00
One Hour Peak
 From: 12:00:00 To: 13:00:00

Intersection: Cope Dr - Edenwyld Dr & Fernbank Rd
 Site Code: 2416000003
 Count Date: Apr 23, 2024

Weather conditions: Clear

** Unsignalized Intersection **

Major Road: Fernbank Rd runs E/W



Comments



Peak Hour Summary

Intersection: Cope Dr - Edenwylyde Dr & Fernbank Rd
 Site Code: 2416000003
 Count Date: Apr 23, 2024
 Period: 11:30 - 13:30

Peak Hour Data (12:00 - 13:00)

Start Time	North Approach Cope Dr				South Approach Edenwylyde Dr				East Approach Fernbank Rd				West Approach Fernbank Rd				Total Vehicles
	Peds	Total	Peds	Total	Peds	Total	Peds	Total	Peds	Total	Peds	Total	Peds	Total			
12:00	10	13	6	22	11	65	0	61	161								
12:15	9	13	1	17	17	105	0	63	198								
12:30	5	11	5	21	9	69	3	58	156								
12:45	8	11	5	21	23	90	0	54	176								
Grand Total	32	42	17	84	60	329	3	236	691								
Approach %	76.2	-	20.2	-	18.2	-	1.3	-	-								
Totals %	4.6	6.1	2.5	12.2	8.7	47.6	0.4	34.2									
PHF	0.8	0.81	0.71	0.88	0.65	0.78	0.25	0.94	0.87								
Cars	19	29	16	79	58	298	3	216	622								
% Cars	59.4	69	94.1	94	96.7	90.6	100	91.5	90								
Trucks	13	13	1	5	2	30	0	19	67								
% Trucks	40.6	31	5.9	6	3.3	9.1	0	8.1	9.7								
Bicycles	0	0	0	0	0	1	0	1	2								
% Bicycles	0	0	0	0	0.4	0.3	0	0.4	0.3								
Peds	0	-	0	-	0	-	0	-	0								
% Peds	0	-	0	-	0	-	0	-	0								



Peak Hour Diagram

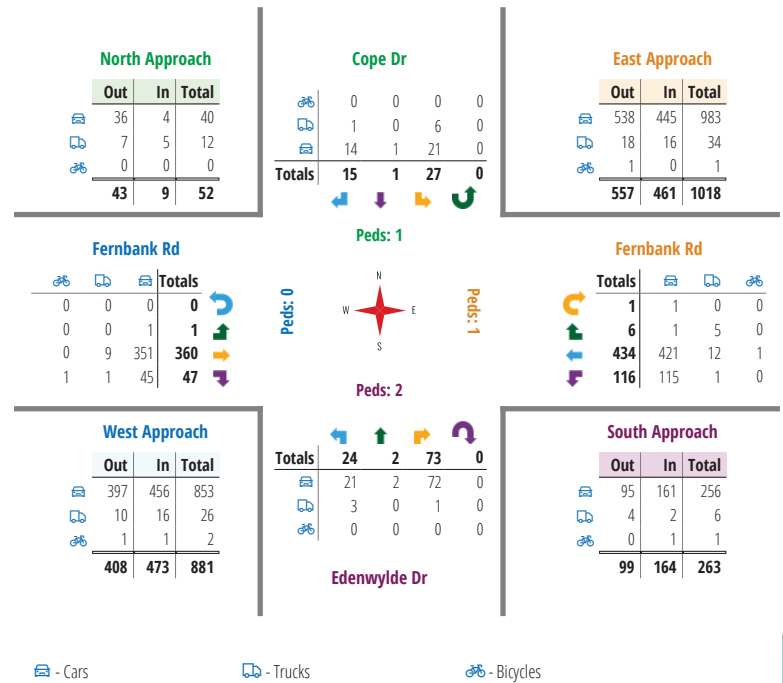
Specified Period **One Hour Peak**
 From: 15:00:00 From: 15:45:00
 To: 18:00:00 To: 16:45:00

Intersection: Cope Dr - Edenwylyde Dr & Fernbank Rd
Site Code: 2416000003
Count Date: Apr 23, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Fernbank Rd runs E/W



Comments



Peak Hour Summary

Intersection: Cope Dr - Edenswyde Dr & Fernbank Rd
 Site Code: 241600003
 Count Date: Apr 23, 2024
 Period: 15:00 - 18:00

Peak Hour Data (15:45 - 16:45)

Start Time	North Approach Cope Dr				South Approach Edenswyde Dr				East Approach Fernbank Rd				West Approach Fernbank Rd				Total Vehicles	
	←	↑	↓	→	←	↑	↓	→	←	↑	↓	→	←	↑	↓	→		
15:45	12	1	5	0	6	2	16	0	26	97	5	0	1	112	16	0	129	299
16:00	6	0	7	0	8	0	22	0	40	108	0	1	0	88	9	0	97	289
16:15	6	0	2	0	4	0	24	0	24	122	1	0	0	79	6	0	85	268
16:30	3	0	1	0	6	0	11	0	26	107	0	1	0	81	16	0	97	251
Grand Total	27	1	15	0	24	2	73	0	116	434	6	1	1	360	47	0	408	1107
Approach %	62.8	2.3	34.9	0	24.2	2	73.7	0	20.8	77.9	1.1	0.2	-	0.2	88.2	11.5	-	-
Totals %	2.4	0.1	1.4	0	3.9	2.2	0.2	6.6	8.9	10.5	39.2	0.5	0.1	50.3	0.1	32.5	4.2	36.9
PHF	0.56	0.25	0.54	0	0.6	0.75	0.25	0.76	0.83	0.73	0.89	0.3	0.25	0.93	0.25	0.8	0.73	0.79
Cars	21	1	14	0	36	21	2	72	95	115	421	1	1	538	1	351	45	397
% Cars	77.8	100	93.3	0	83.7	87.5	100	98.6	96	99.1	97	16.7	100	96.6	100	97.5	95.7	97.3
Trucks	6	0	1	0	7	3	0	1	4	1	12	5	0	18	0	9	1	10
% Trucks	22.2	0	6.7	0	16.3	12.5	0	1.4	4	0.9	2.8	83.3	0	3.2	0	2.5	2.1	3.5
Bicycles	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1
% Bicycles	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0.2	0	0.2	0	0.2
Peds																		
% Peds																		



Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ SHEA RD

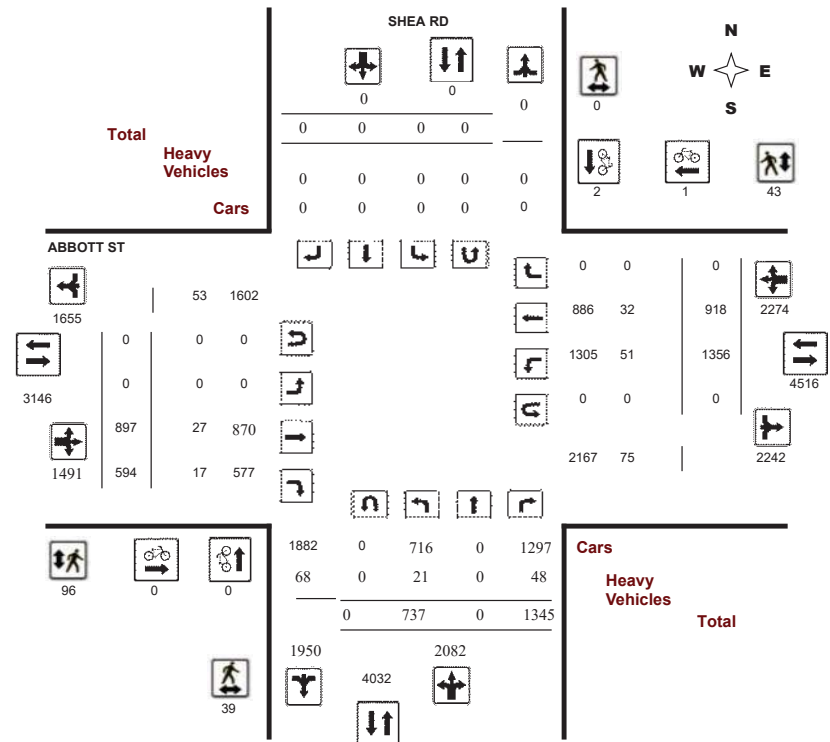
Survey Date: Wednesday, March 08, 2023

WO No: 40872

Start Time: 07:00

Device: Miovision

Full Study Diagram





Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ SHEA RD

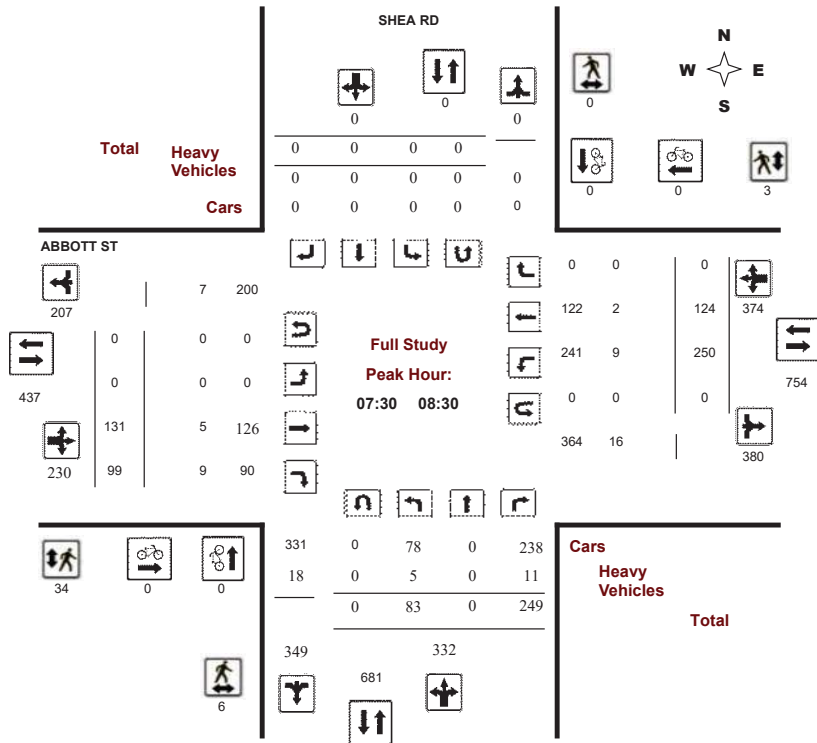
Survey Date: Wednesday, March 08, 2023

WO No: 40872

Start Time: 07:00

Device: Miovision

Full Study Peak Hour Diagram



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

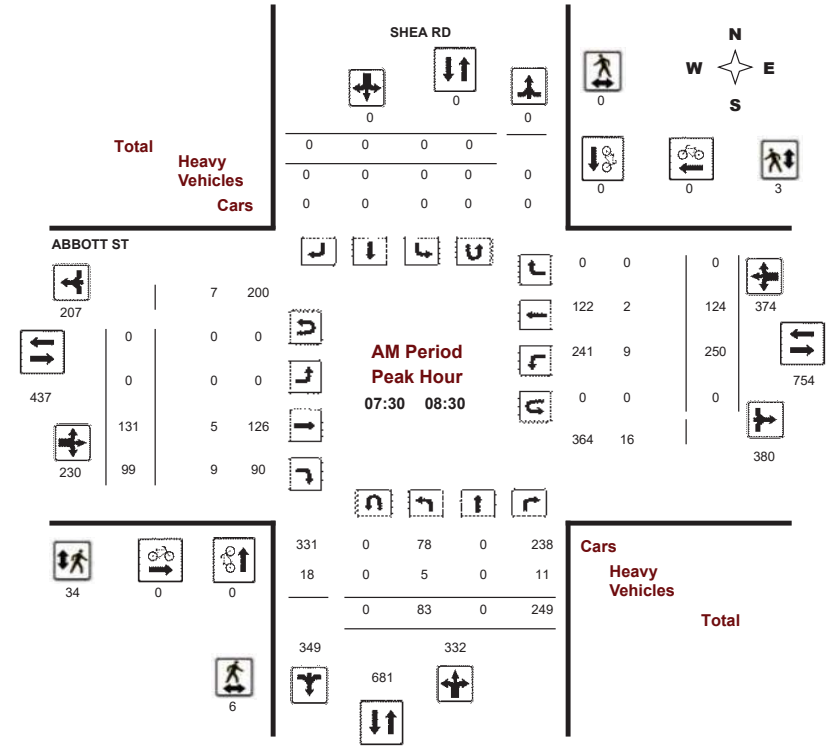
ABBOTT ST @ SHEA RD

Survey Date: Wednesday, March 08, 2023

WO No: 40872

Start Time: 07:00

Device: Miovision



Comments:



Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ SHEA RD

Survey Date: Wednesday, March 08, 2023

WO No: 40872

Start Time: 07:00

Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, March 08, 2023

Total Observed U-Turns

AADT Factor

Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 0

1.00

Table with columns for Period, SHEA RD (Northbound, Southbound), ABBOTT ST (Eastbound, Westbound), and Grand Total. Includes sub-totals for U Turns, EQ 12Hr, AVG 12Hr, and AVG 24Hr.

Note: These values are calculated by multiplying the totals by the appropriate expansion factor.

1.39

Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.

1.00

Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.

1.31

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ SHEA RD

Survey Date: Wednesday, March 08, 2023

WO No: 40872

Start Time: 07:00

Device: Miovision

Full Study 15 Minute Increments

Large table with columns for Time Period, SHEA RD (Northbound, Southbound), ABBOTT ST (Eastbound, Westbound), and Grand Total. Shows 15-minute increments from 07:00 to 16:00.

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ SHEA RD

Survey Date: Wednesday, March 08, 2023

WO No: 40872

Start Time: 07:00

Device: Miovision

Full Study Cyclist Volume

Time Period	SHEA RD			ABBOTT ST			Grand Total
	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	
07:00 07:15	0	0	0	0	0	0	0
07:15 07:30	0	0	0	0	0	0	0
07:30 07:45	0	0	0	0	0	0	0
17:45 18:00	0	0	0	0	0	0	0
07:45 08:00	0	0	0	0	0	0	0
08:00 08:15	0	0	0	0	0	0	0
08:30 08:45	0	0	0	0	0	0	0
08:45 09:00	0	0	0	0	0	0	0
09:00 09:15	0	0	0	0	0	0	0
09:15 09:30	0	0	0	0	1	1	1
09:30 09:45	0	0	0	0	0	0	0
09:45 10:00	0	0	0	0	0	0	0
11:30 11:45	0	0	0	0	0	0	0
11:45 12:00	0	0	0	0	0	0	0
12:00 12:15	0	0	0	0	0	0	0
12:15 12:30	0	0	0	0	0	0	0
12:30 12:45	0	0	0	0	0	0	0
12:45 13:00	0	0	0	0	0	0	0
13:00 13:15	0	0	0	0	0	0	0
13:15 13:30	0	0	0	0	0	0	0
15:00 15:15	0	0	0	0	0	0	0
15:15 15:30	0	0	0	0	0	0	0
15:30 15:45	0	0	0	0	0	0	0
16:00 16:15	0	0	0	0	0	0	0
16:15 16:30	0	2	2	0	0	0	2
16:30 16:45	0	0	0	0	0	0	0
17:00 17:15	0	0	0	0	0	0	0
17:15 17:30	0	0	0	0	0	0	0
17:30 17:45	0	0	0	0	0	0	0
16:45 17:00	0	0	0	0	0	0	0
08:15 08:30	0	0	0	0	0	0	0
15:45 16:00	0	0	0	0	0	0	0
Total	0	2	2	0	1	1	3



Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ SHEA RD

Survey Date: Wednesday, March 08, 2023

WO No: 40872

Start Time: 07:00

Device: Miovision

Full Study Pedestrian Volume

Time Period	SHEA RD			ABBOTT ST			Grand Total
	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	
07:00 07:15	0	0	0	0	2	2	2
07:15 07:30	2	0	2	1	3	4	6
07:30 07:45	0	0	0	4	1	5	5
17:45 18:00	0	0	0	0	0	0	0
07:45 08:00	3	0	3	20	0	20	23
08:00 08:15	0	0	0	6	0	6	6
08:30 08:45	1	0	1	0	1	1	2
08:45 09:00	0	0	0	0	0	0	0
09:00 09:15	0	0	0	0	1	1	1
09:15 09:30	0	0	0	0	0	0	0
09:30 09:45	0	0	0	0	1	1	1
09:45 10:00	0	0	0	0	1	1	1
11:30 11:45	19	0	19	33	18	51	70
11:45 12:00	0	0	0	0	1	1	1
12:00 12:15	1	0	1	0	0	0	1
12:15 12:30	0	0	0	3	0	3	3
12:30 12:45	0	0	0	1	0	1	1
12:45 13:00	1	0	1	3	0	3	4
13:00 13:15	3	0	3	0	3	3	6
13:15 13:30	1	0	1	0	0	0	1
15:00 15:15	0	0	0	1	1	2	2
15:15 15:30	2	0	2	5	3	8	10
15:30 15:45	1	0	1	3	0	3	4
16:00 16:15	1	0	1	3	2	5	6
16:15 16:30	1	0	1	3	0	3	4
16:30 16:45	0	0	0	1	0	1	1
17:00 17:15	0	0	0	0	0	0	0
17:15 17:30	0	0	0	0	0	0	0
17:30 17:45	0	0	0	0	0	0	0
16:45 17:00	0	0	0	5	0	5	5
08:15 08:30	3	0	3	4	2	6	9
15:45 16:00	0	0	0	0	3	3	3
Total	39	0	39	96	43	139	178



Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ SHEA RD

Survey Date: Wednesday, March 08, 2023

WO No: 40872

Start Time: 07:00

Device: Miovision

Full Study Heavy Vehicles

		SHEA RD						ABBOTT ST												
		Northbound			Southbound			Eastbound			Westbound									
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	2	0	1	3	0	0	0	0	3	0	1	0	1	3	1	0	4	5	8
07:15	07:30	0	0	1	1	0	0	0	0	1	0	1	0	1	1	0	0	1	2	3
07:30	07:45	1	0	2	3	0	0	0	0	3	0	1	8	9	4	1	0	5	14	17
07:45	18:00	0	0	1	1	0	0	0	0	1	0	0	1	1	0	1	0	1	2	3
07:45	08:00	2	0	8	10	0	0	0	0	10	0	3	0	3	0	0	0	0	3	13
08:00	08:15	0	0	0	0	0	0	0	0	0	0	1	1	2	3	1	0	4	6	6
08:30	08:45	0	0	1	1	0	0	0	0	1	0	3	0	3	4	3	0	7	10	11
08:45	09:00	2	0	3	5	0	0	0	0	5	0	3	0	3	1	1	0	2	5	10
09:00	09:15	0	0	2	2	0	0	0	0	2	0	1	0	1	3	2	0	5	6	8
09:15	09:30	0	0	3	3	0	0	0	0	3	0	0	0	0	1	1	0	2	2	5
09:30	09:45	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
09:45	10:00	0	0	1	1	0	0	0	0	1	0	0	0	0	3	0	0	3	3	4
11:30	11:45	1	0	0	1	0	0	0	0	1	0	0	1	1	0	0	0	0	1	2
11:45	12:00	1	0	1	2	0	0	0	0	2	0	0	0	0	3	0	0	3	3	5
12:00	12:15	1	0	1	2	0	0	0	0	2	0	0	0	0	2	0	0	2	2	4
12:15	12:30	1	0	2	3	0	0	0	0	3	0	0	1	1	1	0	0	1	2	5
12:30	12:45	0	0	2	2	0	0	0	0	2	0	0	0	0	2	2	0	4	4	6
12:45	13:00	1	0	2	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
13:00	13:15	2	0	0	2	0	0	0	0	2	0	3	3	6	1	3	0	4	10	12
13:15	13:30	1	0	0	1	0	0	0	0	1	0	0	0	0	1	3	0	4	4	5
15:00	15:15	0	0	0	0	0	0	0	0	0	0	4	0	4	2	0	0	2	6	6
15:15	15:30	0	0	3	3	0	0	0	0	3	0	0	0	0	0	3	0	3	3	6
15:30	15:45	0	0	0	0	0	0	0	0	0	0	1	1	4	0	0	4	5	5	
16:00	16:15	1	0	3	4	0	0	0	0	4	0	1	0	1	2	2	0	4	5	9
16:15	16:30	0	0	2	2	0	0	0	0	2	0	1	0	1	1	3	0	4	5	7
16:30	16:45	1	0	0	1	0	0	0	0	1	0	1	0	1	0	1	0	1	2	3
17:00	17:15	0	0	2	2	0	0	0	0	2	0	1	0	1	2	0	0	2	3	5
17:15	17:30	0	0	3	3	0	0	0	0	3	0	0	0	0	1	0	0	1	1	4
17:30	17:45	1	0	0	1	0	0	0	0	1	0	0	0	0	2	0	0	2	2	3
16:45	17:00	1	0	1	2	0	0	0	0	2	0	1	0	1	1	1	0	2	3	5
08:15	08:30	2	0	1	3	0	0	0	0	3	0	0	0	0	2	0	0	2	2	5
15:45	16:00	0	0	2	2	0	0	0	0	2	0	1	0	1	1	3	0	4	5	7
Total:	None	21	0	48	69	0	0	0	0	69	0	27	17	44	51	32	0	83	127	196



Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ SHEA RD

Survey Date: Wednesday, March 08, 2023

WO No: 40872

Start Time: 07:00

Device: Miovision

Full Study 15 Minute U-Turn Total

		SHEA RD		ABBOTT ST			
		Northbound	Southbound	Eastbound	Westbound		
Time Period		U-Turn Total	U-Turn Total	U-Turn Total	U-Turn Total	Total	
07:00	07:15	0	0	0	0	0	
07:15	07:30	0	0	0	0	0	
07:30	07:45	0	0	0	0	0	
07:45	18:00	0	0	0	0	0	
08:00	08:15	0	0	0	0	0	
08:30	08:45	0	0	0	0	0	
08:45	09:00	0	0	0	0	0	
09:00	09:15	0	0	0	0	0	
09:15	09:30	0	0	0	0	0	
09:30	09:45	0	0	0	0	0	
09:45	10:00	0	0	0	0	0	
11:30	11:45	0	0	0	0	0	
11:45	12:00	0	0	0	0	0	
12:00	12:15	0	0	0	0	0	
12:15	12:30	0	0	0	0	0	
12:30	12:45	0	0	0	0	0	
12:45	13:00	0	0	0	0	0	
13:00	13:15	0	0	0	0	0	
13:15	13:30	0	0	0	0	0	
15:00	15:15	0	0	0	0	0	
15:15	15:30	0	0	0	0	0	
15:30	15:45	0	0	0	0	0	
16:00	16:15	0	0	0	0	0	
16:15	16:30	0	0	0	0	0	
16:30	16:45	0	0	0	0	0	
17:00	17:15	0	0	0	0	0	
17:15	17:30	0	0	0	0	0	
17:30	17:45	0	0	0	0	0	
16:45	17:00	0	0	0	0	0	
08:15	08:30	0	0	0	0	0	
15:45	16:00	0	0	0	0	0	
Total		0	0	0	0	0	



Transportation Services - Traffic Services

Turning Movement Count - Study Results

FERNBANK RD @ SHEA RD

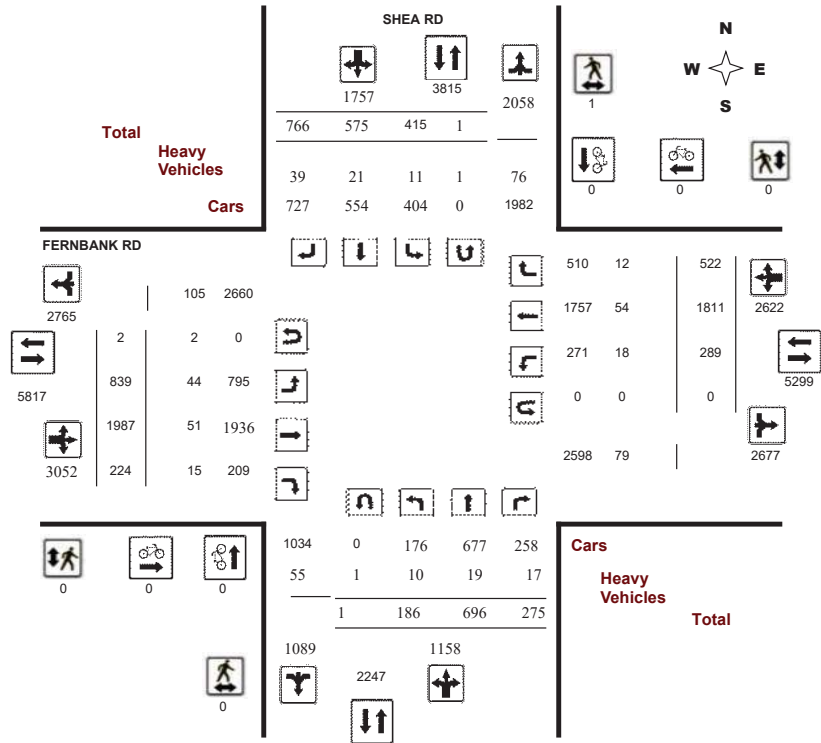
Survey Date: Wednesday, March 02, 2022

WO No: 40193

Start Time: 07:00

Device: Miovision

Full Study Diagram



Transportation Services - Traffic Services

Turning Movement Count - Study Results

FERNBANK RD @ SHEA RD

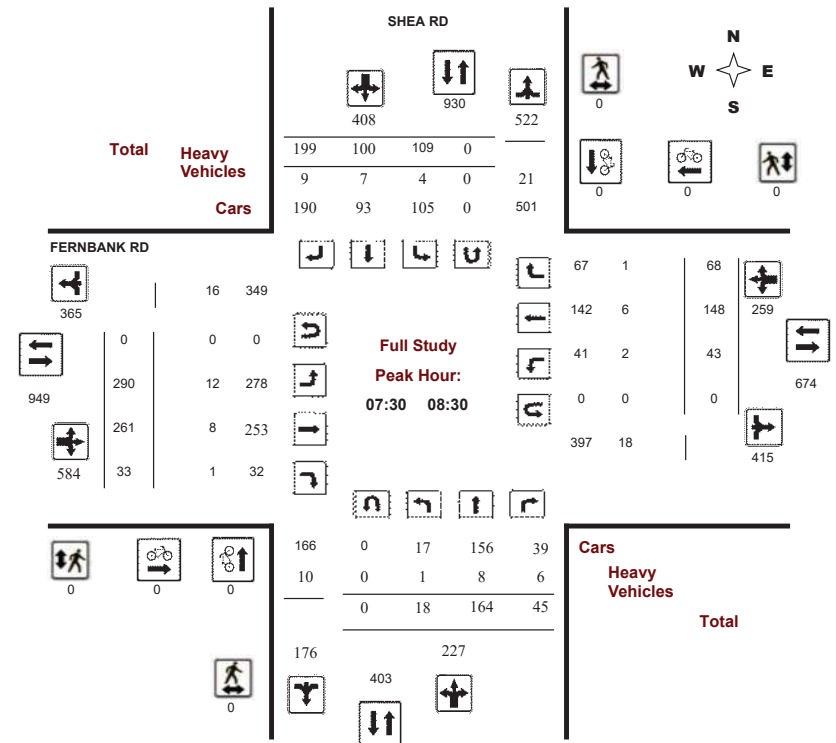
Survey Date: Wednesday, March 02, 2022

WO No: 40193

Start Time: 07:00

Device: Miovision

Full Study Peak Hour Diagram





Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

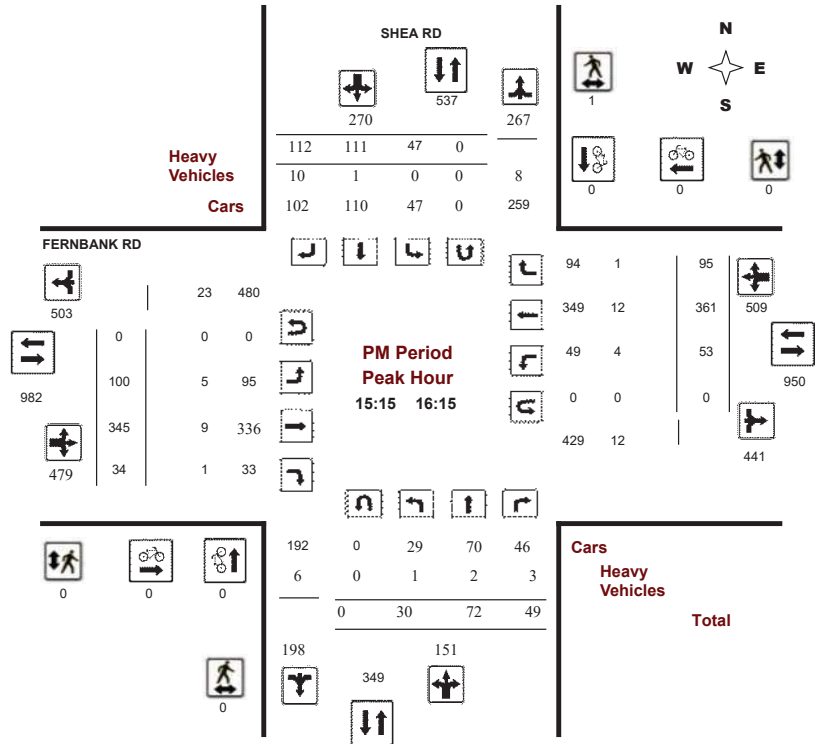
FERNBANK RD @ SHEA RD

Survey Date: Wednesday, March 02, 2022

Start Time: 07:00

WO No: 40193

Device: Miovision



Comments



Transportation Services - Traffic Services

Turning Movement Count - Study Results

FERNBANK RD @ SHEA RD

Survey Date: Wednesday, March 02, 2022

Start Time: 07:00

WO No: 40193

Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, March 02, 2022

Total Observed U-Turns

AADT Factor

Northbound: 1 Southbound: 1
 Eastbound: 2 Westbound: 0

1.00

Period	SHEA RD				FERNBANK RD								WB TOT	STR TOT	Grand Total					
	Northbound		Southbound		Eastbound		Westbound													
	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT				
07:00-08:00	8	158	44	210	79	80	102	261	471	242	221	35	498	41	101	60	202	700	1171	
08:00-09:00	20	109	39	168	68	66	143	277	445	115	254	25	394	26	219	51	296	690	1135	
09:00-10:00	29	72	18	119	41	57	56	154	273	77	307	26	410	29	216	52	297	707	980	
11:30-12:30	23	50	27	100	37	51	65	153	253	47	217	28	292	24	186	54	264	556	809	
12:30-13:30	23	53	28	104	43	41	79	163	267	71	194	24	289	38	180	49	267	556	823	
15:00-16:00	22	71	46	139	48	107	106	261	400	97	291	27	415	48	342	91	481	896	1296	
16:00-17:00	27	102	47	176	46	89	109	244	420	101	272	39	412	45	297	83	425	837	1257	
17:00-18:00	34	81	26	141	53	84	106	243	384	89	231	20	340	38	270	82	390	730	1114	
Sub Total	186	696	275	1157	415	575	766	1756	2913	839	1987	224	3050	289	1811	522	2622	5672	8585	
U Turns	1				1				2				0				2		4	
Total	186	696	275	1158	415	575	766	1757	2915	839	1987	224	3052	289	1811	522	2622	5674	8589	
EQ 12Hr	259	967	382	1610	577	799	1065	2442	4052	1166	2762	311	4242	402	2517	726	3645	7887	11939	
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.																	1.39			
AVG 12Hr	259	967	382	1610	577	1047	1395	2442	4052	1166	2762	311	4242	402	2517	726	3645	7887	11939	
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.																	1.00			
AVG 24Hr	339	1267	500	2109	756	1372	1827	3199	5308	1527	3618	407	5557	527	3297	951	4775	10332	15640	
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.																	1.31			
Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.																				



Transportation Services - Traffic Services

Turning Movement Count - Study Results

FERNBANK RD @ SHEA RD

Survey Date: Wednesday, March 02, 2022

WO No: 40193

Start Time: 07:00

Device: Miovision

Full Study 15 Minute Increments

SHEA RD											FERNBANK RD											Grand Total
Northbound					Southbound					Eastbound					Westbound							
Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT				
07:00	07:15	1	16	11	28	14	10	4	28	56	10	34	7	51	1	19	7	27	78	134		
07:15	07:30	2	29	6	37	0	15	6	21	58	12	65	7	84	8	25	10	43	127	185		
07:30	07:45	2	52	13	67	28	24	19	71	138	79	61	12	152	21	28	18	67	219	357		
07:45	08:00	3	61	14	78	37	31	73	141	219	141	61	9	211	11	29	25	65	276	495		
08:00	08:15	9	23	9	41	30	26	84	140	181	53	63	8	124	7	50	16	73	197	378		
08:15	08:30	4	28	9	41	14	19	23	56	97	17	76	4	97	4	41	9	54	151	248		
08:30	08:45	1	25	9	35	6	11	19	37	72	16	59	9	84	7	54	14	75	159	231		
08:45	09:00	6	33	12	51	18	10	17	45	96	29	56	4	89	8	74	12	94	183	279		
09:00	09:15	10	15	6	31	9	18	16	43	74	25	94	10	130	8	99	23	130	260	334		
09:15	09:30	3	17	4	24	11	11	10	32	56	20	107	8	135	5	36	12	53	188	244		
09:30	09:45	5	20	3	28	9	22	12	43	71	16	60	4	80	8	49	8	65	145	216		
09:45	10:00	11	20	5	36	12	6	18	36	72	16	46	4	66	8	32	9	49	115	187		
11:30	11:45	3	12	8	23	13	10	14	37	60	9	53	12	74	4	38	9	51	125	185		
11:45	12:00	10	15	6	31	10	14	18	42	73	16	65	7	88	6	49	18	73	161	234		
12:00	12:15	3	8	5	16	5	10	16	31	47	16	48	7	71	8	39	6	53	124	171		
12:15	12:30	7	15	8	30	9	17	17	43	73	6	51	2	59	6	60	21	87	146	219		
12:30	12:45	4	15	5	24	5	10	14	29	53	9	54	1	64	12	38	12	62	126	179		
12:45	13:00	3	7	9	19	10	10	11	31	50	11	52	10	73	10	57	15	82	155	205		
13:00	13:15	11	16	8	35	12	7	16	35	70	21	42	7	70	6	42	12	60	130	200		
13:15	13:30	5	15	6	26	16	14	38	68	94	30	46	6	82	10	43	10	63	145	239		
15:00	15:15	3	13	9	25	14	30	21	65	90	26	54	5	85	5	58	14	77	162	252		
15:15	15:30	6	16	8	30	17	31	29	77	107	18	41	8	67	11	100	20	131	198	305		
15:30	15:45	6	23	17	46	5	21	33	59	105	21	68	4	93	17	105	30	152	245	350		
15:45	16:00	7	19	12	38	12	25	23	60	98	32	128	10	170	15	79	27	121	291	389		
16:00	16:15	11	14	12	37	13	34	27	74	111	29	108	12	149	10	77	18	105	254	365		
16:15	16:30	7	23	11	41	10	14	26	50	91	22	64	11	97	12	70	23	105	202	293		
16:30	16:45	6	26	14	46	13	25	25	63	109	20	49	8	77	13	72	19	104	181	290		
16:45	17:00	3	39	10	52	10	16	31	57	109	30	51	8	89	10	78	23	111	200	309		
17:00	17:15	12	21	6	39	17	25	31	73	112	20	62	7	89	12	80	13	105	194	306		
17:15	17:30	8	19	7	34	12	27	29	68	102	21	58	3	82	12	85	22	119	201	303		
17:30	17:45	8	18	7	34	15	18	27	60	94	21	54	5	80	8	58	16	82	162	256		
17:45	18:00	6	23	6	35	9	14	19	42	77	27	57	5	90	6	47	31	84	174	251		
Total:		186	696	275	1158	415	575	766	1757	2915	839	1987	224	3052	289	1811	522	2622	5674	8,589		

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

FERNBANK RD @ SHEA RD

Survey Date: Wednesday, March 02, 2022

WO No: 40193

Start Time: 07:00

Device: Miovision

Full Study Cyclist Volume

SHEA RD			FERNBANK RD			Grand Total
Time Period	Northbound	Southbound	Street Total	Eastbound	Westbound	
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0



Transportation Services - Traffic Services

Turning Movement Count - Study Results

FERNBANK RD @ SHEA RD

Survey Date: Wednesday, March 02, 2022

WO No: 40193

Start Time: 07:00

Device: Miovision

Full Study Pedestrian Volume

Table with columns: Time Period, NB Approach (E or W Crossing), SB Approach (E or W Crossing), Total, EB Approach (N or S Crossing), WB Approach (N or S Crossing), Total, Grand Total. Rows show pedestrian counts for various time intervals from 07:00 to 18:00.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

FERNBANK RD @ SHEA RD

Survey Date: Wednesday, March 02, 2022

WO No: 40193

Start Time: 07:00

Device: Miovision

Full Study Heavy Vehicles

Table with columns: Time Period, Northbound (LT, ST, RT, N TOT), Southbound (LT, ST, RT, S TOT, STR TOT), Eastbound (LT, ST, RT, E TOT), Westbound (LT, ST, RT, W TOT, STR TOT), Grand Total. Rows show heavy vehicle counts for various time intervals from 07:00 to 18:00.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

FERNBANK RD @ SHEA RD

Survey Date: Wednesday, March 02, 2022

WO No: 40193

Start Time: 07:00

Device: Miovision

Full Study 15 Minute U-Turn Total

Time Period	SHEA RD		FERNBANK RD		Total
	Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	
07:00 - 07:15	0	0	0	0	0
07:15 - 07:30	0	0	0	0	0
07:30 - 07:45	0	0	0	0	0
07:45 - 08:00	0	0	0	0	0
08:00 - 08:15	0	0	0	0	0
08:15 - 08:30	0	0	0	0	0
08:30 - 08:45	0	1	0	0	1
08:45 - 09:00	0	0	0	0	0
09:00 - 09:15	0	0	1	0	1
09:15 - 09:30	0	0	0	0	0
09:30 - 09:45	0	0	0	0	0
09:45 - 10:00	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0
12:00 - 12:15	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0
12:45 - 13:00	0	0	0	0	0
13:00 - 13:15	0	0	0	0	0
13:15 - 13:30	0	0	0	0	0
15:00 - 15:15	0	0	0	0	0
15:15 - 15:30	0	0	0	0	0
15:30 - 15:45	0	0	0	0	0
15:45 - 16:00	0	0	0	0	0
16:00 - 16:15	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0
17:30 - 17:45	1	0	0	0	1
17:45 - 18:00	0	0	1	0	1
Total	1	1	2	0	4



Transportation Services - Traffic Services

Turning Movement Count - Study Results

FLEWELLYN RD @ SHEA RD

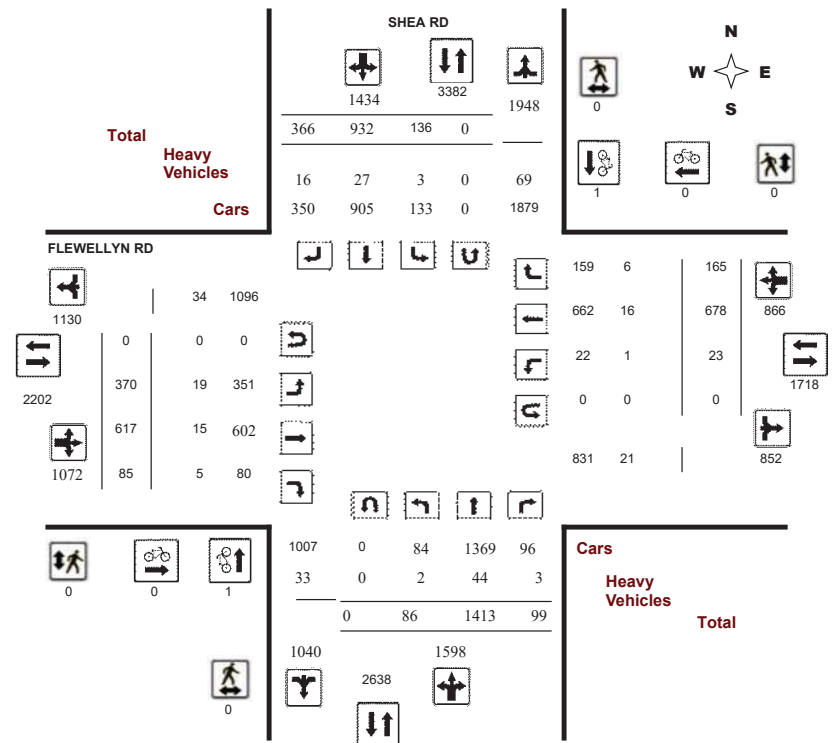
Survey Date: Wednesday, April 26, 2023

WO No: 40938

Start Time: 07:00

Device: Miovision

Full Study Diagram





Transportation Services - Traffic Services

Turning Movement Count - Study Results

FLEWELLYN RD @ SHEA RD

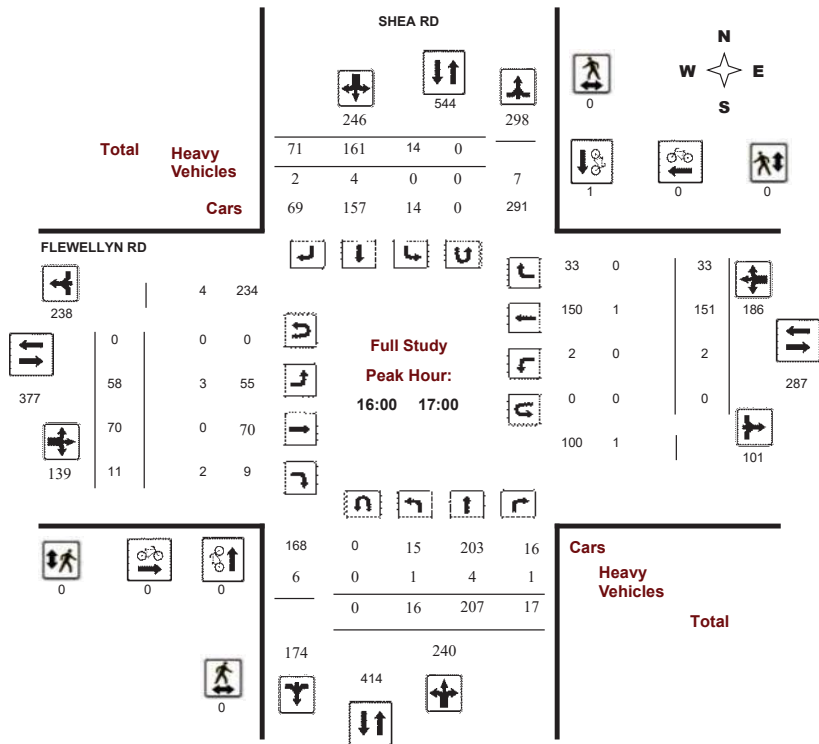
Survey Date: Wednesday, April 26, 2023

WO No: 40938

Start Time: 07:00

Device: Miovision

Full Study Peak Hour Diagram



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

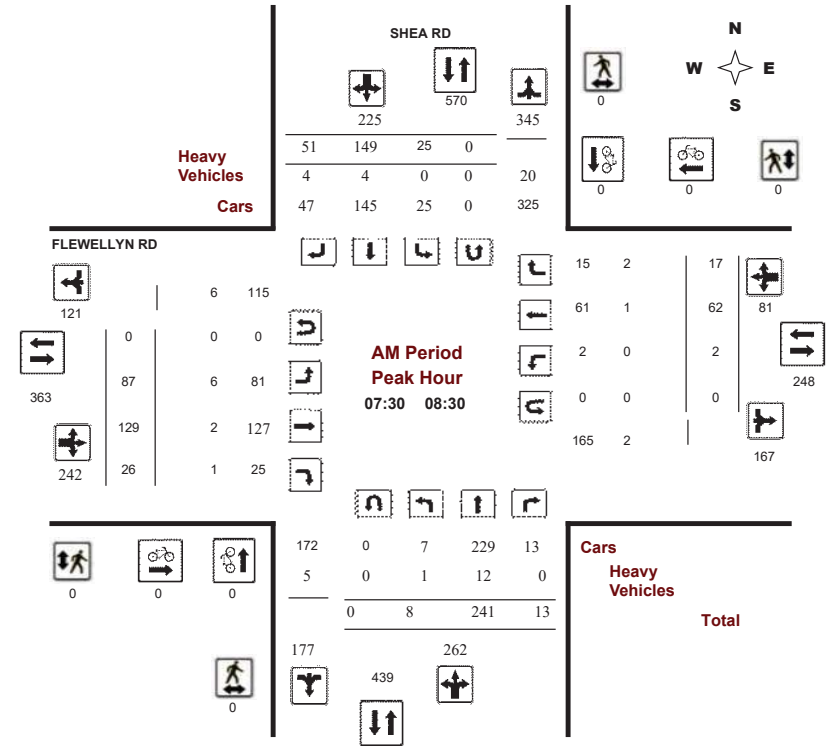
FLEWELLYN RD @ SHEA RD

Survey Date: Wednesday, April 26, 2023

WO No: 40938

Start Time: 07:00

Device: Miovision



Comments



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

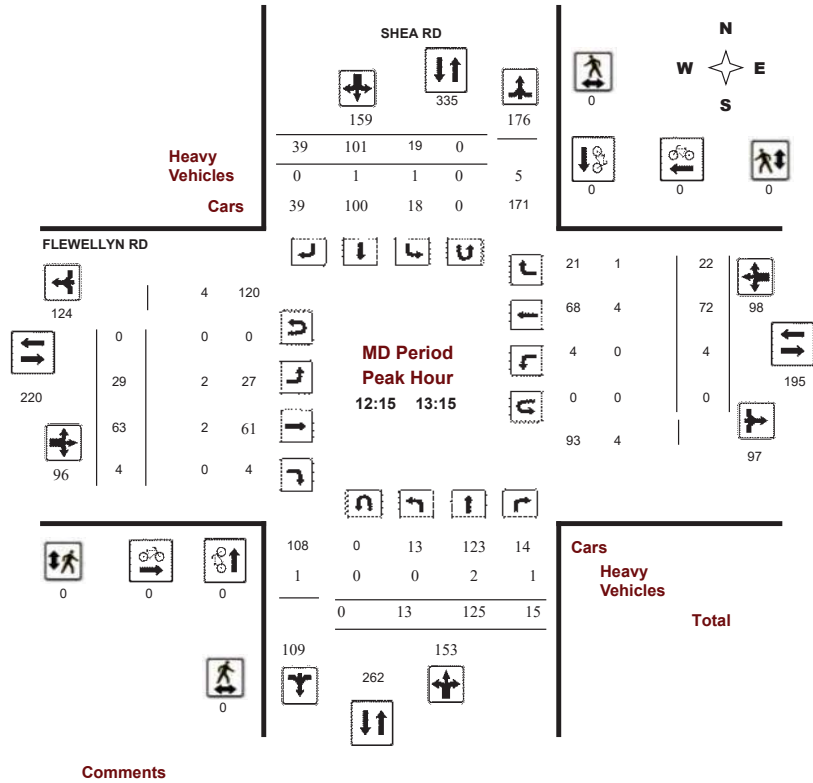
FLEWELLYN RD @ SHEA RD

Survey Date: Wednesday, April 26, 2023

Start Time: 07:00

WO No: 40938

Device: Miovision



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

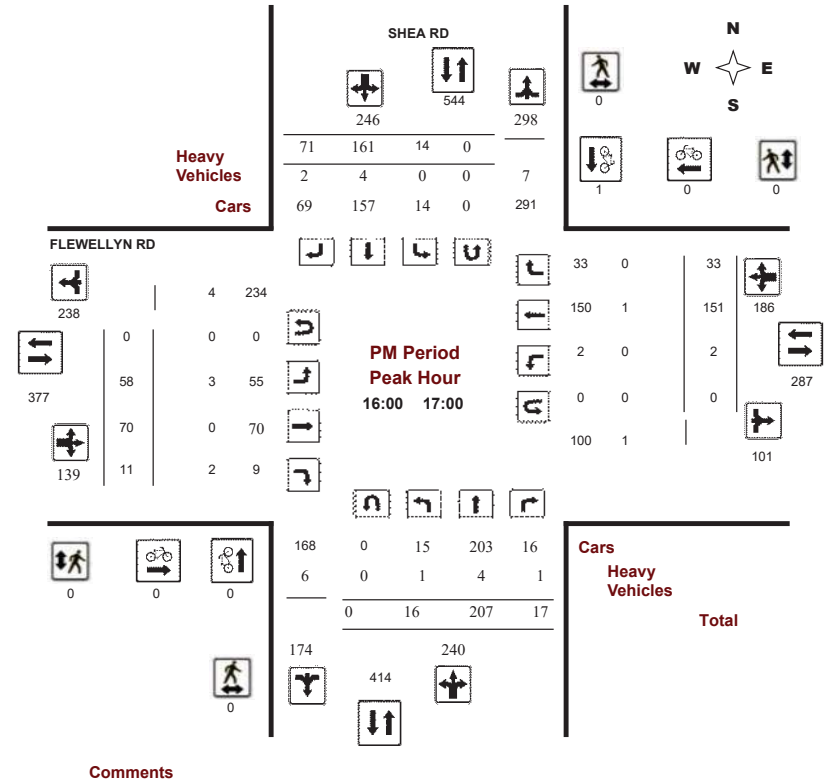
FLEWELLYN RD @ SHEA RD

Survey Date: Wednesday, April 26, 2023

Start Time: 07:00

WO No: 40938

Device: Miovision





Transportation Services - Traffic Services

Turning Movement Count - Study Results

FLEWELLYN RD @ SHEA RD

Survey Date: Wednesday, April 26, 2023

WO No: 40938

Start Time: 07:00

Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, April 26, 2023

Total Observed U-Turns AADT Factor
Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 0
.90

Table with columns for SHEA RD and FLEWELLYN RD (Northbound, Southbound, Eastbound, Westbound) and rows for various time periods (07:00-17:00) and totals. Includes sub-totals for U-Turns, EQ 12Hr, and AVG 12Hr/24Hr.

Note: These values are calculated by multiplying the totals by the appropriate expansion factor. 1.39
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor. .90
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. 1.31
Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

FLEWELLYN RD @ SHEA RD

Survey Date: Wednesday, April 26, 2023

WO No: 40938

Start Time: 07:00

Device: Miovision

Full Study 15 Minute Increments

Table with columns for SHEA RD and FLEWELLYN RD (Northbound, Southbound, Eastbound, Westbound) and rows for 15-minute time periods (07:00-17:45) and totals. Includes Grand Total column.

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

FLEWELLYN RD @ SHEA RD

Survey Date: Wednesday, April 26, 2023

WO No: 40938

Start Time: 07:00

Device: Miovision

Full Study Cyclist Volume

Time Period	SHEA RD			FLEWELLYN RD			Grand Total
	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	
07:00 07:15	0	0	0	0	0	0	0
07:15 07:30	0	0	0	0	0	0	0
07:30 07:45	0	0	0	0	0	0	0
07:45 08:00	0	0	0	0	0	0	0
08:00 08:15	0	0	0	0	0	0	0
08:15 08:30	0	0	0	0	0	0	0
08:30 08:45	0	0	0	0	0	0	0
08:45 09:00	0	0	0	0	0	0	0
09:00 09:15	0	0	0	0	0	0	0
09:15 09:30	0	0	0	0	0	0	0
09:30 09:45	0	0	0	0	0	0	0
09:45 10:00	0	0	0	0	0	0	0
11:30 11:45	0	0	0	0	0	0	0
11:45 12:00	0	0	0	0	0	0	0
12:00 12:15	0	0	0	0	0	0	0
12:15 12:30	0	0	0	0	0	0	0
12:30 12:45	0	0	0	0	0	0	0
12:45 13:00	0	0	0	0	0	0	0
13:00 13:15	0	0	0	0	0	0	0
13:15 13:30	0	0	0	0	0	0	0
15:00 15:15	0	0	0	0	0	0	0
15:15 15:30	0	0	0	0	0	0	0
15:30 15:45	1	0	1	0	0	0	1
15:45 16:00	0	0	0	0	0	0	0
16:00 16:15	0	0	0	0	0	0	0
16:15 16:30	0	0	0	0	0	0	0
16:30 16:45	0	1	1	0	0	0	1
16:45 17:00	0	0	0	0	0	0	0
17:00 17:15	0	0	0	0	0	0	0
17:15 17:30	0	0	0	0	0	0	0
17:30 17:45	0	0	0	0	0	0	0
17:45 18:00	0	0	0	0	0	0	0
Total	1	1	2	0	0	0	2



Transportation Services - Traffic Services

Turning Movement Count - Study Results

FLEWELLYN RD @ SHEA RD

Survey Date: Wednesday, April 26, 2023

WO No: 40938

Start Time: 07:00

Device: Miovision

Full Study Pedestrian Volume

Time Period	SHEA RD			FLEWELLYN RD			Grand Total
	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	
07:00 07:15	0	0	0	0	0	0	0
07:15 07:30	0	0	0	0	0	0	0
07:30 07:45	0	0	0	0	0	0	0
07:45 08:00	0	0	0	0	0	0	0
08:00 08:15	0	0	0	0	0	0	0
08:15 08:30	0	0	0	0	0	0	0
08:30 08:45	0	0	0	0	0	0	0
08:45 09:00	0	0	0	0	0	0	0
09:00 09:15	0	0	0	0	0	0	0
09:15 09:30	0	0	0	0	0	0	0
09:30 09:45	0	0	0	0	0	0	0
09:45 10:00	0	0	0	0	0	0	0
11:30 11:45	0	0	0	0	0	0	0
11:45 12:00	0	0	0	0	0	0	0
12:00 12:15	0	0	0	0	0	0	0
12:15 12:30	0	0	0	0	0	0	0
12:30 12:45	0	0	0	0	0	0	0
12:45 13:00	0	0	0	0	0	0	0
13:00 13:15	0	0	0	0	0	0	0
13:15 13:30	0	0	0	0	0	0	0
15:00 15:15	0	0	0	0	0	0	0
15:15 15:30	0	0	0	0	0	0	0
15:30 15:45	0	0	0	0	0	0	0
15:45 16:00	0	0	0	0	0	0	0
16:00 16:15	0	0	0	0	0	0	0
16:15 16:30	0	0	0	0	0	0	0
16:30 16:45	0	0	0	0	0	0	0
16:45 17:00	0	0	0	0	0	0	0
17:00 17:15	0	0	0	0	0	0	0
17:15 17:30	0	0	0	0	0	0	0
17:30 17:45	0	0	0	0	0	0	0
17:45 18:00	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0



Transportation Services - Traffic Services

Turning Movement Count - Study Results

FLEWELLYN RD @ SHEA RD

Survey Date: Wednesday, April 26, 2023

WO No: 40938

Start Time: 07:00

Device: Miovision

Full Study Heavy Vehicles

SHEA RD				Southbound				Eastbound				Westbound				Grand Total				
Northbound		Southbound		Eastbound		Westbound		Eastbound		Westbound		Westbound								
Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT		
07:00	07:15	0	1	1	3	0	1	1	5	8	2	0	0	4	0	1	0	2	6	7
07:15	07:30	0	2	0	3	0	1	0	3	6	0	0	0	1	0	1	0	1	2	4
07:30	07:45	0	2	0	5	0	3	0	8	13	3	0	0	3	0	0	0	0	3	8
07:45	08:00	0	8	0	8	0	0	1	13	21	3	0	0	4	0	0	1	1	5	13
08:00	08:15	1	0	0	2	0	0	3	3	5	0	1	1	6	0	0	0	1	7	6
08:15	08:30	0	2	0	3	0	1	0	4	7	0	1	0	2	0	1	1	3	5	6
08:30	08:45	0	3	0	5	0	2	0	5	10	0	0	0	0	0	0	0	0	0	5
08:45	09:00	0	2	0	4	0	2	0	5	9	1	2	0	3	0	0	0	2	5	7
09:00	09:15	0	1	0	1	0	0	2	4	5	1	0	0	3	0	0	0	0	3	4
09:15	09:30	0	3	0	4	0	1	1	6	10	1	2	0	4	0	0	0	2	6	8
09:30	09:45	0	2	0	3	0	1	0	4	7	0	0	0	0	0	0	1	1	1	4
09:45	10:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	2	1
11:30	11:45	0	1	0	2	1	0	1	3	5	0	0	1	5	0	3	0	4	9	7
11:45	12:00	0	2	0	3	0	1	0	3	6	0	1	0	1	0	0	0	1	2	4
12:00	12:15	0	1	0	1	0	0	0	2	3	0	1	0	1	0	0	1	2	3	3
12:15	12:30	0	1	1	2	1	0	0	2	4	0	0	0	0	0	0	0	2	2	3
12:30	12:45	0	0	0	0	0	0	0	1	1	1	0	0	4	0	3	0	3	7	4
12:45	13:00	0	1	0	2	0	1	0	3	5	0	0	0	1	0	1	1	2	3	4
13:00	13:15	0	0	0	0	0	0	0	1	1	1	2	0	3	0	0	0	2	5	3
13:15	13:30	0	3	0	4	0	1	0	7	11	2	1	0	3	0	0	1	2	5	8
15:00	15:15	0	1	0	2	0	1	0	2	4	0	1	0	1	0	0	0	1	2	3
15:15	15:30	0	1	0	4	0	2	1	5	9	1	0	1	3	0	0	0	0	3	6
15:30	15:45	0	1	0	1	1	0	1	3	4	0	0	0	2	0	1	0	2	4	4
15:45	16:00	0	2	0	3	0	1	2	5	8	0	0	0	4	0	2	0	2	6	7
16:00	16:15	1	1	0	4	0	0	0	3	7	2	0	2	5	0	0	0	0	5	6
16:15	16:30	0	1	0	3	0	2	1	5	8	1	0	0	3	0	1	0	1	4	6
16:30	16:45	0	2	0	4	0	2	1	5	9	0	0	0	1	0	0	0	0	1	5
16:45	17:00	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1
17:00	17:15	0	0	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	1	1
17:15	17:30	0	0	0	5	0	4	0	4	9	0	2	0	2	1	0	0	3	5	7
17:30	17:45	0	0	0	0	0	0	0	0	0	0	1	0	2	0	1	0	2	4	2
17:45	18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total:	None	2	44	3	82	3	27	16	115	197	19	15	5	73	1	16	6	44	117	157



Transportation Services - Traffic Services

Turning Movement Count - Study Results

FLEWELLYN RD @ SHEA RD

Survey Date: Wednesday, April 26, 2023

WO No: 40938

Start Time: 07:00

Device: Miovision

Full Study 15 Minute U-Turn Total

SHEA RD		FLEWELLYN RD		Total	
Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total		
Time Period	Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0
07:15	07:30	0	0	0	0
07:30	07:45	0	0	0	0
07:45	08:00	0	0	0	0
08:00	08:15	0	0	0	0
08:15	08:30	0	0	0	0
08:30	08:45	0	0	0	0
08:45	09:00	0	0	0	0
09:00	09:15	0	0	0	0
09:15	09:30	0	0	0	0
09:30	09:45	0	0	0	0
09:45	10:00	0	0	0	0
11:30	11:45	0	0	0	0
11:45	12:00	0	0	0	0
12:00	12:15	0	0	0	0
12:15	12:30	0	0	0	0
12:30	12:45	0	0	0	0
12:45	13:00	0	0	0	0
13:00	13:15	0	0	0	0
13:15	13:30	0	0	0	0
15:00	15:15	0	0	0	0
15:15	15:30	0	0	0	0
15:30	15:45	0	0	0	0
15:45	16:00	0	0	0	0
16:00	16:15	0	0	0	0
16:15	16:30	0	0	0	0
16:30	16:45	0	0	0	0
16:45	17:00	0	0	0	0
17:00	17:15	0	0	0	0
17:15	17:30	0	0	0	0
17:30	17:45	0	0	0	0
17:45	18:00	0	0	0	0
Total		0	0	0	0



Traffic Count Summary

Intersection: Robert Grant Ave & Fernbank Rd
 Site Code: 2416000004
 Municipality: Ottawa
 Count Date: Apr 23, 2024

Fernbank Rd - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	0	193	132	0	325	0	61	424	0	0	485	0	810
08:00 - 09:00	0	267	134	0	401	0	44	386	0	0	430	0	831
09:00 - 10:00	0	259	119	0	378	0	51	350	0	0	401	0	779
BREAK													
11:30 - 12:00	0	108	58	1	167	0	26	135	0	0	161	0	328
12:00 - 13:00	0	281	116	0	397	0	41	271	0	0	312	0	709
13:00 - 13:30	0	142	50	0	192	0	13	119	0	0	132	0	324
BREAK													
15:00 - 16:00	0	425	161	0	586	0	54	349	0	0	403	0	989
16:00 - 17:00	0	518	183	0	701	0	52	351	0	0	403	0	1104
17:00 - 18:00	0	428	204	0	632	0	43	342	0	0	385	0	1017
GRAND TOTAL	0	2621	1157	1	3779	0	385	2727	0	0	3112	0	6891



Traffic Count Data

Intersection: Robert Grant Ave & Fernbank Rd
 Site Code: 2416000004
 Municipality: Ottawa
 Count Date: Apr 23, 2024

North Approach - Robert Grant Ave

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
07:00	19	0	2	0	21	2	0	0	0	2	0	0	0	0	0	0
07:15	28	0	8	0	36	2	0	0	0	2	0	0	0	0	0	0
07:30	41	0	22	0	63	0	0	1	0	1	0	0	0	0	0	0
07:45	34	0	16	0	50	1	0	0	0	1	0	0	0	0	0	0
08:00	37	0	18	0	55	1	0	1	0	2	0	0	0	0	0	0
08:15	28	0	19	0	47	0	0	0	0	0	0	0	0	0	0	0
08:30	43	0	13	0	56	2	0	1	0	3	0	0	0	0	0	0
08:45	38	0	17	0	55	1	0	1	0	2	0	0	0	0	0	0
09:00	41	0	18	0	59	6	0	2	0	8	0	0	0	0	0	0
09:15	29	0	12	0	41	2	0	1	0	3	0	0	0	0	0	1
09:30	22	0	9	0	31	2	0	0	0	2	0	0	1	0	1	0
09:45	23	0	7	0	30	1	0	0	0	1	0	0	0	0	0	0
SUBTOTAL	383	0	161	0	544	20	0	7	0	27	0	0	1	0	1	1



Traffic Count Data

Intersection: Robert Grant Ave & Fernbank Rd
 Site Code: 2416000004
 Municipality: Ottawa
 Count Date: Apr 23, 2024

North Approach - Robert Grant Ave

Start Time	Cars				Trucks				Bicycles				Total Peds		
	←	↑	→	↻	←	↑	→	↻	←	↑	→	↻			
11:30	23	0	12	0	35	2	0	1	0	3	0	0	0	0	0
11:45	25	0	10	0	35	1	0	0	0	1	0	0	0	0	0
12:00	20	0	7	0	27	1	0	0	0	1	0	0	0	0	1
12:15	16	0	9	0	25	1	0	1	0	2	0	0	0	0	0
12:30	26	0	6	0	32	1	0	0	0	1	0	0	0	0	1
12:45	37	0	11	0	48	4	0	1	0	5	0	0	0	0	0
13:00	18	0	8	0	26	2	0	0	0	2	0	0	0	0	0
13:15	25	0	9	0	34	2	0	2	0	4	0	0	0	0	0
SUBTOTAL	190	0	72	0	262	14	0	5	0	19	0	0	0	0	2



Traffic Count Data

Intersection: Robert Grant Ave & Fernbank Rd
 Site Code: 2416000004
 Municipality: Ottawa
 Count Date: Apr 23, 2024

North Approach - Robert Grant Ave

Start Time	Cars				Trucks				Bicycles				Total Peds		
	←	↑	→	↻	←	↑	→	↻	←	↑	→	↻			
15:00	37	0	12	0	49	1	0	0	0	1	0	0	0	0	0
15:15	30	0	18	0	48	1	0	1	0	2	0	0	0	0	0
15:30	54	0	28	0	82	2	0	2	0	4	0	0	0	0	0
15:45	46	0	18	0	64	5	0	4	0	9	0	0	0	0	0
16:00	43	0	21	0	64	1	0	1	0	2	0	0	0	0	0
16:15	34	0	13	0	47	1	0	1	0	2	0	0	0	0	0
16:30	40	0	14	0	54	2	0	1	0	3	0	0	0	0	0
16:45	28	0	21	0	49	1	0	2	0	3	0	0	0	0	0
17:00	49	0	15	0	64	1	0	1	0	2	0	0	0	0	0
17:15	37	0	11	0	48	3	0	0	0	3	0	0	0	0	0
17:30	35	0	18	0	53	0	0	0	0	0	0	0	0	0	0
17:45	34	0	16	0	50	0	0	1	0	1	0	0	0	0	0
SUBTOTAL	467	0	205	0	672	18	0	14	0	32	0	0	0	0	0
GRAND TOTAL	1040	0	438	0	1478	52	0	26	0	78	0	0	1	0	1



Traffic Count Data

Intersection: Robert Grant Ave & Fernbank Rd
 Site Code: 2416000004
 Municipality: Ottawa
 Count Date: Apr 23, 2024

East Approach - Fernbank Rd

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
07:00	0	20	13	0	33	0	4	1	0	5	0	0	0	0	0	0
07:15	0	34	27	0	61	0	7	4	0	11	0	0	0	0	0	0
07:30	0	57	33	0	90	0	7	1	0	8	0	0	0	0	0	0
07:45	0	52	48	0	100	0	12	5	0	17	0	0	0	0	0	0
08:00	0	46	28	0	74	0	4	2	0	6	0	0	0	0	0	0
08:15	0	54	22	0	76	0	3	4	0	7	0	0	0	0	0	0
08:30	0	46	33	0	79	0	18	1	0	19	0	0	0	0	0	0
08:45	0	88	37	0	125	0	8	7	0	15	0	0	0	0	0	0
09:00	0	68	40	0	108	0	7	2	0	9	0	0	0	0	0	0
09:15	0	65	25	0	90	0	13	2	0	15	0	0	0	0	0	0
09:30	0	49	26	0	75	0	5	2	0	7	0	0	0	0	0	0
09:45	0	42	21	0	63	0	10	1	0	11	0	0	0	0	0	0
SUBTOTAL	0	621	353	0	974	0	98	32	0	130	0	0	0	0	0	0



Traffic Count Data

Intersection: Robert Grant Ave & Fernbank Rd
 Site Code: 2416000004
 Municipality: Ottawa
 Count Date: Apr 23, 2024

East Approach - Fernbank Rd

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
11:30	0	50	17	0	67	0	7	1	0	8	0	0	0	0	0	0
11:45	0	46	35	1	82	0	5	5	0	10	0	0	0	0	0	0
12:00	0	64	20	0	84	0	6	2	0	8	0	0	0	0	0	0
12:15	0	75	24	0	99	0	8	3	0	11	0	0	0	0	0	0
12:30	0	53	31	0	84	0	7	2	0	9	0	0	0	0	0	0
12:45	0	61	32	0	93	0	7	2	0	9	0	0	0	0	0	0
13:00	0	70	24	0	94	0	5	1	0	6	0	0	0	0	0	0
13:15	0	57	22	0	79	0	10	3	0	13	0	0	0	0	0	0
SUBTOTAL	0	476	205	1	682	0	55	19	0	74	0	0	0	0	0	0

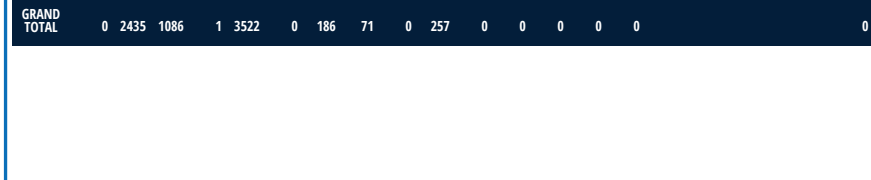


Traffic Count Data

Intersection: Robert Grant Ave & Fernbank Rd
 Site Code: 2416000004
 Municipality: Ottawa
 Count Date: Apr 23, 2024

East Approach - Fernbank Rd

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
15:00	0	74	40	0	114	0	5	5	0	10	0	0	0	0	0	0
15:15	0	76	36	0	112	0	5	5	0	10	0	0	0	0	0	0
15:30	0	118	31	0	149	0	7	0	0	7	0	0	0	0	0	0
15:45	0	133	44	0	177	0	7	0	0	7	0	0	0	0	0	0
16:00	0	133	41	0	174	0	2	0	0	2	0	0	0	0	0	0
16:15	0	142	39	0	181	0	0	4	0	4	0	0	0	0	0	0
16:30	0	116	32	0	148	0	3	2	0	5	0	0	0	0	0	0
16:45	0	122	64	0	186	0	0	1	0	1	0	0	0	0	0	0
17:00	0	120	40	0	160	0	1	1	0	2	0	0	0	0	0	0
17:15	0	111	55	0	166	0	1	1	0	2	0	0	0	0	0	0
17:30	0	92	46	0	138	0	2	0	0	2	0	0	0	0	0	0
17:45	0	101	60	0	161	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	0	1338	528	0	1866	0	33	20	0	53	0	0	0	0	0	0
GRAND TOTAL	0	2435	1086	1	3522	0	186	71	0	257	0	0	0	0	0	0

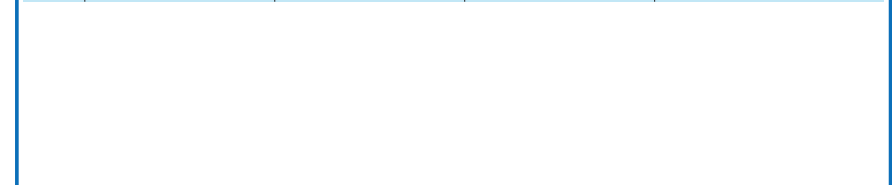


Traffic Count Data

Intersection: Robert Grant Ave & Fernbank Rd
 Site Code: 2416000004
 Municipality: Ottawa
 Count Date: Apr 23, 2024

West Approach - Fernbank Rd

Start Time	Cars				Total	Trucks				Total	Bicycles				Total	Total Peds
	←	↑	→	↻		←	↑	→	↻		←	↑	→	↻		
07:00	5	70	0	0	75	1	9	0	0	10	0	0	0	0	0	0
07:15	11	94	0	0	105	2	8	0	0	10	0	0	0	0	0	0
07:30	14	106	0	0	120	1	6	0	0	7	0	0	0	0	0	0
07:45	26	121	0	0	147	1	10	0	0	11	0	0	0	0	0	0
08:00	11	89	0	0	100	0	10	0	0	10	0	0	0	0	0	0
08:15	7	84	0	0	91	1	3	0	0	4	0	0	0	0	0	0
08:30	14	100	0	0	114	0	7	0	0	7	0	0	0	0	0	0
08:45	9	85	0	0	94	2	8	0	0	10	0	0	0	0	0	0
09:00	14	111	0	0	125	0	7	0	0	7	0	0	0	0	0	0
09:15	16	71	0	0	87	0	4	0	0	4	0	0	0	0	0	0
09:30	8	90	0	0	98	0	9	0	0	9	0	0	0	0	0	0
09:45	12	52	0	0	64	1	6	0	0	7	0	0	0	0	0	0
SUBTOTAL	147	1073	0	0	1220	9	87	0	0	96	0	0	0	0	0	0





Traffic Count Data

Intersection: Robert Grant Ave & Fernbank Rd
 Site Code: 2416000004
 Municipality: Ottawa
 Count Date: Apr 23, 2024

West Approach - Fernbank Rd

Start Time	Cars				Trucks				Bicycles				Total Peds
	←	↑	↻	Total	←	↑	↻	Total	←	↑	↻	Total	
11:30	13	67	0	80	1	4	0	5	0	0	0	0	0
11:45	11	56	0	67	1	8	0	9	0	0	0	0	0
12:00	8	61	0	69	0	10	0	10	0	0	0	0	0
12:15	15	66	0	81	1	6	0	7	0	0	0	0	0
12:30	10	60	0	70	0	4	0	4	0	0	0	0	0
12:45	6	54	0	60	1	10	0	11	0	0	0	0	0
13:00	9	51	0	60	0	5	0	5	0	0	0	0	0
13:15	3	59	0	62	1	4	0	5	0	0	0	0	0
SUBTOTAL	75	474	0	549	5	51	0	56	0	0	0	0	0



Traffic Count Data

Intersection: Robert Grant Ave & Fernbank Rd
 Site Code: 2416000004
 Municipality: Ottawa
 Count Date: Apr 23, 2024

West Approach - Fernbank Rd

Start Time	Cars				Trucks				Bicycles				Total Peds
	←	↑	↻	Total	←	↑	↻	Total	←	↑	↻	Total	
15:00	9	79	0	88	1	5	0	6	0	0	0	0	0
15:15	8	68	0	76	0	5	0	5	0	0	0	0	0
15:30	16	72	0	88	0	3	0	3	0	0	0	0	0
15:45	20	110	0	130	0	7	0	7	0	0	0	0	0
16:00	15	94	0	109	0	4	0	4	0	0	0	0	0
16:15	15	89	0	104	0	0	0	0	0	0	0	0	0
16:30	12	84	0	96	0	1	0	1	0	0	0	0	0
16:45	10	79	0	89	0	0	0	0	0	0	0	0	0
17:00	11	85	0	96	1	1	0	2	0	0	0	0	0
17:15	12	95	0	107	1	1	0	2	0	0	0	0	0
17:30	8	79	0	87	0	2	0	2	0	0	0	0	0
17:45	10	78	0	88	0	1	0	1	0	0	0	0	0
SUBTOTAL	146	1012	0	1158	3	30	0	33	0	0	0	0	0
GRAND TOTAL	368	2559	0	2927	17	168	0	185	0	0	0	0	0



Transportation Services - Traffic Services

Turning Movement Count - Study Results

TERRY FOX DR @ FERNBANK RD

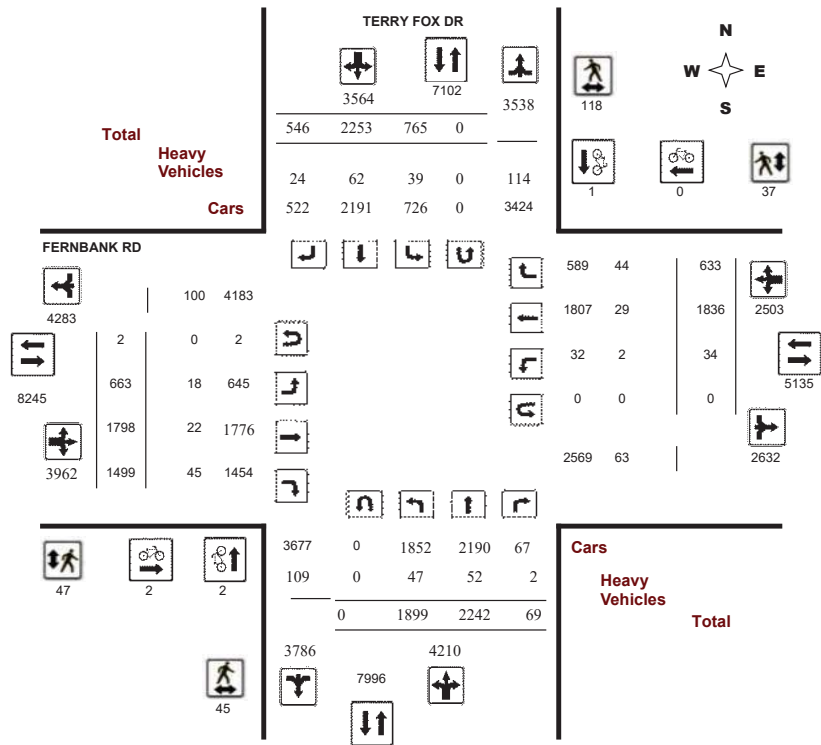
Survey Date: Wednesday, February 07, 2024

WO No: 41471

Start Time: 07:00

Device: Miovision

Full Study Diagram



Transportation Services - Traffic Services

Turning Movement Count - Study Results

TERRY FOX DR @ FERNBANK RD

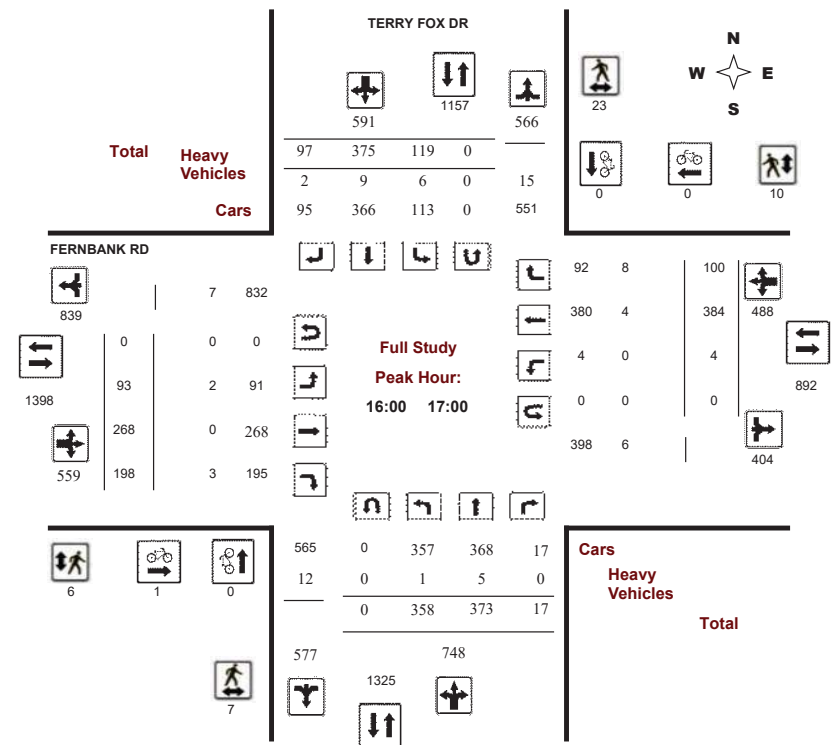
Survey Date: Wednesday, February 07, 2024

WO No: 41471

Start Time: 07:00

Device: Miovision

Full Study Peak Hour Diagram





Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

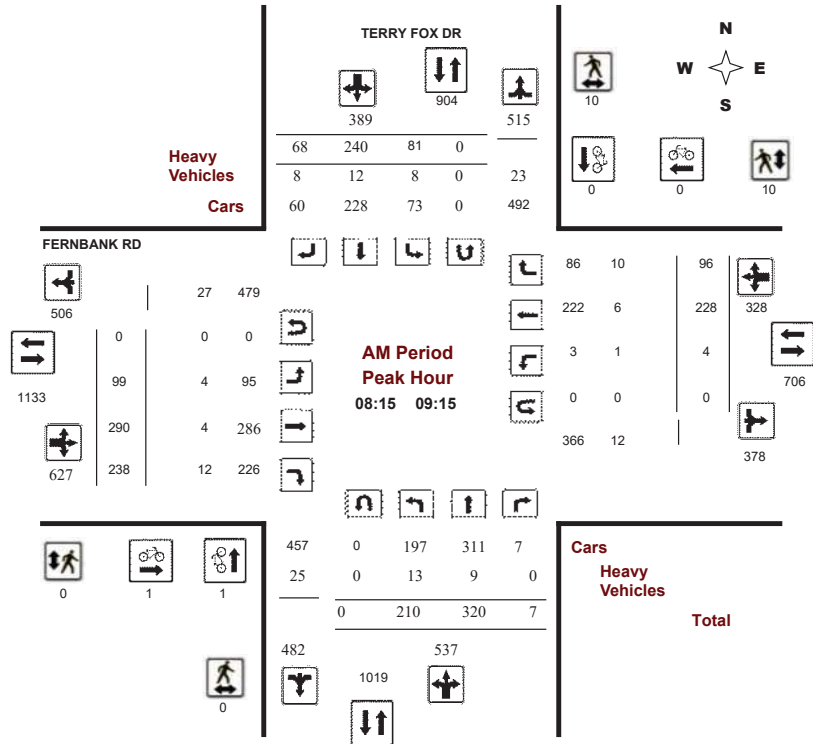
TERRY FOX DR @ FERNBANK RD

Survey Date: Wednesday, February 07, 2024

Start Time: 07:00

WO No: 41471

Device: Miovision



Comments



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

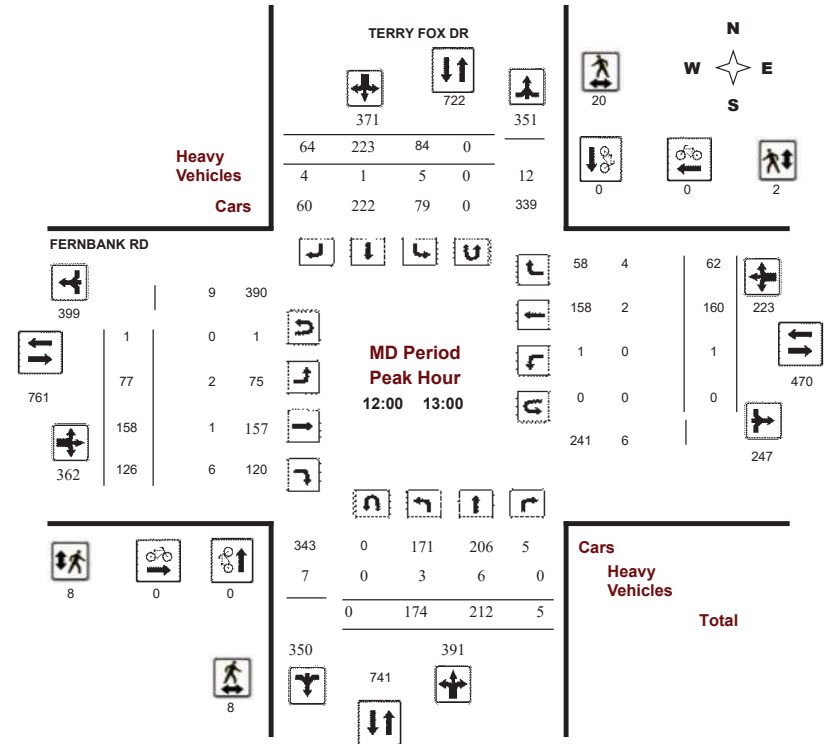
TERRY FOX DR @ FERNBANK RD

Survey Date: Wednesday, February 07, 2024

Start Time: 07:00

WO No: 41471

Device: Miovision



Comments



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

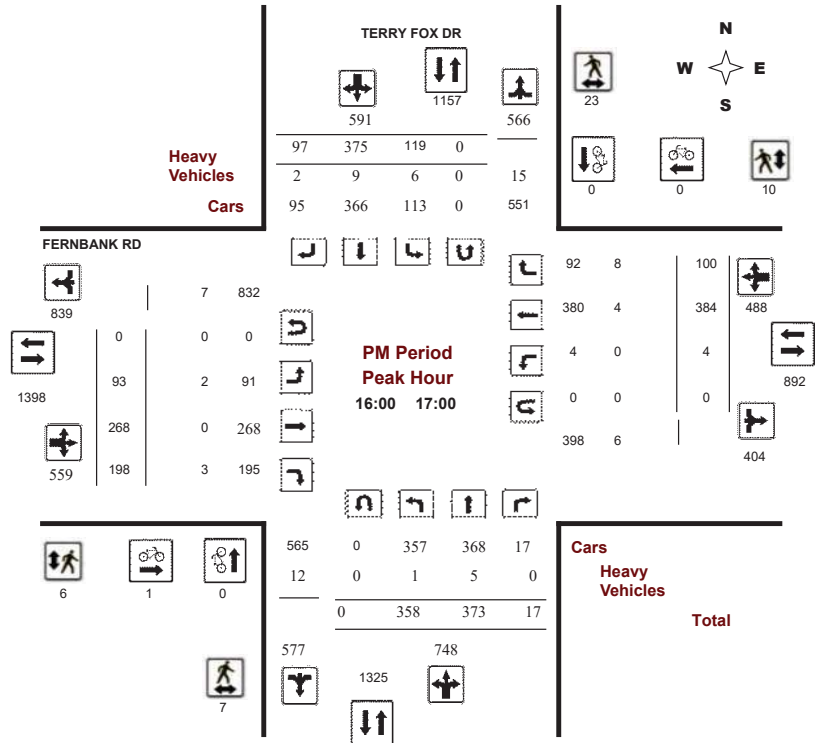
TERRY FOX DR @ FERNBANK RD

Survey Date: Wednesday, February 07, 2024

Start Time: 07:00

WO No: 41471

Device: Miovision



Comments



Transportation Services - Traffic Services

Turning Movement Count - Study Results

TERRY FOX DR @ FERNBANK RD

Survey Date: Wednesday, February 07, 2024

Start Time: 07:00

WO No: 41471

Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, February 07, 2024

Total Observed U-Turns

Northbound: 0 Southbound: 0
Eastbound: 2 Westbound: 0

AADT Factor

1.00

Period	TERRY FOX DR								FERNBANK RD								WB TOT	STR TOT	Grand Total	
	Northbound				Southbound				Eastbound				Westbound							
	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT				WB TOT
07:00-08:00	153	258	6	417	64	300	42	406	823	75	234	235	544	7	144	72	223	767	1590	
08:00-09:00	214	309	8	531	65	267	68	400	931	100	282	262	644	7	186	89	282	926	1857	
09:00-10:00	161	239	5	405	77	222	48	347	752	98	223	173	494	4	183	77	264	758	1510	
11:30-12:30	175	207	3	385	66	227	51	344	729	77	166	127	370	1	154	63	218	588	1317	
12:30-13:30	163	217	4	384	92	218	60	370	754	52	155	123	330	0	175	54	229	559	1313	
15:00-16:00	332	306	11	649	136	311	89	536	1185	90	246	202	538	3	282	76	361	899	2084	
16:00-17:00	358	373	17	748	119	375	97	591	1339	93	268	198	559	4	384	100	488	1047	2386	
17:00-18:00	343	333	15	691	146	333	91	570	1261	78	224	179	481	8	328	102	438	919	2180	
Sub Total	1899	2242	69	4210	765	2253	546	3564	7774	663	1798	1499	3962	34	1836	633	2503	6463	14237	
U Turns	0								0				2				0		2	
Total	1899	2242	69	4210	765	2253	546	3564	7774	663	1798	1499	3962	34	1836	633	2503	6465	14239	
EQ 12Hr	2640	3116	96	5852	1063	3132	759	4954	10806	922	2499	2084	5507	47	2552	880	3479	8986	19792	
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.																			1.39	
AVG 12Hr	2640	3116	96	5852	1063	4102	994	4954	10806	922	2499	2084	5507	47	2552	880	3479	8986	19792	
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.																			1.00	
AVG 24Hr	3458	4082	126	7666	1393	5374	1302	6490	14156	1208	3274	2730	7214	62	3343	1153	4557	11772	25928	
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.																			1.31	
Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.																				



Transportation Services - Traffic Services

Turning Movement Count - Study Results

TERRY FOX DR @ FERNBANK RD

Survey Date: Wednesday, February 07, 2024

WO No: 41471

Start Time: 07:00

Device: Miovision

Full Study 15 Minute Increments

TERRY FOX DR											FERNBANK RD											Grand Total
Northbound					Southbound					Eastbound					Westbound							
Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT				
08:00	08:15	48	61	3	112	7	77	16	100	212	31	72	72	175	3	27	19	49	224	436		
08:15	08:30	50	70	2	122	13	64	11	88	210	21	69	69	159	0	49	20	69	228	438		
08:30	08:45	50	98	1	149	13	72	16	101	250	27	64	62	153	1	38	27	66	219	469		
08:45	09:00	66	80	2	148	32	54	25	111	259	21	77	59	157	3	72	23	98	255	514		
09:00	09:15	44	72	2	118	23	50	16	89	207	30	80	48	158	0	89	26	95	253	460		
09:15	09:30	47	51	1	99	24	70	17	111	210	34	61	57	152	0	47	20	67	219	429		
09:30	09:45	38	62	0	100	15	42	6	63	163	19	40	36	95	1	30	10	41	136	299		
09:45	10:00	32	54	2	88	15	60	9	84	172	15	42	32	89	3	37	21	61	150	322		
11:30	11:45	42	43	0	85	10	46	11	67	152	19	32	35	86	0	32	15	47	133	285		
11:45	12:00	44	54	1	99	19	60	11	90	189	15	57	33	105	0	41	14	55	160	349		
12:15	12:30	47	67	0	114	18	62	11	91	205	25	38	27	90	1	36	17	54	144	349		
12:30	12:45	40	52	2	94	21	47	16	84	178	12	45	28	86	0	41	9	50	136	314		
12:45	13:00	45	50	1	96	26	55	19	100	196	22	36	39	97	0	38	19	57	154	350		
15:00	15:15	59	61	0	120	25	72	20	117	237	26	45	52	123	1	54	14	69	192	429		
15:15	15:30	99	80	4	183	30	93	22	145	328	17	60	39	116	0	67	24	91	207	535		
15:30	15:45	85	87	1	173	42	80	37	159	332	25	70	48	143	1	69	15	85	228	560		
16:00	16:15	75	95	3	173	30	72	26	128	301	29	67	64	160	3	104	24	131	291	592		
16:15	16:30	99	86	5	190	36	116	29	181	371	23	62	47	132	1	93	30	124	256	627		
16:30	16:45	89	94	5	188	31	86	16	133	321	26	63	53	142	0	106	28	134	276	597		
16:45	17:00	95	98	4	197	22	101	26	149	346	15	76	34	125	0	81	18	99	224	570		
17:00	17:15	107	84	2	193	32	77	17	126	319	14	55	53	122	0	98	23	121	243	562		
17:15	17:30	72	73	5	150	40	78	22	140	290	19	63	52	134	2	70	21	93	227	517		
17:30	17:45	81	89	4	174	37	80	20	137	311	21	56	30	107	4	84	28	116	223	534		
17:45	18:00	83	87	4	174	37	98	32	167	341	24	50	44	118	2	76	30	108	226	567		
07:45	08:00	54	72	0	126	25	83	16	124	250	17	73	64	154	5	58	18	81	235	485		
12:00	12:15	42	43	2	87	19	59	18	96	183	18	39	32	89	0	45	17	62	151	334		
13:00	13:15	41	52	0	93	28	60	8	96	189	12	36	24	73	0	48	14	62	135	324		
13:15	13:30	37	63	1	101	17	56	17	90	191	6	38	32	76	0	48	12	60	136	327		
15:45	16:00	89	78	6	173	39	66	10	115	288	22	71	63	156	1	92	23	116	272	560		
07:15	07:30	29	52	1	82	16	76	10	102	184	18	52	59	129	0	30	16	46	175	359		
07:00	07:15	25	50	1	76	9	70	10	89	165	21	35	50	106	1	16	16	33	139	304		
07:30	07:45	45	84	4	133	14	71	6	91	224	19	74	62	155	1	40	22	63	218	442		
Total:		1899	2242	69	4210	765	2253	546	3564	7774	663	1798	1499	3962	34	1836	633	2503	6465	14,239		

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

TERRY FOX DR @ FERNBANK RD

Survey Date: Wednesday, February 07, 2024

WO No: 41471

Start Time: 07:00

Device: Miovision

Full Study Cyclist Volume

TERRY FOX DR				FERNBANK RD				Grand Total
Time Period	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total		
08:00	08:15	0	0	0	0	0	0	
08:15	08:30	0	0	0	0	0	0	
08:30	08:45	0	0	0	0	0	0	
08:45	09:00	1	0	1	1	0	2	
09:00	09:15	0	0	0	0	0	0	
09:15	09:30	0	0	0	0	0	0	
09:30	09:45	0	1	1	0	0	1	
09:45	10:00	0	0	0	0	0	0	
11:30	11:45	0	0	0	0	0	0	
11:45	12:00	0	0	0	0	0	0	
12:15	12:30	0	0	0	0	0	0	
12:30	12:45	0	0	0	0	0	0	
12:45	13:00	0	0	0	0	0	0	
15:00	15:15	1	0	1	0	0	1	
15:15	15:30	0	0	0	0	0	0	
15:30	15:45	0	0	0	0	0	0	
16:00	16:15	0	0	0	0	0	0	
16:15	16:30	0	0	0	0	0	0	
16:30	16:45	0	0	0	0	0	0	
16:45	17:00	0	0	0	1	0	1	
17:00	17:15	0	0	0	0	0	0	
17:15	17:30	0	0	0	0	0	0	
17:30	17:45	0	0	0	0	0	0	
17:45	18:00	0	0	0	0	0	0	
07:45	08:00	0	0	0	0	0	0	
12:00	12:15	0	0	0	0	0	0	
13:00	13:15	0	0	0	0	0	0	
13:15	13:30	0	0	0	0	0	0	
15:45	16:00	0	0	0	0	0	0	
07:15	07:30	0	0	0	0	0	0	
07:00	07:15	0	0	0	0	0	0	
07:30	07:45	0	0	0	0	0	0	
Total		2	1	3	2	0	2	5



Transportation Services - Traffic Services

Turning Movement Count - Study Results

TERRY FOX DR @ FERNBANK RD

Survey Date: Wednesday, February 07, 2024

WO No: 41471

Start Time: 07:00

Device: Miovision

Full Study Pedestrian Volume

TERRY FOX DR

FERNBANK RD

Table with columns: Time Period, NB Approach, SB Approach, Total, EB Approach, WB Approach, Grand Total. Rows show pedestrian counts for various time intervals from 08:00 to 07:30.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

TERRY FOX DR @ FERNBANK RD

Survey Date: Wednesday, February 07, 2024

WO No: 41471

Start Time: 07:00

Device: Miovision

Full Study Heavy Vehicles

TERRY FOX DR

FERNBANK RD

Table with columns: Time Period, Northbound (LT, ST, RT, N TOT), Southbound (LT, ST, RT, S TOT, STR TOT), Eastbound (LT, ST, RT, E TOT), Westbound (LT, ST, RT, W TOT, STR TOT), Grand Total. Rows show heavy vehicle counts for various time intervals from 08:00 to 07:30.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

TERRY FOX DR @ FERNBANK RD

Survey Date: Wednesday, February 07, 2024

WO No: 41471

Start Time: 07:00

Device: Miovision

Full Study 15 Minute U-Turn Total TERRY FOX DR FERNBANK RD

Time Period	Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
08:00 - 08:15	0	0	0	0	0
08:15 - 08:30	0	0	0	0	0
08:30 - 08:45	0	0	0	0	0
08:45 - 09:00	0	0	0	0	0
09:00 - 09:15	0	0	0	0	0
09:15 - 09:30	0	0	0	0	0
09:30 - 09:45	0	0	0	0	0
09:45 - 10:00	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0
12:30 - 12:45	0	0	1	0	1
12:45 - 13:00	0	0	0	0	0
15:00 - 15:15	0	0	0	0	0
15:15 - 15:30	0	0	0	0	0
15:30 - 15:45	0	0	0	0	0
16:00 - 16:15	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0
07:45 - 08:00	0	0	0	0	0
12:00 - 12:15	0	0	0	0	0
13:00 - 13:15	0	0	1	0	1
13:15 - 13:30	0	0	0	0	0
15:45 - 16:00	0	0	0	0	0
07:15 - 07:30	0	0	0	0	0
07:00 - 07:15	0	0	0	0	0
07:30 - 07:45	0	0	0	0	0
Total	0	0	2	0	2



Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ HOPE SIDE RD/TERRY FOX DR

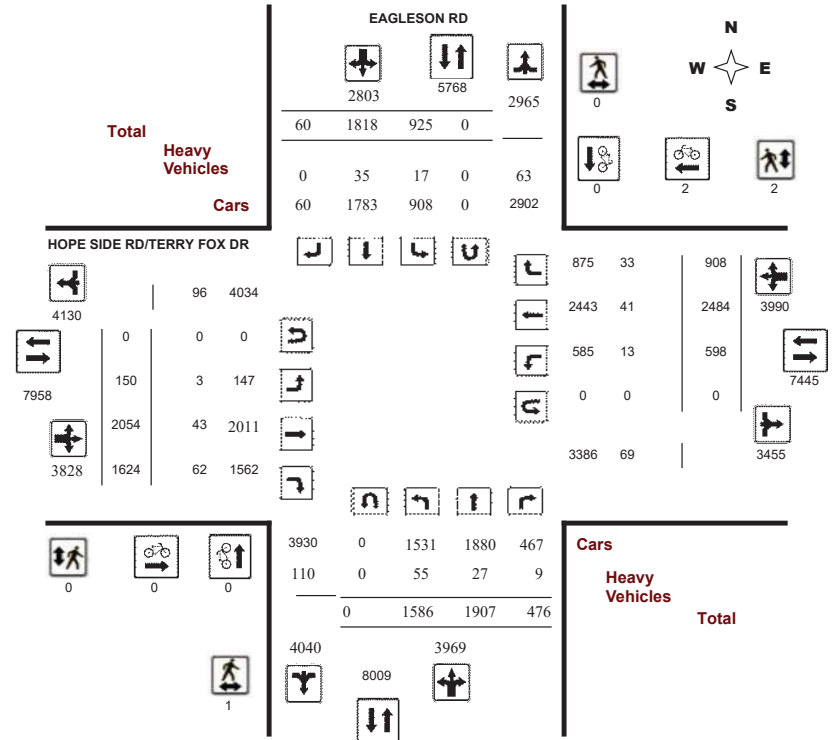
Survey Date: Wednesday, February 07, 2024

WO No: 41470

Start Time: 07:00

Device: Miovision

Full Study Diagram





Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ HOPE SIDE RD/TERRY FOX DR

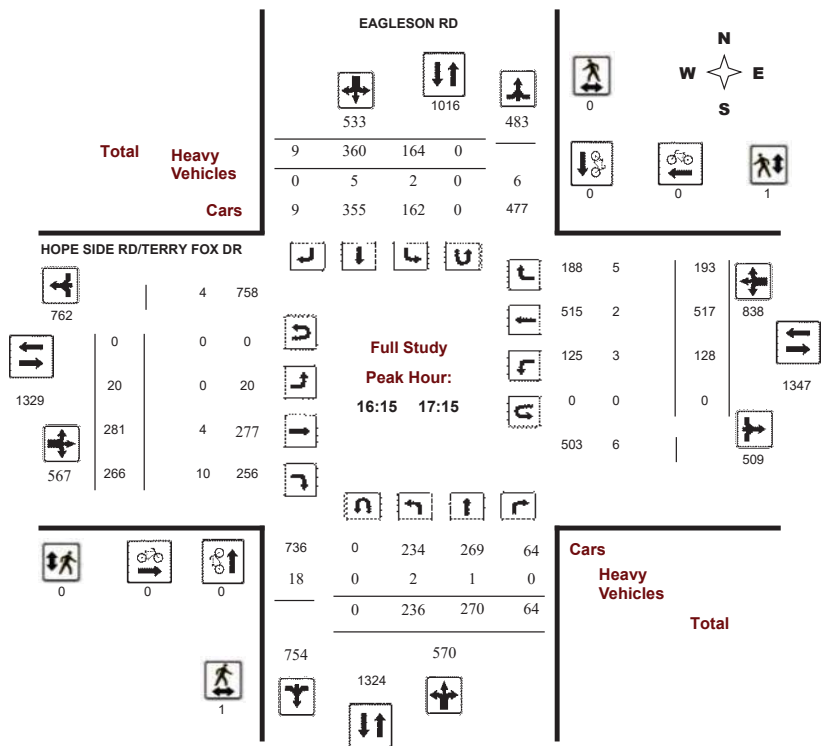
Survey Date: Wednesday, February 07, 2024

WO No: 41470

Start Time: 07:00

Device: Miovision

Full Study Peak Hour Diagram



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

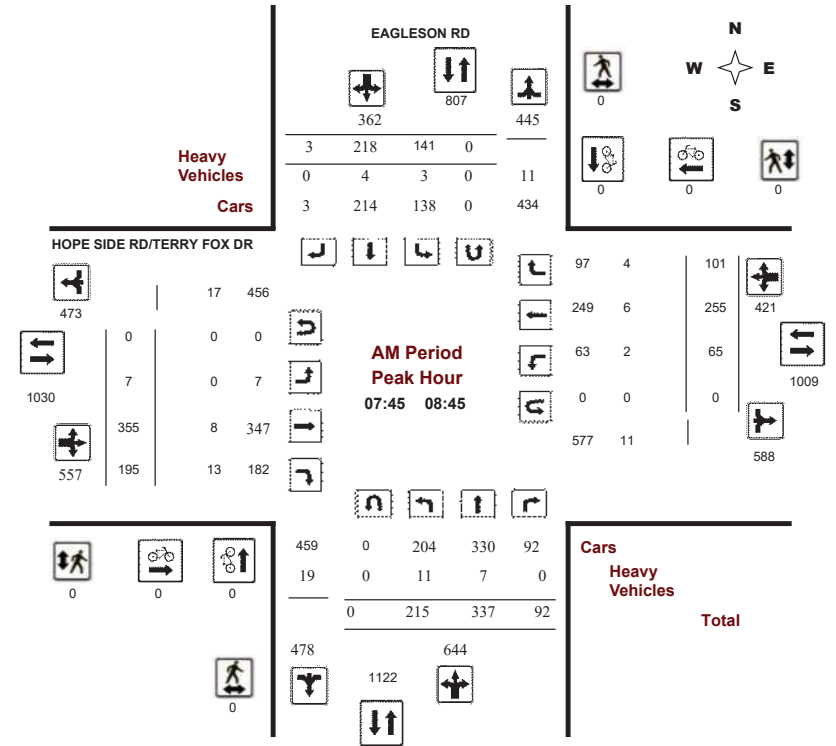
EAGLESON RD @ HOPE SIDE RD/TERRY FOX DR

Survey Date: Wednesday, February 07, 2024

WO No: 41470

Start Time: 07:00

Device: Miovision



Comments

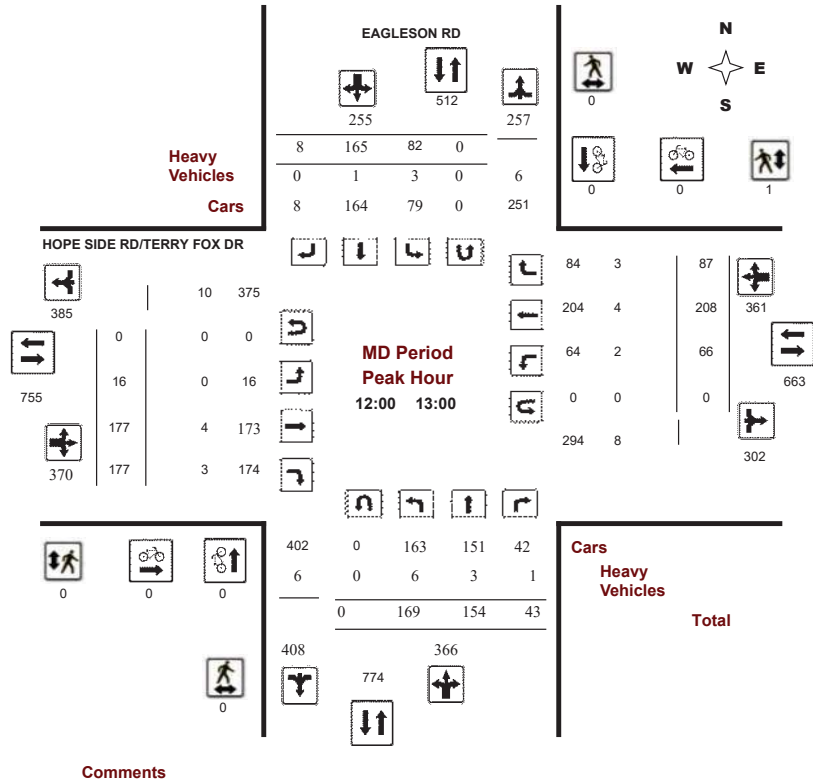


Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram EAGLESON RD @ HOPE SIDE RD/TERRY FOX DR

Survey Date: Wednesday, February 07, 2024
Start Time: 07:00

WO No: 41470
Device: Miovision

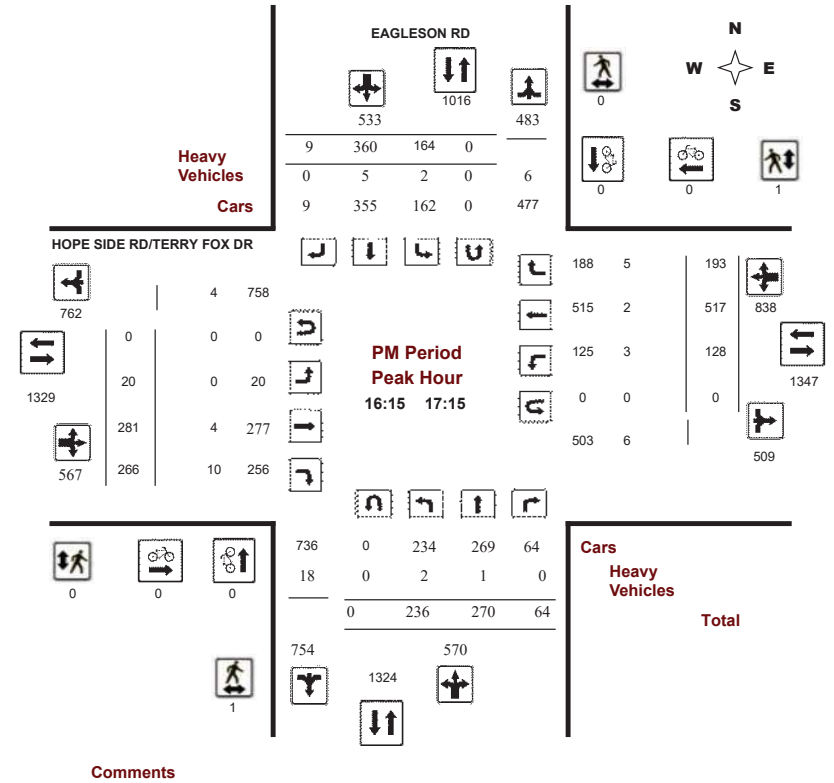


Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram EAGLESON RD @ HOPE SIDE RD/TERRY FOX DR

Survey Date: Wednesday, February 07, 2024
Start Time: 07:00

WO No: 41470
Device: Miovision





Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ HOPE SIDE RD/TERRY FOX DR

Survey Date: Wednesday, February 07, 2024

WO No: 41470

Start Time: 07:00

Device: Miovision

Full Study Cyclist Volume

Time Period	EAGLESON RD			HOPE SIDE RD/TERRY FOX DR			Grand Total
	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	
07:00 07:15	0	0	0	0	0	0	0
07:15 07:30	0	0	0	0	0	0	0
07:30 07:45	0	0	0	0	0	0	0
09:45 10:00	0	0	0	0	0	0	0
17:45 18:00	0	0	0	0	0	0	0
07:45 08:00	0	0	0	0	0	0	0
08:00 08:15	0	0	0	0	0	0	0
08:15 08:30	0	0	0	0	0	0	0
08:30 08:45	0	0	0	0	0	0	0
08:45 09:00	0	0	0	0	0	0	0
09:00 09:15	0	0	0	0	0	0	0
09:15 09:30	0	0	0	0	2	2	2
09:30 09:45	0	0	0	0	0	0	0
11:30 11:45	0	0	0	0	0	0	0
11:45 12:00	0	0	0	0	0	0	0
12:00 12:15	0	0	0	0	0	0	0
12:15 12:30	0	0	0	0	0	0	0
12:30 12:45	0	0	0	0	0	0	0
12:45 13:00	0	0	0	0	0	0	0
13:00 13:15	0	0	0	0	0	0	0
13:15 13:30	0	0	0	0	0	0	0
15:00 15:15	0	0	0	0	0	0	0
15:15 15:30	0	0	0	0	0	0	0
15:30 15:45	0	0	0	0	0	0	0
15:45 16:00	0	0	0	0	0	0	0
16:00 16:15	0	0	0	0	0	0	0
16:15 16:30	0	0	0	0	0	0	0
16:30 16:45	0	0	0	0	0	0	0
16:45 17:00	0	0	0	0	0	0	0
17:00 17:15	0	0	0	0	0	0	0
17:15 17:30	0	0	0	0	0	0	0
17:30 17:45	0	0	0	0	0	0	0
Total	0	0	0	0	2	2	2



Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ HOPE SIDE RD/TERRY FOX DR

Survey Date: Wednesday, February 07, 2024

WO No: 41470

Start Time: 07:00

Device: Miovision

Full Study Pedestrian Volume

Time Period	EAGLESON RD			HOPE SIDE RD/TERRY FOX DR			Grand Total
	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	
07:00 07:15	0	0	0	0	0	0	0
07:15 07:30	0	0	0	0	0	0	0
07:30 07:45	0	0	0	0	0	0	0
09:45 10:00	0	0	0	0	0	0	0
17:45 18:00	0	0	0	0	0	0	0
07:45 08:00	0	0	0	0	0	0	0
08:00 08:15	0	0	0	0	0	0	0
08:15 08:30	0	0	0	0	0	0	0
08:30 08:45	0	0	0	0	0	0	0
08:45 09:00	0	0	0	0	0	0	0
09:00 09:15	0	0	0	0	0	0	0
09:15 09:30	0	0	0	0	0	0	0
09:30 09:45	0	0	0	0	0	0	0
11:30 11:45	0	0	0	0	0	0	0
11:45 12:00	0	0	0	0	0	0	0
12:00 12:15	0	0	0	0	0	0	0
12:15 12:30	0	0	0	0	1	1	1
12:30 12:45	0	0	0	0	0	0	0
12:45 13:00	0	0	0	0	0	0	0
13:00 13:15	0	0	0	0	0	0	0
13:15 13:30	0	0	0	0	0	0	0
15:00 15:15	0	0	0	0	0	0	0
15:15 15:30	0	0	0	0	0	0	0
15:30 15:45	0	0	0	0	0	0	0
15:45 16:00	0	0	0	0	0	0	0
16:00 16:15	0	0	0	0	0	0	0
16:15 16:30	0	0	0	0	0	0	0
16:30 16:45	0	0	0	0	0	0	0
16:45 17:00	0	0	0	0	0	0	0
17:00 17:15	0	0	0	0	0	0	0
17:15 17:30	0	0	0	0	0	0	0
17:30 17:45	0	0	0	0	0	0	0
Total	1	0	1	0	2	2	3



Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ HOPE SIDE RD/TERRY FOX DR

Survey Date: Wednesday, February 07, 2024

WO No: 41470

Start Time: 07:00

Device: Miovision

Full Study Heavy Vehicles

		EAGLESON RD				HOPE SIDE RD/TERRY FOX DR						EAGLESON RD				HOPE SIDE RD/TERRY FOX DR					
		Northbound		Southbound		Eastbound		Westbound				Northbound		Southbound		Eastbound		Westbound			
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total	
07:00	07:15	5	2	2	9	1	1	0	2	11	0	1	3	4	1	2	2	5	9	20	
07:15	07:30	0	2	0	2	0	2	0	2	4	1	2	1	4	0	2	4	6	10	14	
07:30	07:45	4	0	1	5	1	0	0	1	6	0	1	2	3	0	0	1	1	4	10	
09:45	10:00	0	0	2	2	0	1	0	1	3	0	2	1	3	0	2	0	2	5	8	
17:45	18:00	0	1	0	1	1	0	0	1	2	1	0	0	1	0	1	1	2	3	5	
07:45	08:00	2	3	0	5	1	0	0	1	6	0	2	2	4	1	1	0	2	6	12	
08:00	08:15	1	2	0	3	0	1	0	1	4	0	2	5	7	0	1	4	5	12	16	
08:15	08:30	3	1	0	4	1	2	0	3	7	0	0	3	3	0	1	0	1	4	11	
08:30	08:45	5	1	0	6	1	1	0	2	8	0	4	3	7	1	3	0	4	11	19	
08:45	09:00	7	0	0	7	0	1	0	1	8	0	2	1	3	1	2	1	4	7	15	
09:00	09:15	3	4	0	7	0	6	0	6	13	0	3	6	9	0	1	2	3	12	25	
09:15	09:30	3	0	0	3	0	1	0	1	4	0	2	4	6	0	0	0	0	6	10	
09:30	09:45	2	0	0	2	0	3	0	3	5	0	1	5	6	0	2	0	2	8	13	
11:30	11:45	0	0	0	0	1	1	0	2	2	0	0	0	0	0	0	0	0	0	2	
11:45	12:00	1	0	0	1	0	2	0	2	3	0	2	2	4	1	1	1	3	7	10	
12:00	12:15	3	1	0	4	2	0	0	2	6	0	1	1	2	0	0	1	1	3	9	
12:15	12:30	2	0	0	2	0	1	0	1	3	0	1	1	2	0	1	1	2	4	7	
12:30	12:45	1	0	1	2	0	0	0	0	2	0	1	0	1	2	2	0	4	5	7	
12:45	13:00	0	2	0	2	1	0	0	1	3	0	1	1	2	0	1	1	2	4	7	
13:00	13:15	3	1	0	4	1	0	0	1	5	0	2	2	4	0	1	1	2	6	11	
13:15	13:30	1	0	0	1	1	1	0	2	3	0	3	1	4	0	1	3	4	8	11	
15:00	15:15	2	0	1	3	2	2	0	4	7	0	0	1	1	1	4	1	6	7	14	
15:15	15:30	2	2	1	5	1	1	0	2	7	1	1	0	2	0	2	2	4	6	13	
15:30	15:45	0	3	1	4	0	1	0	1	5	0	2	4	6	0	4	1	5	11	16	
15:45	16:00	3	0	0	3	0	0	0	0	3	0	2	1	3	0	1	0	1	4	7	
16:00	16:15	0	0	0	0	0	1	0	1	1	0	1	2	3	0	2	1	3	6	7	
16:15	16:30	1	0	0	1	0	1	0	1	2	0	2	6	8	1	0	2	3	11	13	
16:30	16:45	1	1	0	2	1	3	0	4	6	0	1	2	3	0	1	1	2	5	11	
16:45	17:00	0	0	0	0	1	1	0	2	2	0	0	1	1	2	0	1	3	4	6	
17:00	17:15	0	0	0	0	0	0	0	0	0	0	1	1	2	0	1	1	2	4	4	
17:15	17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	3	3	
17:30	17:45	0	1	0	1	0	1	0	1	2	0	0	0	0	0	0	0	0	0	2	
Total:	None	55	27	9	91	17	35	0	52	143	3	43	62	108	13	41	33	87	195	338	



Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ HOPE SIDE RD/TERRY FOX DR

Survey Date: Wednesday, February 07, 2024

WO No: 41470

Start Time: 07:00

Device: Miovision

Full Study 15 Minute U-Turn Total

		EAGLESON RD		HOPE SIDE RD/TERRY FOX DR			
		Northbound	Southbound	Eastbound	Westbound		
Time Period		U-Turn Total	U-Turn Total	U-Turn Total	U-Turn Total	Total	
07:00	07:15	0	0	0	0	0	
07:15	07:30	0	0	0	0	0	
07:30	07:45	0	0	0	0	0	
09:45	10:00	0	0	0	0	0	
17:45	18:00	0	0	0	0	0	
07:45	08:00	0	0	0	0	0	
08:00	08:15	0	0	0	0	0	
08:15	08:30	0	0	0	0	0	
08:30	08:45	0	0	0	0	0	
08:45	09:00	0	0	0	0	0	
09:00	09:15	0	0	0	0	0	
09:15	09:30	0	0	0	0	0	
09:30	09:45	0	0	0	0	0	
11:30	11:45	0	0	0	0	0	
11:45	12:00	0	0	0	0	0	
12:00	12:15	0	0	0	0	0	
12:15	12:30	0	0	0	0	0	
12:30	12:45	0	0	0	0	0	
12:45	13:00	0	0	0	0	0	
13:00	13:15	0	0	0	0	0	
13:15	13:30	0	0	0	0	0	
15:00	15:15	0	0	0	0	0	
15:15	15:30	0	0	0	0	0	
15:30	15:45	0	0	0	0	0	
15:45	16:00	0	0	0	0	0	
16:00	16:15	0	0	0	0	0	
16:15	16:30	0	0	0	0	0	
16:30	16:45	0	0	0	0	0	
16:45	17:00	0	0	0	0	0	
17:00	17:15	0	0	0	0	0	
17:15	17:30	0	0	0	0	0	
17:30	17:45	0	0	0	0	0	
Total		0	0	0	0	0	



Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ FLEWELLYN RD

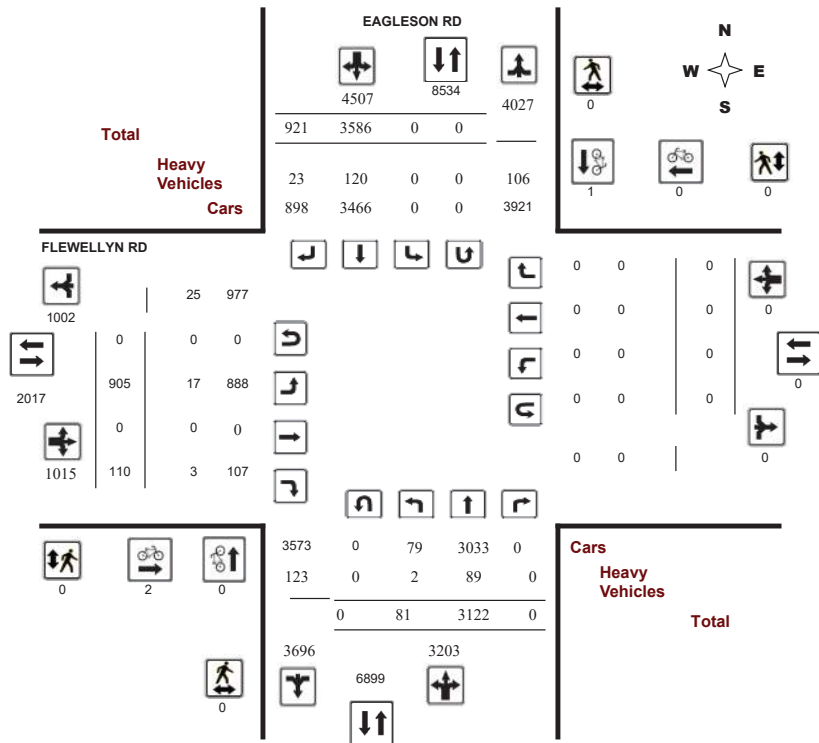
Survey Date: Tuesday, July 30, 2024

WO No: 41771

Start Time: 07:00

Device: Miovision

Full Study Diagram



Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ FLEWELLYN RD

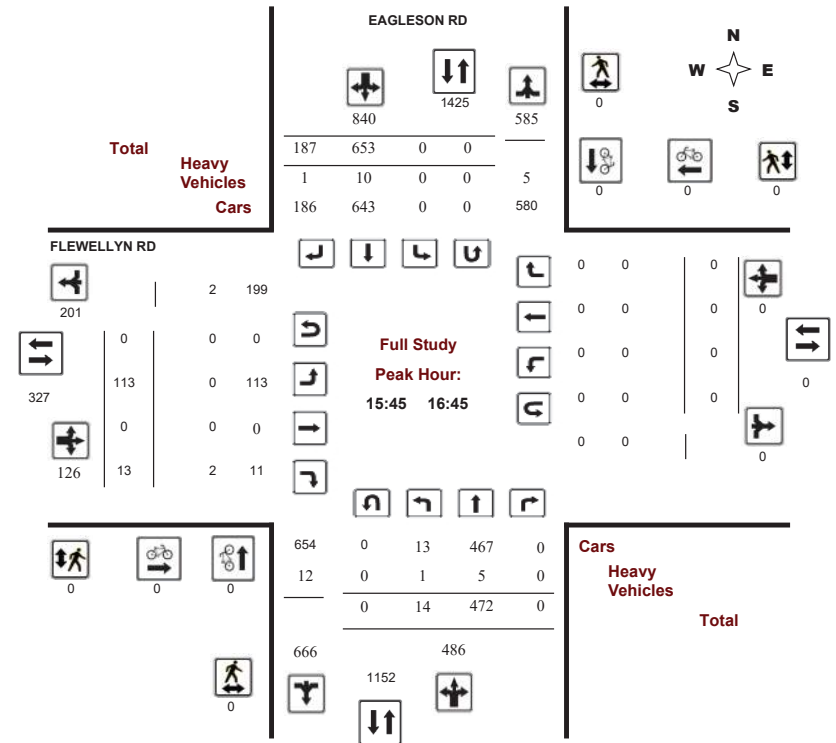
Survey Date: Tuesday, July 30, 2024

WO No: 41771

Start Time: 07:00

Device: Miovision

Full Study Peak Hour Diagram





Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ FLEWELLYN RD

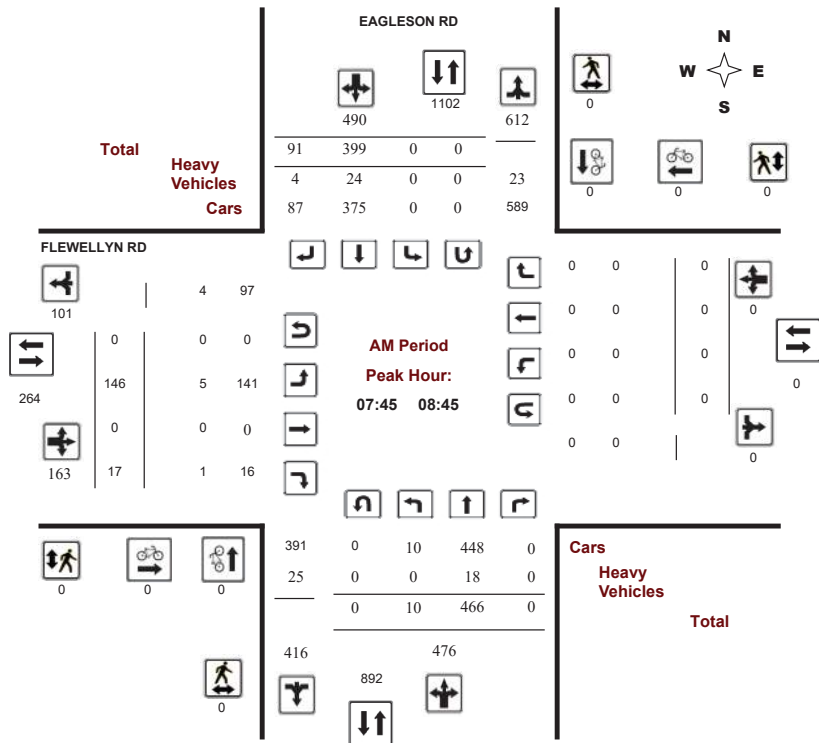
Survey Date: Tuesday, July 30, 2024

WO No: 41771

Start Time: 07:00

Device: Miovision

AM Period Peak Hour Diagram



Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ FLEWELLYN RD

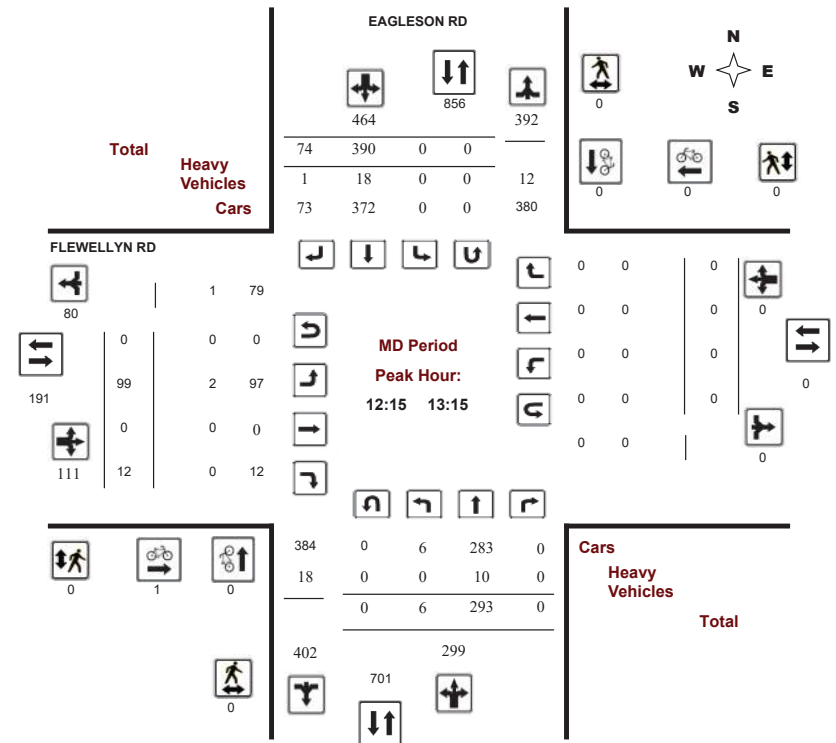
Survey Date: Tuesday, July 30, 2024

WO No: 41771

Start Time: 07:00

Device: Miovision

MD Period Peak Hour Diagram





Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ FLEWELLYN RD

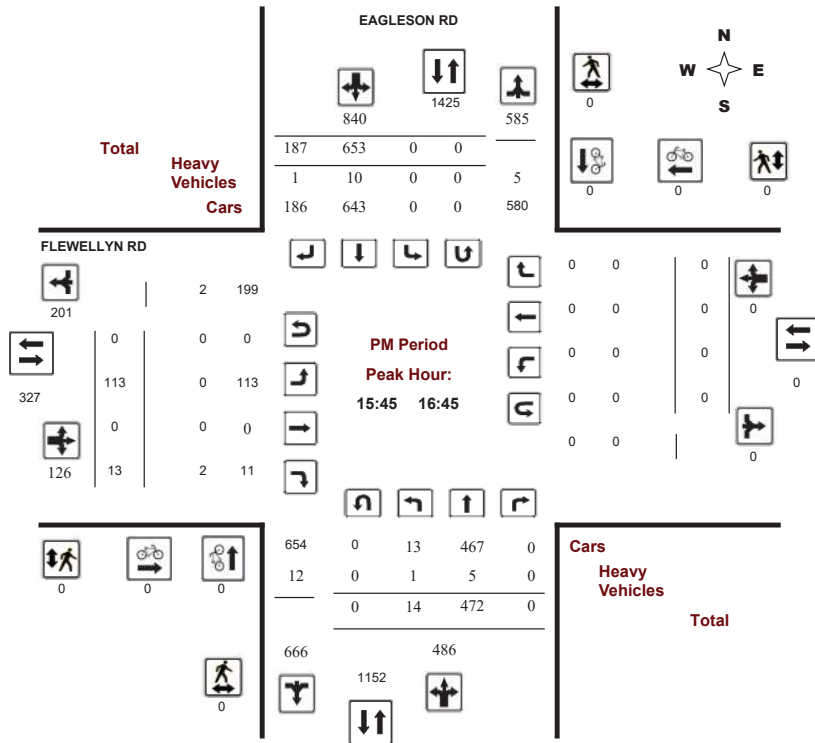
Survey Date: Tuesday, July 30, 2024

WO No: 41771

Start Time: 07:00

Device: Miovision

PM Period Peak Hour Diagram



Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ FLEWELLYN RD

Survey Date: Tuesday, July 30, 2024

WO No: 41771

Start Time: 07:00

Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, July 30, 2024

Total Observed U-Turns

Northbound: 0 Southbound: 0
 Eastbound: 0 Westbound: 0

AADT Factor

.90

Period	EAGLESON RD								FLEWELLYN RD								Grand Total		
	Northbound				Southbound				Eastbound				Westbound						
	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT		WB TOT	STR TOT
07:00-08:00	8	384	0	392	0	334	69	403	795	131	0	15	146	0	0	0	0	146	941
08:00-09:00	11	455	0	466	0	386	91	477	943	153	0	20	173	0	0	0	0	173	1116
09:00-10:00	3	354	0	357	0	355	91	446	803	113	0	18	131	0	0	0	0	131	934
11:30-12:30	9	307	0	316	0	375	75	450	766	86	0	12	98	0	0	0	0	98	864
12:30-13:30	8	281	0	289	0	386	79	465	754	103	0	12	115	0	0	0	0	115	869
15:00-16:00	16	514	0	530	0	512	141	653	1183	112	0	15	127	0	0	0	0	127	1310
16:00-17:00	12	390	0	402	0	685	198	883	1285	102	0	10	112	0	0	0	0	112	1397
17:00-18:00	14	437	0	451	0	553	177	730	1181	105	0	8	113	0	0	0	0	113	1294
Sub Total	81	3122	0	3203	0	3586	921	4507	7710	905	0	110	1015	0	0	0	0	1015	8725
U Turns	0																		
Total	81	3122	0	3203	0	3586	921	4507	7710	905	0	110	1015	0	0	0	0	1015	8725
EQ 12Hr	113	4340	0	4452	0	4985	1280	6265	10717	1258	0	153	1411	0	0	0	0	1411	12128
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													1.39						
AVG 12Hr	102	3906	0	4007	0	5877	1509	5638	9645	1132	0	138	1270	0	0	0	0	1270	10915
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													.90						
AVG 24Hr	134	5117	0	5249	0	7699	1977	7386	12635	1483	0	181	1664	0	0	0	0	1664	14299
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													1.31						
Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.																			



Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ FLEWELLYN RD

Survey Date: Tuesday, July 30, 2024

WO No: 41771

Start Time: 07:00

Device: Miovision

Full Study 15 Minute Increments

Table with columns for Time Period, Northbound (LT, ST, RT, N TOT, STR TOT), Southbound (LT, ST, RT, S TOT, STR TOT), Eastbound (LT, ST, RT, E TOT), Westbound (LT, ST, RT, W TOT, STR TOT), and Grand Total. Rows represent 15-minute intervals from 07:00 to 17:30.

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ FLEWELLYN RD

Survey Date: Tuesday, July 30, 2024

WO No: 41771

Start Time: 07:00

Device: Miovision

Full Study Cyclist Volume

Table with columns for Time Period, Northbound, Southbound, Street Total, Eastbound, Westbound, Street Total, and Grand Total. Rows represent 15-minute intervals from 07:00 to 17:30.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ FLEWELLYN RD

Survey Date: Tuesday, July 30, 2024

WO No: 41771

Start Time: 07:00

Device: Miovision

Full Study Pedestrian Volume

EAGLESON RD

FLEWELLYN RD

Table with columns: Time Period, NB Approach, SB Approach, Total, EB Approach, WB Approach, Grand Total. Rows show pedestrian volume for various time intervals from 07:00 to 17:15.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ FLEWELLYN RD

Survey Date: Tuesday, July 30, 2024

WO No: 41771

Start Time: 07:00

Device: Miovision

Full Study Heavy Vehicles

EAGLESON RD

FLEWELLYN RD

Table with columns: Time Period, Northbound (LT, ST, RT, N TOT), Southbound (LT, ST, RT, S TOT, STR TOT), Eastbound (LT, ST, RT, E TOT), Westbound (LT, ST, RT, W TOT, STR TOT), Grand Total. Rows show heavy vehicle volume for various time intervals from 07:00 to 17:15.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

EAGLESON RD @ FLEWELLYN RD

Survey Date: Tuesday, July 30, 2024

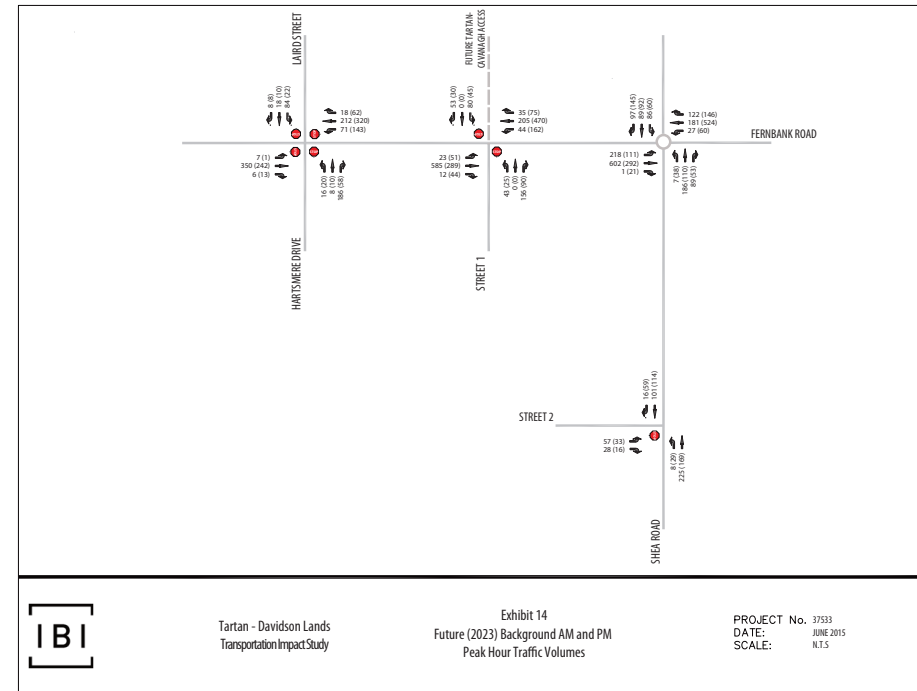
WO No: 41771

Start Time: 07:00

Device: Miovision

Full Study 15 Minute U-Turn Total

Time Period	EAGLESON RD		FLEWELLYN RD		Total
	Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	
07:00 - 07:15	0	0	0	0	0
07:15 - 07:30	0	0	0	0	0
07:30 - 07:45	0	0	0	0	0
07:45 - 08:00	0	0	0	0	0
08:00 - 08:15	0	0	0	0	0
08:15 - 08:30	0	0	0	0	0
08:30 - 08:45	0	0	0	0	0
08:45 - 09:00	0	0	0	0	0
09:00 - 09:15	0	0	0	0	0
09:15 - 09:30	0	0	0	0	0
09:30 - 09:45	0	0	0	0	0
09:45 - 10:00	0	0	0	0	0
10:00 - 10:15	0	0	0	0	0
10:15 - 10:30	0	0	0	0	0
10:30 - 10:45	0	0	0	0	0
10:45 - 11:00	0	0	0	0	0
11:00 - 11:15	0	0	0	0	0
11:15 - 11:30	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0
12:00 - 12:15	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0
12:45 - 13:00	0	0	0	0	0
13:00 - 13:15	0	0	0	0	0
13:15 - 13:30	0	0	0	0	0
13:30 - 13:45	0	0	0	0	0
13:45 - 14:00	0	0	0	0	0
14:00 - 14:15	0	0	0	0	0
14:15 - 14:30	0	0	0	0	0
14:30 - 14:45	0	0	0	0	0
14:45 - 15:00	0	0	0	0	0
15:00 - 15:15	0	0	0	0	0
15:15 - 15:30	0	0	0	0	0
15:30 - 15:45	0	0	0	0	0
15:45 - 16:00	0	0	0	0	0
16:00 - 16:15	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0
18:00 - 18:15	0	0	0	0	0
18:15 - 18:30	0	0	0	0	0
18:30 - 18:45	0	0	0	0	0
18:45 - 19:00	0	0	0	0	0
19:00 - 19:15	0	0	0	0	0
19:15 - 19:30	0	0	0	0	0
19:30 - 19:45	0	0	0	0	0
19:45 - 20:00	0	0	0	0	0
20:00 - 20:15	0	0	0	0	0
20:15 - 20:30	0	0	0	0	0
20:30 - 20:45	0	0	0	0	0
20:45 - 21:00	0	0	0	0	0
21:00 - 21:15	0	0	0	0	0
21:15 - 21:30	0	0	0	0	0
21:30 - 21:45	0	0	0	0	0
21:45 - 22:00	0	0	0	0	0
22:00 - 22:15	0	0	0	0	0
22:15 - 22:30	0	0	0	0	0
22:30 - 22:45	0	0	0	0	0
22:45 - 23:00	0	0	0	0	0
23:00 - 23:15	0	0	0	0	0
23:15 - 23:30	0	0	0	0	0
23:30 - 23:45	0	0	0	0	0
23:45 - 00:00	0	0	0	0	0
Total	0	0	0	0	0



Tartan - Davidson Lands
Transportation Impact Study

Exhibit 14
Future (2023) Background AM and PM
Peak Hour Traffic Volumes

PROJECT No. 37533
DATE: JUNE 2015
SCALE: N.T.S.

Appendix B

Synchro and Sidra Intersection Worksheets – Existing Conditions

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

Existing
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	38	138	13	54	56	131	7	575	72	69	338	19
Future Volume (vph)	38	138	13	54	56	131	7	575	72	69	338	19
Satd. Flow (prot)	1642	1716	0	1626	1498	0	1483	1712	1455	1510	1649	0
Fit Permitted	0.483			0.587			0.511			0.358		
Satd. Flow (perm)	829	1716	0	990	1498	0	793	1712	1405	568	1649	0
Satd. Flow (RTOR)		6			146				40			6
Lane Group Flow (vph)	42	167	0	60	208	0	8	639	80	77	397	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		2	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	28.3	28.3		28.3	28.3		30.2	30.2	30.2	30.2	30.2	
Total Split (s)	31.0	31.0		31.0	31.0		49.0	49.0	49.0	49.0	49.0	
Total Split (%)	38.8%	38.8%		38.8%	38.8%		61.3%	61.3%	61.3%	61.3%	61.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.9	1.9	1.9	1.9	1.9	
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)	5.3	5.3		5.3	5.3		5.2	5.2	5.2	5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	14.3	14.3		14.3	14.3		55.2	55.2	55.2	55.2	55.2	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.69	0.69	0.69	0.69	0.69	
v/c Ratio	0.28	0.54		0.34	0.54		0.01	0.54	0.08	0.20	0.35	
Control Delay	31.3	34.1		32.2	14.7		5.9	9.4	3.6	7.5	6.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	31.3	34.1		32.2	14.7		5.9	9.4	3.6	7.5	6.9	
LOS	C	C		C	B		A	A	A	A	A	
Approach Delay		33.6			18.6			8.7			7.0	
Approach LOS		C			B			A			A	
Queue Length 50th (m)	5.7	23.0		8.3	8.4		0.3	37.3	1.5	3.3	18.7	
Queue Length 95th (m)	12.7	35.1		16.3	23.0		2.1	92.9	7.7	12.6	48.0	
Internal Link Dist (m)		510.2			520.3			230.2			333.2	
Turn Bay Length (m)	25.0			23.0			15.0		17.0	23.5		
Base Capacity (vph)	266	555		318	580		547	1181	981	391	1139	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.16	0.30		0.19	0.36		0.01	0.54	0.08	0.20	0.35	

Intersection Summary

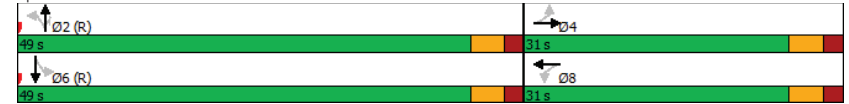
Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

Existing
AM Peak Hour

Maximum v/c Ratio: 0.54	Intersection LOS: B
Intersection Signal Delay: 12.9	ICU Level of Service D
Intersection Capacity Utilization 79.2%	
Analysis Period (min) 15	

Splits and Phases: 1: Stittsville Main & Abbott



Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

Existing
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	17	71	6	19	55	65	0	339	40	24	222	26
Future Volume (vph)	17	71	6	19	55	65	0	339	40	24	222	26
Satd. Flow (prot)	1433	1689	0	1658	1664	1427	1745	1649	0	1496	1652	0
Fit Permitted	0.717			0.701						0.516		
Satd. Flow (perm)	1082	1689	0	1223	1664	1427	1745	1649	0	810	1652	0
Satd. Flow (RTOR)		6				72		10			10	
Lane Group Flow (vph)	19	86	0	21	61	72	0	421	0	27	276	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.9	24.9		24.9	24.9	
Total Split (s)	34.6	34.6		34.6	34.6	34.6	46.9	46.9		46.9	46.9	
Total Split (%)	42.5%	42.5%		42.5%	42.5%	42.5%	57.5%	57.5%		57.5%	57.5%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	4.6	4.6		4.6	4.6	4.6	3.6	3.6		3.6	3.6	
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)	7.6	7.6		7.6	7.6	7.6	6.9	6.9		6.9	6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Ped	Ped		Ped	Ped	
Act Effct Green (s)	10.1	10.1		10.1	10.1	10.1	22.5	22.5		22.5	22.5	
Actuated g/C Ratio	0.24	0.24		0.24	0.24	0.24	0.54	0.54		0.54	0.54	
v/c Ratio	0.07	0.21		0.07	0.15	0.18	0.47	0.06		0.06	0.31	
Control Delay	14.1	14.3		13.9	14.5	6.0	11.0	7.9		9.1	9.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	14.1	14.3		13.9	14.5	6.0	11.0	7.9		9.1	9.1	
LOS	B	B		B	B	A	B	A		A	A	
Approach Delay		14.2			10.5		11.0			9.0		
Approach LOS		B			B		B			A		
Queue Length 50th (m)	1.0	4.4		1.1	3.3	0.0	21.4	1.1		12.4		
Queue Length 95th (m)	5.0	13.7		5.3	11.0	7.1	41.5	4.2		25.1		
Internal Link Dist (m)		229.8			252.5		682.0			280.4		
Turn Bay Length (m)	40.0			75.0		55.0		110.0				
Base Capacity (vph)	702	1098		794	1080	951	1568	770		1571		
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.08		0.03	0.06	0.08	0.27	0.04		0.18		

Intersection Summary

Cycle Length: 81.5
 Actuated Cycle Length: 41.8
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.47

Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

Existing
AM Peak Hour

Intersection Signal Delay: 10.6
 Intersection Capacity Utilization 56.5%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 2: Stittsville Main & Fernbank



Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

Existing
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	40	14	97	63	6	34	33	241	32	22	218	14
Future Volume (vph)	40	14	97	63	6	34	33	241	32	22	218	14
Satd. Flow (prot)	1610	1482	0	1566	1454	0	1510	1625	0	1483	1633	1327
Fit Permitted	0.728			0.677			0.608			0.575		
Satd. Flow (perm)	1225	1482	0	1116	1454	0	965	1625	0	897	1633	1298
Satd. Flow (RTOR)		108			38			12				41
Lane Group Flow (vph)	44	124	0	70	45	0	37	304	0	24	242	16
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	29.5	29.5		29.5	29.5		29.0	29.0		29.0	29.0	29.0
Total Split (s)	33.5	33.5		33.5	33.5		59.0	59.0		59.0	59.0	59.0
Total Split (%)	36.2%	36.2%		36.2%	36.2%		63.8%	63.8%		63.8%	63.8%	63.8%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	3.5	3.5		3.5	3.5		2.7	2.7		2.7	2.7	2.7
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)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Ped	Ped		Ped	Ped	Ped
Act Effct Green (s)	12.2	12.2		12.2	12.2		27.8	27.8		27.8	27.8	27.8
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.58	0.58		0.58	0.58	0.58
v/c Ratio	0.14	0.27		0.25	0.11		0.07	0.32		0.05	0.25	0.02
Control Delay	14.2	5.9		16.0	6.5		9.0	9.7		9.0	9.5	1.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	14.2	5.9		16.0	6.5		9.0	9.7		9.0	9.5	1.6
LOS	B	A		B	A		A	A		A	A	A
Approach Delay		8.1			12.3			9.6			9.0	
Approach LOS		A			B			A			A	
Queue Length 50th (m)	2.8	1.0		4.7	0.4		1.4	12.4		0.9	9.9	0.0
Queue Length 95th (m)	8.1	9.1		11.6	5.3		7.3	40.7		5.3	32.9	1.3
Internal Link Dist (m)		217.6			205.7			888.7			682.0	
Turn Bay Length (m)	30.0			20.0			135.0			120.0		110.0
Base Capacity (vph)	699	892		637	846		947	1595		880	1602	1274
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.06	0.14		0.11	0.05		0.04	0.19		0.03	0.15	0.01

Intersection Summary												
Cycle Length: 92.5												
Actuated Cycle Length: 47.8												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.32												

Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

Existing
AM Peak Hour

Intersection Signal Delay: 9.5	Intersection LOS: A
Intersection Capacity Utilization 52.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Stittsville Main & West Ridge/Parade



HCM 2010 AWSC
4: Huntley/Stittville Main & Flewellyn

Existing
AM Peak Hour

Intersection												
Intersection Delay, s/veh	10.5											
Intersection LOS	B											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↕			↕			↔		
Traffic Vol, veh/h	38	69	15	7	43	29	17	176	12	39	188	53
Future Vol, veh/h	38	69	15	7	43	29	17	176	12	39	188	53
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
Heavy Vehicles, %	2	4	2	2	2	3	18	10	2	3	5	2
Mvmt Flow	42	77	17	8	48	32	19	196	13	43	209	59
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	9.8			9.1			10.7			11.1		
HCM LOS	A			A			B			B		
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	8%	31%	9%	14%								
Vol Thru, %	86%	57%	54%	67%								
Vol Right, %	6%	12%	37%	19%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	205	122	79	280								
LT Vol	17	38	7	39								
Through Vol	176	69	43	188								
RT Vol	12	15	29	53								
Lane Flow Rate	228	136	88	311								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.325	0.205	0.13	0.41								
Departure Headway (Hd)	5.142	5.438	5.335	4.74								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	690	664	676	750								
Service Time	3.24	3.438	3.34	2.83								
HCM Lane V/C Ratio	0.33	0.205	0.13	0.415								
HCM Control Delay	10.7	9.8	9.1	11.1								
HCM Lane LOS	B	A	A	B								
HCM 95th-tile Q	1.4	0.8	0.4	2								

HCM 2010 TWSC
5: Edenwylde/Cope & Fernbank

Existing
AM Peak Hour

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↕			↔		
Traffic Vol, veh/h	4	513	12	41	268	40	20	5	113	17	9	2
Future Vol, veh/h	4	513	12	41	268	40	20	5	113	17	9	2
Conflicting Peds, #/hr	1	0	1	1	0	1	4	0	1	1	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	4	25	2	6	58	5	20	3	76	11	2
Mvmt Flow	4	570	13	46	298	44	22	6	126	19	10	2
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	343	0	0	584	0	0	1008	1021	579	1065	1005	325
Stage 1	-	-	-	-	-	-	586	586	-	413	413	-
Stage 2	-	-	-	-	-	-	422	435	-	652	592	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.15	6.7	6.23	7.86	6.61	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.7	-	6.86	5.61	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.7	-	6.86	5.61	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.545	4.18	3.327	4.184	4.099	3.318
Pot Cap-1 Maneuver	1216	-	-	991	-	-	216	220	513	147	233	716
Stage 1	-	-	-	-	-	-	491	469	-	493	578	-
Stage 2	-	-	-	-	-	-	604	551	-	354	480	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1215	-	-	990	-	-	199	209	512	104	221	713
Mov Cap-2 Maneuver	-	-	-	-	-	-	199	209	-	104	221	-
Stage 1	-	-	-	-	-	-	489	467	-	491	551	-
Stage 2	-	-	-	-	-	-	562	525	-	263	478	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	0.1		1		19.5		39.5					
HCM LOS					C		E					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	400	1215	-	-	990	-	-	135				
HCM Lane V/C Ratio	0.383	0.004	-	-	0.046	-	-	0.23				
HCM Control Delay (s)	19.5	8	-	-	8.8	-	-	39.5				
HCM Lane LOS	C	A	-	-	A	-	-	E				
HCM 95th %tile Q(veh)	1.8	0	-	-	0.1	-	-	0.8				

HCM 2010 AWSC
6: Shea & Abbott

Existing
AM Peak Hour

Intersection						
Intersection Delay, s/veh	15.4					
Intersection LOS	C					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔		
Traffic Vol, veh/h	131	99	250	124	83	249
Future Vol, veh/h	131	99	250	124	83	249
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	4	9	4	2	6	4
Mvmt Flow	146	110	278	138	92	277
Number of Lanes	1	0	0	1	1	0
Approach	EB		WB		NB	
Opposing Approach	WB		EB			
Opposing Lanes	1		1		0	
Conflicting Approach Left			NB		EB	
Conflicting Lanes Left	0		1		1	
Conflicting Approach Right	NB				WB	
Conflicting Lanes Right	1		0		1	
HCM Control Delay	11.9		18.1		14.9	
HCM LOS	B		C		B	
Lane	NBLn1	EBLn1	WBLn1			
Vol Left, %	25%	0%	67%			
Vol Thru, %	0%	57%	33%			
Vol Right, %	75%	43%	0%			
Sign Control	Stop	Stop	Stop			
Traffic Vol by Lane	332	230	374			
LT Vol	83	0	250			
Through Vol	0	131	124			
RT Vol	249	99	0			
Lane Flow Rate	369	256	416			
Geometry Grp	1	1	1			
Degree of Util (X)	0.552	0.385	0.642			
Departure Headway (Hd)	5.385	5.428	5.56			
Convergence, Y/N	Yes	Yes	Yes			
Cap	668	662	648			
Service Time	3.434	3.481	3.605			
HCM Lane V/C Ratio	0.552	0.387	0.642			
HCM Control Delay	14.9	11.9	18.1			
HCM Lane LOS	B	B	C			
HCM 95th-tile Q	3.4	1.8	4.6			

HCM 2010 TWSC
8: Shea & Flewellyn

Existing
AM Peak Hour

Intersection												
Int Delay, s/veh	14.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↔			↔		
Traffic Vol, veh/h	87	129	26	2	62	17	8	241	13	25	149	51
Future Vol, veh/h	87	129	26	2	62	17	8	241	13	25	149	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	7	2	4	2	2	12	13	5	2	2	3	8
Mvmt Flow	97	143	29	2	69	19	9	268	14	28	166	57
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	88	0	0	172	0	0	546	444	158	576	449	79
Stage 1	-	-	-	-	-	-	352	352	-	83	83	-
Stage 2	-	-	-	-	-	-	194	92	-	493	366	-
Critical Hdwy	4.17	-	-	4.12	-	-	7.23	6.55	6.22	7.12	6.53	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.55	-	6.12	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.55	-	6.12	5.53	-
Follow-up Hdwy	2.263	-	-	2.218	-	-	3.617	4.045	3.318	3.518	4.027	3.372
Pot Cap-1 Maneuver	1477	-	-	1405	-	-	432	504	887	428	504	965
Stage 1	-	-	-	-	-	-	643	626	-	925	824	-
Stage 2	-	-	-	-	-	-	783	813	-	558	621	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1477	-	-	1405	-	-	279	467	887	218	467	965
Mov Cap-2 Maneuver	-	-	-	-	-	-	279	467	-	218	467	-
Stage 1	-	-	-	-	-	-	596	580	-	857	823	-
Stage 2	-	-	-	-	-	-	588	812	-	274	576	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.7			0.2			24.5			21.6		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	468	1477	-	-	1405	-	-	462				
HCM Lane V/C Ratio	0.622	0.065	-	-	0.002	-	-	0.541				
HCM Control Delay (s)	24.5	7.6	0	-	7.6	0	-	21.6				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	4.2	0.2	-	-	0	-	-	3.2				

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

Existing
AM Peak Hour

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5	Ø8	Ø9
Lane Configurations	↔	↕	↕	↕	↕	↕					
Traffic Volume (vph)	55	393	313	147	162	65					
Future Volume (vph)	55	393	313	147	162	65					
Satd. Flow (prot)	1626	1664	1548	1401	1580	1401					
Fit Permitted	0.950				0.950						
Satd. Flow (perm)	1626	1664	1548	1368	1580	1401					
Satd. Flow (RTOR)				163		72					
Lane Group Flow (vph)	61	437	348	163	180	72					
Turn Type	Prot	NA	NA	custom	Perm	Perm					
Protected Phases	13	1 2 9	5 6				1	2	5	8	9
Permitted Phases				6	4	4					
Detector Phase	13	1 2 9	5 6	6	4	4					
Switch Phase											
Minimum Initial (s)	5.0			10.0	10.0	10.0	1.0	10.0	1.0	1.0	10.0
Minimum Split (s)	24.2			25.3	30.0	30.0	4.0	24.2	4.0	30.7	24.2
Total Split (s)	28.0			40.0	32.0	32.0	5.0	40.0	5.0	32.0	28.0
Total Split (%)	26.7%			38.1%	30.5%	30.5%	5%	38%	5%	30%	27%
Yellow Time (s)	4.6			4.6	3.3	3.3	2.0	4.6	2.0	3.3	4.6
All-Red Time (s)	1.6			1.6	2.7	2.7	0.0	1.6	0.0	2.7	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0					
Total Lost Time (s)	6.2			6.2	6.0	6.0					
Lead/Lag	Lead						Lag		Lag		Lead
Lead-Lag Optimize?	Yes						Yes		Yes		Yes
Recall Mode	None			Max	None	None	None	Max	None	None	None
Act Effct Green (s)	8.8	64.3	51.9	42.6	15.6	15.6					
Actuated g/C Ratio	0.10	0.73	0.59	0.48	0.18	0.18					
v/c Ratio	0.38	0.36	0.38	0.22	0.64	0.23					
Control Delay	45.7	5.9	13.5	3.7	45.2	10.1					
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0					
Total Delay	45.7	5.9	13.5	3.7	45.2	10.1					
LOS	D	A	B	A	D	B					
Approach Delay		10.7	10.4		35.2						
Approach LOS		B	B		D						
Queue Length 50th (m)	9.6	21.8	30.7	0.0	28.0	0.0					
Queue Length 95th (m)	23.4	46.9	64.3	11.6	52.5	11.0					
Internal Link Dist (m)		1197.5	448.1		313.2						
Turn Bay Length (m)	100.0			120.0	90.0						
Base Capacity (vph)	406	1215	913	747	471	468					
Starvation Cap Reductn	0	0	0	0	0	0					
Spillback Cap Reductn	0	0	0	0	0	0					
Storage Cap Reductn	0	0	0	0	0	0					
Reduced v/c Ratio	0.15	0.36	0.38	0.22	0.38	0.15					

Intersection Summary

Cycle Length: 105
Actuated Cycle Length: 88
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.64

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

Existing
AM Peak Hour

Intersection Signal Delay: 15.5
Intersection Capacity Utilization 44.5%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service A

Split and Phases: 9: Fernbank & Robert Grant



Lanes, Volumes, Timings
10: Terry Fox & Fernbank

Existing
AM Peak Hour

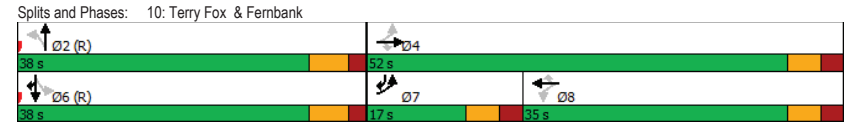
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	99	290	238	4	228	96	210	320	7	81	240	68
Future Volume (vph)	99	290	238	4	228	96	210	320	7	81	240	68
Satd. Flow (prot)	1626	1745	1441	1353	1728	1375	1595	1722	0	1537	1695	1351
Fit Permitted	0.317			0.566			0.568			0.473		
Satd. Flow (perm)	536	1745	1411	806	1728	1314	954	1722	0	757	1695	1351
Satd. Flow (RTOR)			264			114		1				76
Lane Group Flow (vph)	110	322	264	4	253	107	233	364	0	90	267	76
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	pt+ov	
Protected Phases	7	4			8			2			6	6.7
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	8	8	8	2	2		6	6	6.7
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	11.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2		24.2	24.2	
Total Split (s)	17.0	52.0	52.0	35.0	35.0	35.0	38.0	38.0		38.0	38.0	
Total Split (%)	18.9%	57.8%	57.8%	38.9%	38.9%	38.9%	42.2%	42.2%		42.2%	42.2%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.2	4.2		4.2	4.2	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2		6.2	6.2	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	34.2	34.2	34.2	18.5	18.5	18.5	43.4	43.4		43.4	43.4	59.1
Actuated g/C Ratio	0.38	0.38	0.38	0.21	0.21	0.21	0.48	0.48		0.48	0.48	0.66
v/c Ratio	0.34	0.49	0.38	0.02	0.71	0.30	0.51	0.44		0.25	0.33	0.08
Control Delay	19.8	22.8	3.6	25.8	44.2	7.1	23.1	19.1		18.6	17.4	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	19.8	22.8	3.6	25.8	44.2	7.1	23.1	19.1		18.6	17.4	2.2
LOS	B	C	A	C	D	A	C	B		B	B	A
Approach Delay		15.1			33.1			20.6			15.0	
Approach LOS		B			C			C			B	
Queue Length 50th (m)	12.2	40.6	0.0	0.6	41.0	0.0	27.2	40.5		9.0	27.9	0.0
Queue Length 95th (m)	19.9	55.1	12.3	3.0	59.9	10.6	57.3	73.0		22.4	52.3	5.2
Internal Link Dist (m)		230.5			610.3			1085.2			428.2	
Turn Bay Length (m)	85.0		100.0	120.0		120.0	110.0			125.0		135.0
Base Capacity (vph)	334	888	847	257	552	498	459	830		364	817	931
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.33	0.36	0.31	0.02	0.46	0.21	0.51	0.44		0.25	0.33	0.08

Intersection Summary	
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	69 (77%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated

Lanes, Volumes, Timings
10: Terry Fox & Fernbank

Existing
AM Peak Hour

Maximum v/c Ratio: 0.71	Intersection LOS: B
Intersection Signal Delay: 19.8	ICU Level of Service C
Intersection Capacity Utilization 71.7%	
Analysis Period (min) 15	



Lanes, Volumes, Timings
11: Eagleson & Terry Fox /Hope Side

Existing
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	7	355	195	65	255	101	215	337	92	141	218	3
Future Volume (vph)	7	355	195	65	255	101	215	337	92	141	218	3
Satd. Flow (prot)	1658	1624	0	1642	1661	0	1610	1689	0	1658	1742	0
Fit Permitted	0.447			0.270			0.358			0.426		
Satd. Flow (perm)	780	1624	0	467	1661	0	607	1689	0	743	1742	0
Satd. Flow (RTOR)		28			20			19			1	
Lane Group Flow (vph)	8	611	0	72	395	0	239	476	0	157	245	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	30.4	30.4		30.4	30.4		11.4	31.4		31.4	31.4	
Total Split (s)	45.0	45.0		45.0	45.0		15.0	65.0		50.0	50.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		13.6%	59.1%		45.5%	45.5%	
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.4		6.4	6.4	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		C-Min			C-Min	C-Min	
Act Effct Green (s)	56.3	56.3		56.3	56.3		40.9	40.9		25.9	25.9	
Actuated g/C Ratio	0.51	0.51		0.51	0.51		0.37	0.37		0.24	0.24	
v/c Ratio	0.02	0.72		0.30	0.46		0.79	0.74		0.90	0.60	
Control Delay	18.0	28.3		23.6	20.4		44.2	35.4		85.3	41.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.0	28.3		23.6	20.4		44.2	35.4		85.3	41.9	
LOS	B	C		C	C		D	D		F	D	
Approach Delay		28.2			20.9			38.3			58.9	
Approach LOS		C			C			D			E	
Queue Length 50th (m)	0.8	93.8		8.6	49.3		37.4	84.3		32.8	46.7	
Queue Length 95th (m)	4.2	#186.3		24.4	92.2		47.7	100.6		52.1	61.8	
Internal Link Dist (m)		1085.2			917.1			360.9			463.1	
Turn Bay Length (m)	120.0			120.0			100.0			107.0		
Base Capacity (vph)	399	845		239	860		304	908		294	691	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.72		0.30	0.46		0.79	0.52		0.53	0.35	

Intersection Summary

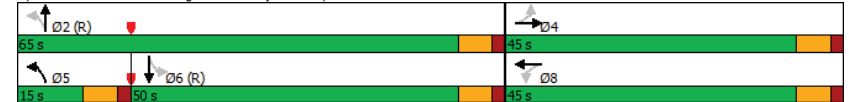
Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
11: Eagleson & Terry Fox /Hope Side

Existing
AM Peak Hour

Maximum v/c Ratio: 0.90	Intersection LOS: D
Intersection Signal Delay: 35.5	ICU Level of Service F
Intersection Capacity Utilization 94.9%	Analysis Period (min) 15
# 95th percentile volume exceeds capacity, queue may be longer.	Queue shown is maximum after two cycles.

Splits and Phases: 11: Eagleson & Terry Fox /Hope Side



HCM 2010 TWSC
16: Eagleson & Flewellyn

Existing
AM Peak Hour

Intersection						
Int Delay, s/veh	6.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	146	17	10	466	399	91
Future Vol, veh/h	146	17	10	466	399	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	.3	6	2	4	6	4
Mvmt Flow	162	19	11	518	443	101
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1034	494	544	0	-	0
Stage 1	494	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Critical Hdwy	6.43	6.26	4.12	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.354	2.218	-	-	-
Pot Cap-1 Maneuver	256	567	1025	-	-	-
Stage 1	611	-	-	-	-	-
Stage 2	582	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	252	567	1025	-	-	-
Mov Cap-2 Maneuver	252	-	-	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	582	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	42.8	0.2	0			
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1025	-	267	-	-	
HCM Lane V/C Ratio	0.011	-	0.678	-	-	
HCM Control Delay (s)	8.6	0	42.8	-	-	
HCM Lane LOS	A	A	E	-	-	
HCM 95th %tile Q(veh)	0	-	4.5	-	-	

HCM 2010 TWSC
18: Shea & Cosanti

Existing
AM Peak Hour

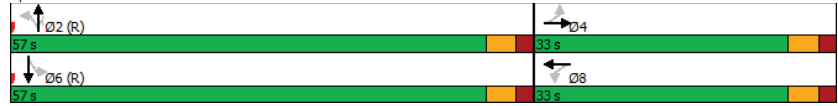
Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	39	19	5	225	101	11
Future Vol, veh/h	39	19	5	225	101	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	.2	2	2	5	3	2
Mvmt Flow	43	21	6	250	112	12
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	380	118	124	0	-	0
Stage 1	118	-	-	-	-	-
Stage 2	262	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	622	934	1463	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	619	934	1463	-	-	-
Mov Cap-2 Maneuver	619	-	-	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	10.7	0.2	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1463	-	696	-	-	
HCM Lane V/C Ratio	0.004	-	0.093	-	-	
HCM Control Delay (s)	7.5	0	10.7	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.3	-	-	

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

Existing
PM Peak Hour

Maximum v/c Ratio: 0.65	Intersection LOS: B
Intersection Signal Delay: 12.4	ICU Level of Service E
Intersection Capacity Utilization 88.5%	
Analysis Period (min) 15	

Splits and Phases: 1: Stittsville Main & Abbott



Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

Existing
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	[Diagrammatic arrows for lane configurations]											
Traffic Volume (vph)	20	32	10	37	67	78	4	335	46	43	364	32
Future Volume (vph)	20	32	10	37	67	78	4	335	46	43	364	32
Satd. Flow (prot)	1470	1632	0	1523	1664	1483	1353	1680	0	1551	1681	0
Fit Permitted	0.709			0.726			0.490			0.507		
Satd. Flow (perm)	1091	1632	0	1160	1664	1444	697	1680	0	826	1681	0
Satd. Flow (RTOR)		11				87		12			8	
Lane Group Flow (vph)	22	47	0	41	74	87	4	423	0	48	440	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8		2			6		6
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.9	24.9		24.9	24.9	
Total Split (s)	34.6	34.6		34.6	34.6	34.6	46.9	46.9		46.9	46.9	
Total Split (%)	42.5%	42.5%		42.5%	42.5%	42.5%	57.5%	57.5%		57.5%	57.5%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	4.6	4.6		4.6	4.6	4.6	3.6	3.6		3.6	3.6	
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)	7.6	7.6		7.6	7.6	7.6	6.9	6.9		6.9	6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Ped	Ped		Ped	Ped	
Act Effct Green (s)	11.6	11.6		11.6	11.6	11.6	23.9	23.9		23.9	23.9	
Actuated g/C Ratio	0.26	0.26		0.26	0.26	0.26	0.54	0.54		0.54	0.54	
v/c Ratio	0.08	0.11		0.14	0.17	0.20	0.01	0.47		0.11	0.49	
Control Delay	14.3	11.9		14.9	14.8	5.5	8.8	11.9		9.7	12.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	14.3	11.9		14.9	14.8	5.5	8.8	11.9		9.7	12.3	
LOS	B	B		B	B	A	A	B		A	B	
Approach Delay	12.7			10.8			11.9			12.0		
Approach LOS	B			B			B			B		
Queue Length 50th (m)	1.2	1.9		2.2	4.0	0.0	0.2	21.3		2.0	22.8	
Queue Length 95th (m)	5.9	8.9		9.2	13.8	7.9	1.6	55.1		8.3	58.4	
Internal Link Dist (m)		229.8			252.5			682.0			279.7	
Turn Bay Length (m)	40.0			75.0		55.0	70.0			110.0		
Base Capacity (vph)	679	1019		721	1035	931	635	1531		752	1531	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.05		0.06	0.07	0.09	0.01	0.28		0.06	0.29	

Intersection Summary

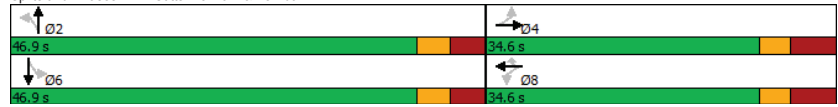
Cycle Length: 81.5
Actuated Cycle Length: 44.6
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.49

Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

Existing
PM Peak Hour

Intersection Signal Delay: 11.8	Intersection LOS: B
Intersection Capacity Utilization 57.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Stittsville Main & Fernbank



Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

Existing
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	28	21	36	34	32	61	71	214	37	52	226	43
Future Volume (vph)	28	21	36	34	32	61	71	214	37	52	226	43
Satd. Flow (prot)	1580	1499	0	1470	1527	0	1658	1693	0	1658	1728	1441
Fit Permitted	0.690			0.716			0.603			0.588		
Satd. Flow (perm)	1128	1499	0	1100	1527	0	1048	1693	0	1026	1728	1404
Satd. Flow (RTOR)		40			68			16				48
Lane Group Flow (vph)	31	63	0	38	104	0	79	279	0	58	251	48
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	29.5	29.5		29.5	29.5		29.0	29.0		29.0	29.0	29.0
Total Split (s)	33.5	33.5		33.5	33.5		59.0	59.0		59.0	59.0	59.0
Total Split (%)	36.2%	36.2%		36.2%	36.2%		63.8%	63.8%		63.8%	63.8%	63.8%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	3.5	3.5		3.5	3.5		2.7	2.7		2.7	2.7	2.7
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)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Ped	Ped		Ped	Ped	Ped
Act Effct Green (s)	12.2	12.2		12.2	12.2		27.9	27.9		27.9	27.9	27.9
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.58	0.58		0.58	0.58	0.58
v/c Ratio	0.11	0.15		0.14	0.24		0.13	0.28		0.10	0.25	0.06
Control Delay	13.8	7.9		14.3	7.8		9.3	9.1		9.1	9.3	3.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	13.8	7.9		14.3	7.8		9.3	9.1		9.1	9.3	3.9
LOS	B	A		B	A		A	A		A	A	A
Approach Delay		9.9			9.5			9.1			8.5	
Approach LOS		A			A			A			A	
Queue Length 50th (m)	2.0	1.5		2.5	2.3		3.0	10.9		2.2	10.3	0.0
Queue Length 95th (m)	6.3	7.3		7.3	9.9		13.1	36.1		10.1	33.6	4.9
Internal Link Dist (m)		206.7			174.8			888.7			682.0	
Turn Bay Length (m)	30.0			20.0			135.0			120.0		110.0
Base Capacity (vph)	642	870		626	898		1028	1661		1007	1695	1378
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.05	0.07		0.06	0.12		0.08	0.17		0.06	0.15	0.03

Intersection Summary

Cycle Length: 92.5
Actuated Cycle Length: 47.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.28

Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

Existing
PM Peak Hour

Intersection Signal Delay: 9.0	Intersection LOS: A
Intersection Capacity Utilization 54.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Stittsville Main & West Ridge/Parade

59 s	33.5 s
59 s	33.5 s

HCM 2010 AWSC
4: Huntley/Stittsville Main & Flewellyn

Existing
PM Peak Hour

Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	44	56	14	6	71	71	27	256	14	33	255	47
Future Vol, veh/h	44	56	14	6	71	71	27	256	14	33	255	47
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
Heavy Vehicles, %	2	2	7	2	2	2	4	2	7	2	2	2
Mvmt Flow	49	62	16	7	79	79	30	284	16	37	283	52
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.9	10.9	13.7	14.5
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	39%	4%	10%
Vol Thru, %	86%	49%	48%	76%
Vol Right, %	5%	12%	48%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	297	114	148	335
LT Vol	27	44	6	33
Through Vol	256	56	71	255
RT Vol	14	14	71	47
Lane Flow Rate	330	127	164	372
Geometry Grp	1	1	1	1
Degree of Util (X)	0.495	0.215	0.263	0.544
Departure Headway (Hd)	5.401	6.124	5.765	5.259
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	667	583	620	685
Service Time	3.453	4.195	3.832	3.309
HCM Lane V/C Ratio	0.495	0.218	0.265	0.543
HCM Control Delay	13.7	10.9	10.9	14.5
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.8	0.8	1.1	3.3

HCM 2010 TWSC
5: Edenwylde/Cope & Fernbank

Existing
PM Peak Hour

Intersection														
Int Delay, s/veh	4.3													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations	↔		↔		↔		↔		↔		↔			
Traffic Vol, veh/h	1	360	47	117	434	6	24	2	73	27	1	15		
Future Vol, veh/h	1	360	47	117	434	6	24	2	73	27	1	15		
Conflicting Peds, #/hr	1	0	2	2	0	1	0	0	1	1	0	0		
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop		
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None		
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-		
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-		
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-		
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90		
Heavy Vehicles, %	2	3	2	2	3	83	13	2	2	22	2	7		
Mvmt Flow	1	400	52	130	482	7	27	2	81	30	1	17		
Major/Minor	Major1	Major2		Minor1		Minor2								
Conflicting Flow All	490	0	0	454	0	0	1185	1180	429	1218	1203	487		
Stage 1	-	-	-	-	-	-	430	430	-	747	747	-		
Stage 2	-	-	-	-	-	-	755	750	-	471	456	-		
Critical Hdwy	4.12	-	-	4.12	-	-	7.23	6.52	6.22	7.32	6.52	6.27		
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.52	-	6.32	5.52	-		
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.52	-	6.32	5.52	-		
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.617	4.018	3.318	3.698	4.018	3.363		
Pot Cap-1 Maneuver	1073	-	-	1107	-	-	158	190	626	143	184	571		
Stage 1	-	-	-	-	-	-	582	583	-	376	420	-		
Stage 2	-	-	-	-	-	-	384	419	-	537	568	-		
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-		
Mov Cap-1 Maneuver	1072	-	-	1105	-	-	139	167	625	112	162	571		
Mov Cap-2 Maneuver	-	-	-	-	-	-	139	167	-	112	162	-		
Stage 1	-	-	-	-	-	-	581	581	-	375	370	-		
Stage 2	-	-	-	-	-	-	328	369	-	465	566	-		
Approach	EB	WB		NB		SB								
HCM Control Delay, s	0	1.8		21.4		37.7								
HCM LOS		C		C		E								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1						
Capacity (veh/h)	328	1072	-	-	1105	-	-	157						
HCM Lane V/C Ratio	0.335	0.001	-	-	0.118	-	-	0.304						
HCM Control Delay (s)	21.4	8.4	-	-	8.7	-	-	37.7						
HCM Lane LOS	C	A	-	-	A	-	-	E						
HCM 95th %tile Q(veh)	1.4	0	-	-	0.4	-	-	1.2						

HCM 2010 AWSC
6: Shea & Abbott

Existing
PM Peak Hour

Intersection						
Intersection Delay, s/veh	15.6					
Intersection LOS	C					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	133	77	252	146	120	197
Future Vol, veh/h	133	77	252	146	120	197
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	3
Mvmt Flow	148	86	280	162	133	219
Number of Lanes	1	0	0	1	1	0
Approach	EB	WB		NB		
Opposing Approach	WB	EB				
Opposing Lanes	1	1		0		
Conflicting Approach Left		NB		EB		
Conflicting Lanes Left	0	1		1		
Conflicting Approach Right	NB			WB		
Conflicting Lanes Right	1	0		1		
HCM Control Delay	11.4	18.8		14.5		
HCM LOS	B	C		B		
Lane	NBLn1	EBLn1	WBLn1			
Vol Left, %	38%	0%	63%			
Vol Thru, %	0%	63%	37%			
Vol Right, %	62%	37%	0%			
Sign Control	Stop	Stop	Stop			
Traffic Vol by Lane	317	210	398			
LT Vol	120	0	252			
Through Vol	0	133	146			
RT Vol	197	77	0			
Lane Flow Rate	352	233	442			
Geometry Grp	1	1	1			
Degree of Util (X)	0.53	0.351	0.668			
Departure Headway (Hd)	5.415	5.413	5.438			
Convergence, Y/N	Yes	Yes	Yes			
Cap	666	663	663			
Service Time	3.463	3.463	3.48			
HCM Lane V/C Ratio	0.529	0.351	0.667			
HCM Control Delay	14.5	11.4	18.8			
HCM Lane LOS	B	B	C			
HCM 95th-tile Q	3.1	1.6	5.1			

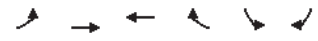
HCM 2010 TWSC
8: Shea & Flewellyn

Existing
PM Peak Hour

Intersection												
Int Delay, s/veh	12.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕											
Traffic Vol, veh/h	58	70	11	2	151	33	16	207	17	14	161	71
Future Vol, veh/h	58	70	11	2	151	33	16	207	17	14	161	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	5	2	18	2	2	2	6	2	6	2	2	3
Mvmt Flow	64	78	12	2	168	37	18	230	19	16	179	79
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	205	0	0	90	0	0	532	421	84	528	409	187
Stage 1	-	-	-	-	-	-	212	212	-	191	191	-
Stage 2	-	-	-	-	-	-	320	209	-	337	218	-
Critical Hdwy	4.15	-	-	4.12	-	-	7.16	6.52	6.26	7.12	6.52	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.245	-	-	2.218	-	-	3.554	4.018	3.354	3.518	4.018	3.327
Pot Cap-1 Maneuver	1349	-	-	1505	-	-	452	524	964	461	532	852
Stage 1	-	-	-	-	-	-	781	727	-	811	742	-
Stage 2	-	-	-	-	-	-	683	729	-	677	723	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1349	-	-	1505	-	-	286	497	964	278	504	852
Mov Cap-2 Maneuver	-	-	-	-	-	-	286	497	-	278	504	-
Stage 1	-	-	-	-	-	-	742	691	-	770	741	-
Stage 2	-	-	-	-	-	-	469	728	-	421	687	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.3			0.1			20.8			18.2		
HCM LOS	C			C			C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	490	1349	-	-	1505	-	-	543				
HCM Lane V/C Ratio	0.544	0.048	-	-	0.001	-	-	0.503				
HCM Control Delay (s)	20.8	7.8	0	-	7.4	0	-	18.2				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	3.2	0.1	-	-	0	-	-	2.8				

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

Existing
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5	Ø8	Ø9	
Lane Configurations	↕	↕	↕	↕	↕	↕						
Traffic Volume (vph)	66	379	542	159	186	88						
Future Volume (vph)	66	379	542	159	186	88						
Satd. Flow (prot)	1658	1712	1728	1469	1610	1388						
Fit Permitted	0.950											
Satd. Flow (perm)	1658	1712	1728	1469	1610	1388						
Satd. Flow (RTOR)	177											
Lane Group Flow (vph)	73	421	602	177	207	98						
Turn Type	Prot	NA	NA	custom	Perm	Perm						
Protected Phases	13	12 9	5 6				1	2	5	8	9	
Permitted Phases												
Detector Phase	13	12 9	5 6	6	4	4						
Switch Phase												
Minimum Initial (s)	5.0		10.0			10.0	10.0	1.0	10.0	1.0	1.0	10.0
Minimum Split (s)	24.2		30.0			30.0	4.0	24.2	4.0	30.0	24.2	
Total Split (s)	28.0		40.0			32.0	32.0	5.0	40.0	5.0	32.0	28.0
Total Split (%)	26.7%		38.1%			30.5%	30.5%	5%	38%	5%	30%	27%
Yellow Time (s)	4.6		4.6			3.3	3.3	2.0	4.6	2.0	3.3	4.6
All-Red Time (s)	1.6		1.6			2.7	2.7	0.0	1.6	0.0	2.7	1.6
Lost Time Adjust (s)	0.0		0.0			0.0	0.0					
Total Lost Time (s)	6.2		6.2			6.0	6.0					
Lead/Lag	Lead						Lag		Lag		Lead	
Lead-Lag Optimize?	Yes						Yes		Yes		Yes	
Recall Mode	None						Max		None		None	
Act Effct Green (s)	9.4	64.2	51.3	42.0	16.8	16.8						
Actuated g/C Ratio	0.11	0.72	0.58	0.47	0.19	0.19						
v/c Ratio	0.42	0.34	0.61	0.23	0.68	0.29						
Control Delay	46.6	6.2	18.6	3.8	46.0	9.1						
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0						
Total Delay	46.6	6.2	18.6	3.8	46.0	9.1						
LOS	D	A	B	A	D	A						
Approach Delay	12.1		15.3			34.2						
Approach LOS	B		B			C						
Queue Length 50th (m)	11.7	22.1	66.8	0.0	32.6	0.0						
Queue Length 95th (m)	27.3	47.6	134.3	12.6	59.5	12.6						
Internal Link Dist (m)	1197.5		448.1			313.2						
Turn Bay Length (m)	100.0		120.0			90.0						
Base Capacity (vph)	409	1226	994	786	474	478						
Starvation Cap Reductn	0	0	0	0	0	0						
Spillback Cap Reductn	0	0	0	0	0	0						
Storage Cap Reductn	0	0	0	0	0	0						
Reduced v/c Ratio	0.18	0.34	0.61	0.23	0.44	0.21						
Intersection Summary												
Cycle Length: 105												
Actuated Cycle Length: 89.1												
Natural Cycle: 85												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.68												

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

Existing
PM Peak Hour

Intersection Signal Delay: 18.0 Intersection LOS: B
Intersection Capacity Utilization 58.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: Fernbank & Robert Grant



Lanes, Volumes, Timings
10: Terry Fox & Fernbank

Existing
PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	93	268	198	4	384	100	358	373	17	119	375	97
Future Volume (vph)	93	268	198	4	384	100	358	373	17	119	375	97
Satd. Flow (prot)	1658	1745	1483	1658	1745	1401	1658	1730	0	1610	1745	1483
Fit Permitted	0.135			0.578			0.156			0.511		
Satd. Flow (perm)	232	1745	1432	999	1745	1309	272	1730	0	855	1745	1483
Satd. Flow (RTOR)			220			155		3				100
Lane Group Flow (vph)	103	298	220	4	427	111	398	433	0	132	417	108
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	NA	pt+ov	
Protected Phases	7	4				8	5	2			6	6.7
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	8	8	8	5	2		6	6	6.7
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0		10.0	10.0	
Minimum Split (s)	11.2	33.2	33.2	33.2	33.2	33.2	11.2	29.2		29.2	29.2	
Total Split (s)	15.0	50.0	50.0	35.0	35.0	35.0	25.0	60.0		35.0	35.0	
Total Split (%)	13.6%	45.5%	45.5%	31.8%	31.8%	31.8%	22.7%	54.5%		31.8%	31.8%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.2	4.2		4.2	4.2	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2		6.2	6.2	
Lead/Lag	Lead			Lag	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes			Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max		C-Max	C-Max	
Act Effct Green (s)	43.0	43.0	43.0	28.3	28.3	28.3	54.6	54.6		28.8	28.8	43.5
Actuated g/C Ratio	0.39	0.39	0.39	0.26	0.26	0.26	0.50	0.50		0.26	0.26	0.40
v/c Ratio	0.52	0.44	0.32	0.02	0.95	0.25	1.04	0.50		0.59	0.91	0.17
Control Delay	30.9	26.9	4.2	30.5	73.1	3.1	86.0	21.3		47.9	65.8	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	30.9	26.9	4.2	30.5	73.1	3.1	86.0	21.3		47.9	65.8	5.6
LOS	C	C	A	C	E	A	F	C		D	E	A
Approach Delay		19.5			58.4			52.3			52.3	
Approach LOS		B			E			D			D	
Queue Length 50th (m)	14.0	45.7	0.0	0.6	89.8	0.0	~75.5	60.8		24.8	86.9	1.0
Queue Length 95th (m)	25.5	69.0	14.3	3.4	#148.0	5.6	#134.4	88.6		45.9	#143.1	11.5
Internal Link Dist (m)		330.2			610.3			1085.2			359.0	
Turn Bay Length (m)	85.0		100.0	120.0		120.0	110.0			125.0		135.0
Base Capacity (vph)	204	694	702	261	456	457	381	860		223	456	650
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.50	0.43	0.31	0.02	0.94	0.24	1.04	0.50		0.59	0.91	0.17

Intersection Summary

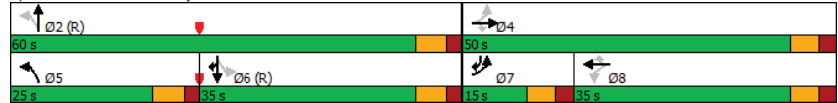
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
10: Terry Fox & Fernbank

Existing
PM Peak Hour

Maximum v/c Ratio: 1.04	Intersection LOS: D
Intersection Signal Delay: 45.9	ICU Level of Service E
Intersection Capacity Utilization 89.8%	
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Split and Phases: 10: Terry Fox & Fernbank



Lanes, Volumes, Timings
11: Eagleson & Terry Fox /Hope Side

Existing
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	20	281	266	128	517	193	236	270	64	164	360	9
Future Volume (vph)	20	281	266	128	517	193	236	270	64	164	360	9
Satd. Flow (prot)	1658	1585	0	1658	1669	0	1658	1687	0	1658	1738	0
Fit Permitted	0.230			0.157			0.127			0.541		
Satd. Flow (perm)	401	1585	0	274	1669	0	222	1687	0	943	1738	0
Satd. Flow (RTOR)		43			25			10				1
Lane Group Flow (vph)	22	608	0	142	788	0	262	371	0	182	410	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	30.4	30.4		11.4	30.4		11.4	31.4		31.4	31.4	
Total Split (s)	52.0	52.0		25.0	77.0		16.6	48.0		31.4	31.4	
Total Split (%)	41.6%	41.6%		20.0%	61.6%		13.3%	38.4%		25.1%	25.1%	
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.4		6.4	6.4	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min		C-Min	C-Min	
Act Effct Green (s)	51.8	51.8		69.4	69.4		42.8	42.8		25.0	25.0	
Actuated g/C Ratio	0.41	0.41		0.56	0.56		0.34	0.34		0.20	0.20	
v/c Ratio	0.13	0.89		0.52	0.84		1.27	0.64		0.97	1.18	
Control Delay	26.2	48.7		20.2	32.1		183.0	39.9		108.0	149.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.2	48.7		20.2	32.1		183.0	39.9		108.0	149.7	
LOS	C	D		C	C		F	D		F	F	
Approach Delay		47.9			30.3			99.1			136.8	
Approach LOS		D			C			F			F	
Queue Length 50th (m)	3.2	125.6		15.9	147.3		~71.0	75.4		44.8	~120.8	
Queue Length 95th (m)	10.0	#211.4		26.2	209.3		#124.5	109.4		#90.3	#183.2	
Internal Link Dist (m)		1085.2			917.1			390.2			463.1	
Turn Bay Length (m)	120.0			120.0			100.0			107.0		
Base Capacity (vph)	166	682		357	953		207	584		188	348	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.13	0.89		0.40	0.83		1.27	0.64		0.97	1.18	

Intersection Summary

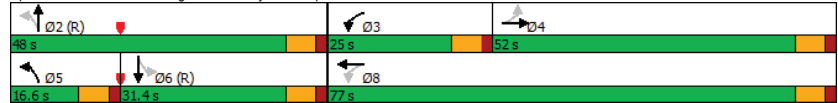
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
11: Eagleson & Terry Fox /Hope Side

Existing
PM Peak Hour

Maximum v/c Ratio: 1.27	Intersection LOS: E
Intersection Signal Delay: 72.6	ICU Level of Service G
Intersection Capacity Utilization 105.2%	
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 11: Eagleson & Terry Fox /Hope Side



HCM 2010 TWSC
16: Eagleson & Flewellyn

Existing
PM Peak Hour

Intersection						
Int Delay, s/veh	8.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	113	13	14	472	653	187
Future Vol, veh/h	113	13	14	472	653	187
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	15	7	2	2	2
Mvmt Flow	126	14	16	524	726	208

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1386	830	934
Stage 1	830	-	-
Stage 2	556	-	-
Critical Hdwy	6.42	6.35	4.17
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.435	2.263
Pot Cap-1 Maneuver	158	351	713
Stage 1	428	-	-
Stage 2	574	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	153	351	713
Mov Cap-2 Maneuver	153	-	-
Stage 1	414	-	-
Stage 2	574	-	-

Approach	EB	NB	SB
HCM Control Delay, s	94.5	0.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	713	-	162	-
HCM Lane V/C Ratio	0.022	-	0.864	-
HCM Control Delay (s)	10.2	0	94.5	-
HCM Lane LOS	B	A	F	-
HCM 95th %tile Q(veh)	0.1	-	6	-

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	22	11	19	169	114	39
Future Vol, veh/h	22	11	19	169	114	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	24	12	21	188	127	43

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	379	149	170
Stage 1	149	-	-
Stage 2	230	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	623	898	1407
Stage 1	879	-	-
Stage 2	808	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	612	898	1407
Mov Cap-2 Maneuver	612	-	-
Stage 1	864	-	-
Stage 2	808	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1407	-	685	-	-
HCM Lane V/C Ratio	0.015	-	0.054	-	-
HCM Control Delay (s)	7.6	0	10.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

MOVEMENT SUMMARY

Site: 101 [Fernbank at Shea Existing PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance												
Mov ID	Turn	Mov Class	Demand Flows [Total HV]	Arrival Flows [Total HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h %	veh/h %	v/c	sec		[Veh. Dist]				km/h
South: Shea												
1	L2	All MCs	33 3.0	33 3.0	0.223	7.1	LOS A	0.9 6.8	0.60	0.50	0.60	48.7
2	T1	All MCs	80 3.0	80 3.0	0.223	7.1	LOS A	0.9 6.8	0.60	0.50	0.60	49.5
3	R2	All MCs	54 6.0	54 6.0	0.223	7.5	LOS A	0.9 6.8	0.60	0.50	0.60	49.1
Approach			168 4.0	168 4.0	0.223	7.2	LOS A	0.9 6.8	0.60	0.50	0.60	49.2
East: Fernbank												
4	L2	All MCs	59 8.0	59 8.0	0.530	10.0	LOS A	3.6 26.0	0.59	0.36	0.59	47.3
5	T1	All MCs	401 3.0	401 3.0	0.530	9.7	LOS A	3.6 26.0	0.59	0.36	0.59	48.2
6	R2	All MCs	106 2.0	106 2.0	0.530	9.6	LOS A	3.6 26.0	0.59	0.36	0.59	48.0
Approach			566 3.3	566 3.3	0.530	9.7	LOS A	3.6 26.0	0.59	0.36	0.59	48.1
North: Shea												
7	L2	All MCs	52 2.0	52 2.0	0.380	8.9	LOS A	1.9 14.0	0.65	0.54	0.69	47.6
8	T1	All MCs	123 2.0	123 2.0	0.380	8.9	LOS A	1.9 14.0	0.65	0.54	0.69	48.3
9	R2	All MCs	124 9.0	124 9.0	0.380	9.6	LOS A	1.9 14.0	0.65	0.54	0.69	47.9
Approach			300 4.9	300 4.9	0.380	9.2	LOS A	1.9 14.0	0.65	0.54	0.69	48.0
West: Fernbank												
10	L2	All MCs	111 5.0	111 5.0	0.504	9.4	LOS A	3.3 23.7	0.58	0.36	0.58	47.4
11	T1	All MCs	383 3.0	383 3.0	0.504	9.3	LOS A	3.3 23.7	0.58	0.36	0.58	48.2
12	R2	All MCs	38 3.0	38 3.0	0.504	9.3	LOS A	3.3 23.7	0.58	0.36	0.58	47.9
Approach			532 3.4	532 3.4	0.504	9.3	LOS A	3.3 23.7	0.58	0.36	0.58	48.0
All Vehicles			1566 3.7	1566 3.7	0.530	9.2	LOS A	3.6 26.0	0.60	0.41	0.61	48.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Appendix C

All-Way Stop Control Warrant Calculation Sheets

Warrant for AWSC at Cope Drive at Fernbank Road (existing)

Volume Criteria		
Major Street 2-Way Hourly Volume (per 8-hr period)	Minor Street 2-Way Hourly Volume (per 8-hr period)	Minor Street Pedestrian 2-Way Hourly Volume (per 8-hr period)
5603	1047	11
Control Required		
Total Vehicle Volume	YES	
Minor Street Volume & Pedestrian Volume	YES	
	3-Way Stop	4-Way Stop
Vehicle Split	NO	NO

Warrant for AWSC at Shea Road at Flewellyn Road (existing)

Volume Criteria		
Major Street 2-Way Hourly Volume (per 8-hr period)	Minor Street 2-Way Hourly Volume (per 8-hr period)	Minor Street Pedestrian 2-Way Hourly Volume (per 8-hr period)
3032	1938	0
Control Required		
Total Vehicle Volume	YES	
Minor Street Volume & Pedestrian Volume	YES	
	3-Way Stop	4-Way Stop
Vehicle Split	YES	YES

Warrant for AWSC at Shea Road at Cosanti Drive (existing)

Volume Criteria		
Major Street 2-Way Hourly Volume (per 8-hr period)	Minor Street 2-Way Hourly Volume (per 8-hr period)	Minor Street Pedestrian 2-Way Hourly Volume (per 8-hr period)
2281	324	0
Control Required		
Total Vehicle Volume	YES	
Minor Street Volume & Pedestrian Volume	NO	
	3-Way Stop	4-Way Stop
Vehicle Split	NO	NO

Warrant for AWSC at Shea Road at Street #21 (FT2030)

Volume Criteria		
Major Street 2-Way Hourly Volume (per 8-hr period)	Minor Street 2-Way Hourly Volume (per 8-hr period)	Minor Street Pedestrian 2-Way Hourly Volume (per 8-hr period)
4217	351	0
Control Required		
Total Vehicle Volume	YES	
Minor Street Volume & Pedestrian Volume	NO	
	3-Way Stop	4-Way Stop
Vehicle Split	NO	NO

Warrant for AWSC at Shea Road at Street # 22 (FT2030)

Volume Criteria		
Major Street 2-Way Hourly Volume (per 8-hr period)	Minor Street 2-Way Hourly Volume (per 8-hr period)	Minor Street Pedestrian 2-Way Hourly Volume (per 8-hr period)
4046	108	0
Control Required		
Total Vehicle Volume	YES	
Minor Street Volume & Pedestrian Volume	NO	
	3-Way Stop	4-Way Stop
Vehicle Split	NO	NO

Warrant for AWSC at Fewlellyn Road at Street #7 (FT2030)

Volume Criteria		
Major Street 2-Way Hourly Volume (per 8-hr period)	Minor Street 2-Way Hourly Volume (per 8-hr period)	Minor Street Pedestrian 2-Way Hourly Volume (per 8-hr period)
4720	1273	0
Control Required		
Total Vehicle Volume	YES	
Minor Street Volume & Pedestrian Volume	YES	
	3-Way Stop	4-Way Stop
Vehicle Split	NO	NO

Warrant for AWSC at Fewlellyn Road at Street #19 (FT2030)

Volume Criteria		
Major Street 2-Way Hourly Volume (per 8-hr period)	Minor Street 2-Way Hourly Volume (per 8-hr period)	Minor Street Pedestrian 2-Way Hourly Volume (per 8-hr period)
4656	1518	0
Control Required		
Total Vehicle Volume	YES	
Minor Street Volume & Pedestrian Volume	YES	
	3-Way Stop	4-Way Stop
Vehicle Split	YES	NO

Appendix D

Signal Warrant Calculation Sheets

Input Data Sheet

Analysis Sheet

Results Sheet

Proposed Collision

GO TO Justification:

What are the intersecting roadways?

What is the direction of the Main Road street?

When was the data collected?

Justification 1 - 4: Volume Warrants

- a.- Number of lanes on the Main Road?
- b.- Number of lanes on the Minor Road?
- c.- How many approaches?
- d.- What is the operating environment? Population < 10,000 AND Speed >= 70 km/hr
- e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	9	214	12	76	118	26	21	116	42	3	59	17	10
8:00	7	206	15	58	100	14	26	140	47	1	60	16	10
9:00	6	179	14	38	89	6	14	73	30	0	49	17	10
11:30	11	123	16	26	54	3	16	66	25	7	56	16	10
12:30	12	121	12	31	52	5	16	94	39	1	78	22	10
15:00	11	185	7	46	64	14	16	129	60	4	110	12	10
16:00	16	207	17	58	70	11	14	161	71	2	151	33	10
17:00	14	178	6	37	70	6	13	153	52	5	115	32	10
Total	86	1,413	99	370	617	85	136	932	366	23	678	165	80

Analysis Sheet

Input Sheet

Results Sheet

Proposed Collision

GO TO Justification:

Intersection: Flewellyn Road & Shea Road

Count Date: 2023-04-26

Justification 1: Minimum Vehicle Volumes

Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 Lanes		2 or More Lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	11:30	12:30	15:00	16:00	17:00		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
1A	480	720	600	900	713	690	515	419	483	658	811	681		
	COMPLIANCE %				100	100	100	87	100	100	100	100	787	98
1B	120	170	120	170	299	249	199	162	189	250	325	265		
	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
Free Flow					Both 1A and 1B 100% Fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Signal Justification 1:					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Justification 2: Delay to Cross Traffic

Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 lanes		2 or More lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	11:30	12:30	15:00	16:00	17:00		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
2A	480	720	600	900	414	441	316	257	294	408	486	416		
	COMPLIANCE %				86	92	66	54	61	85	100	87	630	79
2B	50	75	50	75	207	169	137	99	120	170	221	167		
	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
Free Flow					Both 2A and 2B 100% fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Signal Justification 2:					Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

GO TO Justification:

Intersection: Flewellyn Road & Shea Road

Count Date: 2023-04-26

Summary Results

Justification	Compliance	Signal Justified?		
		YES	NO	
1. Minimum Vehicular Volume	A Total Volume	98 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Volume	100 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	79 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Road	100 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Input Data Sheet

Analysis Sheet

Results Sheet

Proposed Collision

GO TO Justification:

What are the intersecting roadways?

What is the direction of the Main Road street? When was the data collected?

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

b.- Number of lanes on the Minor Road?

c.- How many approaches?

d.- What is the operating environment? Population < 10,000 AND Speed >= 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	6	145	7	29	72	20	52	130	25	7	48	16	10
8:00	17	176	12	38	69	15	39	188	53	7	43	29	10
9:00	14	170	10	36	69	8	29	171	37	4	38	26	10
11:30	18	202	16	41	46	15	31	241	50	5	43	32	10
12:30	13	158	10	35	63	13	27	212	51	5	51	29	10
15:00	24	195	9	28	66	15	37	203	55	8	63	43	10
16:00	21	248	12	39	50	10	31	263	46	7	72	66	10
17:00	13	180	13	39	50	19	43	200	64	6	69	41	10
Total	126	1,474	89	285	485	115	289	1,608	381	49	427	282	80

Analysis Sheet

Input Sheet

Results Sheet

Proposed Collision

GO TO Justification:

Intersection: Flewellyn Road & Huntley Road/Stittsville Main Street

Count Date: 2023-08-10

Justification 1: Minimum Vehicle Volumes

Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 Lanes		2 or More Lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	11:30	12:30	15:00	16:00	17:00		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
1A	480	720	600	900	557	686	612	740	667	746	865	737		
	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
1B	120	170	120	170	192	201	181	182	196	223	244	224		
	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
Free Flow					Both 1A and 1B 100% Fulfilled each of 8 hours								Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Signal Justification 1:					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Justification 2: Delay to Cross Traffic

Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 lanes		2 or More lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	11:30	12:30	15:00	16:00	17:00		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
2A	480	720	600	900	365	485	431	558	471	523	621	513		
	COMPLIANCE %				76	100	90	100	98	100	100	100	764	95
2B	50	75	50	75	118	124	119	102	113	112	128	124		
	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
Free Flow					Both 2A and 2B 100% fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Signal Justification 2:					Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

GO TO Justification:

Intersection: Flewellyn Road & Huntley Road/Stittsville Main Street Count Date: 2023-08-10

Summary Results

Justification	Compliance	Signal Justified?	
		YES	NO
1. Minimum Vehicular Volume	A Total Volume	100 %	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
	B Crossing Volume	100 %	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
2. Delay to Cross Traffic	A Main Road	95 %	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
	B Crossing Road	100 %	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

Input Data Sheet

Analysis Sheet

Results Sheet

Proposed Collision

GO TO Justification:

What are the intersecting roadways?

What is the direction of the Main Road street? When was the data collected?

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

b.- Number of lanes on the Minor Road?

c.- How many approaches?

d.- What is the operating environment? Population >= 10,000 AND Speed < 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Eastbound Approach			Minor Northbound Approach			Main Westbound Approach			Minor Southbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	0	105	76	44	0	170	183	101	0	0	0	0	11
8:00	0	129	102	99	0	214	174	107	0	0	0	0	27
9:00	0	99	72	105	0	149	115	95	0	0	0	0	3
11:30	0	93	56	70	0	127	108	87	0	0	0	0	55
12:30	0	90	56	83	0	135	115	97	0	0	0	0	7
15:00	0	123	73	96	0	176	186	153	0	0	0	0	18
16:00	0	137	75	127	0	180	219	138	0	0	0	0	4
17:00	0	121	84	113	0	194	256	140	0	0	0	0	14
Total	0	897	594	737	0	1,345	1,356	918	0	0	0	0	139

Analysis Sheet

[Input Sheet](#)

[Results Sheet](#)

[Proposed Collision](#)

GO TO Justification:

Intersection: Shea Road at Abbott Street

Count Date: 2023-08-10

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 Lanes		2 or More Lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	11:30	12:30	15:00	16:00	17:00		
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
1A	480	720	600	900	679	825	635	541	576	807	876	908		
	COMPLIANCE %				94	100	88	75	80	100	100	100	738	92
1B	180	255	180	255	214	313	254	197	218	272	307	307		
	COMPLIANCE %				84	100	100	77	85	100	100	100	746	93
Restricted Flow					Both 1A and 1B 100% Fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Signal Justification 1:					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 lanes		2 or More lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	11:30	12:30	15:00	16:00	17:00		
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
2A	480	720	600	900	465	512	381	344	358	535	569	601		
	COMPLIANCE %				65	71	53	48	50	74	79	83	523	65
2B	50	75	50	75	55	126	108	125	90	114	131	127		
	COMPLIANCE %				73	100	100	100	100	100	100	100	773	97
Restricted Flow					Both 2A and 2B 100% fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Signal Justification 2:					Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Results Sheet

[Input Sheet](#)

[Analysis Sheet](#)

[Proposed Collision](#)

GO TO Justification:

Intersection: Shea Road at Abbott Street

Count Date: 2023-08-10

Summary Results

Justification	Compliance	Signal Justified?		
		YES	NO	
1. Minimum Vehicular Volume	A Total Volume	92 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Volume	93 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	65 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Road	97 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Input Data Sheet

Analysis Sheet

Results Sheet

Proposed Collision

GO TO Justification:

What are the intersecting roadways?

What is the direction of the Main Road street? When was the data collected?

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

b.- Number of lanes on the Minor Road?

c.- How many approaches?

d.- What is the operating environment? Population >= 10,000 AND Speed < 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Eastbound Approach			Minor Northbound Approach			Main Westbound Approach			Minor Southbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	8	486	13	21	9	3	28	185	41	21	9	3	4
8:00	2	320	12	21	7	3	40	259	41	21	7	3	3
9:00	9	331	29	18	5	6	48	196	37	18	5	6	5
11:30	3	219	17	29	3	8	48	239	28	29	3	8	1
12:30	4	174	23	21	4	3	62	211	31	21	4	3	2
15:00	2	291	34	39	2	11	79	353	19	39	2	11	0
16:00	1	321	41	15	2	10	116	432	1	15	2	10	1
17:00	1	264	31	9	1	1	110	354	2	9	1	1	0
Total	30	2,406	200	173	33	45	531	2,229	200	173	33	45	16

Analysis Sheet

Input Sheet

Results Sheet

Proposed Collision

GO TO Justification:

Intersection: Cope Drive - Edenwyde Drive & Fernbank Road

Count Date: 2024/04/23

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent				
	1 Lanes		2 or More Lanes		Hour Ending													
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	11:30	12:30	15:00	16:00	17:00						
1A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480	720	600	900	827	736	708	634	561	882	966	784		
	COMPLIANCE %				100	100	98	88	78	100	100	100	764	96				
1B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	120	170	120	170	66	62	58	80	56	104	54	22		
	COMPLIANCE %				39	36	34	47	33	61	32	13	295	37				
Restricted Flow					Both 1A and 1B 100% Fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				
Signal Justification 1:					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent				
	1 lanes		2 or More lanes		Hour Ending													
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	11:30	12:30	15:00	16:00	17:00						
2A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	480	720	600	900	761	674	650	554	505	778	912	762		
	COMPLIANCE %				100	94	90	77	70	100	100	100	731	91				
2B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	50	75	50	75	55	52	46	62	48	80	33	19		
	COMPLIANCE %				73	69	61	83	64	100	44	25	520	65				
Restricted Flow					Both 2A and 2B 100% fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				
Signal Justification 2:					Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				

Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

GO TO Justification:

Intersection: Cope Drive - Edenwyde Drive & Fernbank Road

Count Date: 2024/04/23

Summary Results

Justification	Compliance	Signal Justified?	
		YES	NO
1. Minimum Vehicular Volume	A Total Volume	96 %	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
	B Crossing Volume	37 %	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
2. Delay to Cross Traffic	A Main Road	91 %	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
	B Crossing Road	65 %	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

Shea Road at Flewellyn Road
FB 2030

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	440	92%	92%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	175	146%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	265	55%	55%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	95	191%		

- Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
 2. Lowest section percentage governs justification
 3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$, including amplification factors
 4. T-intersection factor corrected, applies only to 1B

Shea Road at Flewellyn Road
FB 2035

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	482	100%	100%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	180	150%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	302	63%	63%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	98	196%		

- Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
 2. Lowest section percentage governs justification
 3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$, including amplification factors
 4. T-intersection factor corrected, applies only to 1B

Shea Road at Flewellyn Road
FT 2030

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	653	136%	136%	Yes
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	380	317%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	273	57%	57%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	198	397%		

- Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
 2. Lowest section percentage governs justification
 3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplification factors
 4. T-intersection factor corrected, applies only to 1B

Stittsville Main Street/ Huntley Road at Flewellyn Road
FB 2030

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	509	71%	71%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	199	117%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	310	43%	43%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	100	134%		

- Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
 2. Lowest section percentage governs justification
 3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplification factors
 4. T-intersection factor corrected, applies only to 1B

Stittsville Main Street/ Huntley Road at Flewellyn Road
 FB 2035

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	523	73%	73%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	204	120%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	319	44%	44%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	103	137%		

- Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
 2. Lowest section percentage governs justification
 3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$, including amplification factors
 4. T-intersection factor corrected, applies only to 1B

Stittsville Main Street/ Huntley Road at Flewellyn Road
 FT 2030

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	703	98%	98%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	316	186%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	387	54%	54%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	120	160%		

- Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
 2. Lowest section percentage governs justification
 3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$, including amplification factors
 4. T-intersection factor corrected, applies only to 1B

Stittsville Main Street/ Huntley Road at Flewellyn Road
FT 2035

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	718	100%	100%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	321	189%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	397	55%	55%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	123	163%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$, including amplification factors
4. T-intersection factor corrected, applies only to 1B

Cope Drive at Fernbank Road
FB2030

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	691	96%	73%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	124	73%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	567	79%	72%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	54	72%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$, including amplification factors
4. T-intersection factor corrected, applies only to 1B

Cope Drive at Fernbank Road
FB2035

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	706	98%	73%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	124	73%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	581	81%	72%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	54	72%		

- Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
 2. Lowest section percentage governs justification
 3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$, including amplification factors
 4. T-intersection factor corrected, applies only to 1B

Cope Drive at Fernbank Road
FT2030

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	691	96%	73%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	124	73%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	567	79%	72%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	54	72%		

- Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
 2. Lowest section percentage governs justification
 3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$, including amplification factors
 4. T-intersection factor corrected, applies only to 1B

Cope Drive at Fernbank Road
FT2035

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Signal	
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	706	98%	73%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	124	73%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	581	81%	72%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	54	72%		

- Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
 2. Lowest section percentage governs justification
 3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$, including amplification factors
 4. T-intersection factor corrected, applies only to 1B

Shea Road at Abbott Street
FB2030

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Signal	
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	689	96%	96%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	401	236%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	422	59%	59%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	179	238%		

- Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
 2. Lowest section percentage governs justification
 3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$, including amplification factors
 4. T-intersection factor corrected, applies only to 1B

Shea Road at Abbott Street
FB2035

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Signal	
		1 Lane Highway		2 or More Lanes		Sectional			Entire %
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	737	102%	102%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	427	251%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	453	63%	63%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	189	251%		

- Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
 2. Lowest section percentage governs justification
 3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$, including amplification factors
 4. T-intersection factor corrected, applies only to 1B

Shea Road at Abbott Street
FT2030

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Signal	
		1 Lane Highway		2 or More Lanes		Sectional			Entire %
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	725	101%	101%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	423	249%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	443	61%	61%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	189	252%		

- Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
 2. Lowest section percentage governs justification
 3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$, including amplification factors
 4. T-intersection factor corrected, applies only to 1B

Shea Road at Abbott Street
FT2035

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	772	107%	107%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	449	264%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	473	66%	66%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	199	265%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$, including amplification factors
4. T-intersection factor corrected, applies only to 1B

Appendix E

Left-Turn Warrant Calculation Sheets

Shea Road at Flewellyn Road

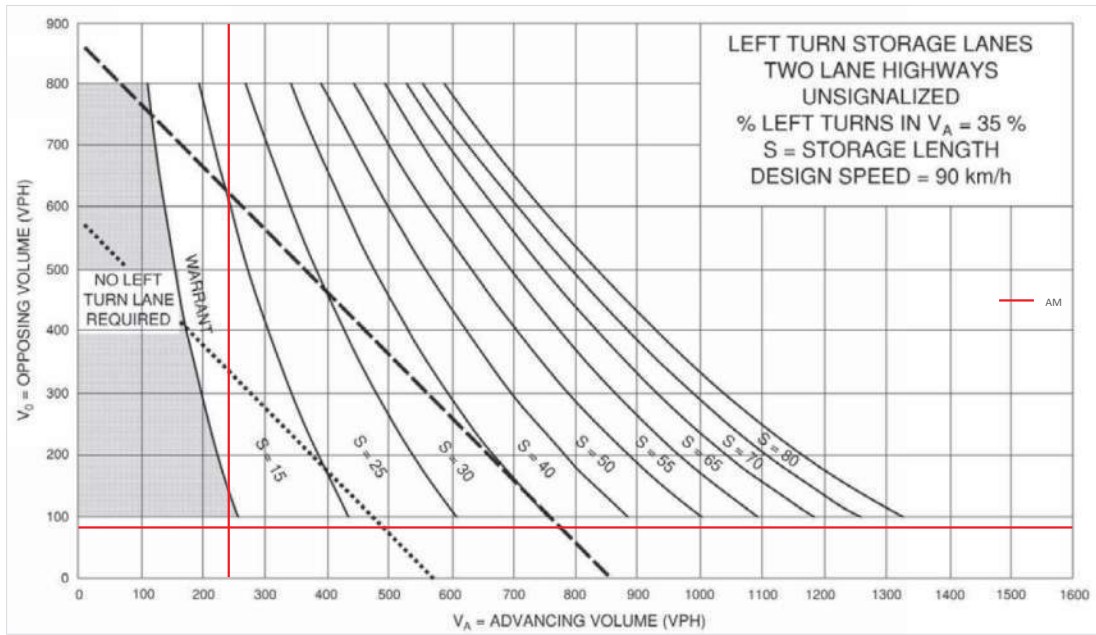
Existing																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		87	129	26	2	62	17	8	241	13	25	149	51	36.0%	242	81
PM		58	70	11	2	151	33	16	207	17	14	161	71	41.7%	139	186
Future Background 2030																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		60	125	26	2	92	17	8	184	13	25	193	51	28.4%	211	111
PM		59	107	11	2	166	33	16	213	17	14	255	71	33.3%	177	201
Future Background 2035																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		60	125	26	2	102	17	8	207	13	25	241	51	28.4%	211	121
PM		59	118	11	2	166	33	16	260	17	14	285	71	31.4%	188	201
Future Total 2030																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		60	382	26	2	202	24	8	184	13	42	193	51	12.8%	468	228
PM		59	288	11	2	415	50	16	213	17	27	255	71	16.5%	358	467
Future Total 2035																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		60	382	26	2	212	24	8	207	13	42	241	51	12.8%	468	238
PM		59	299	11	2	415	50	16	260	17	27	285	71	16.0%	369	467

Existing																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		87	129	26	2	62	17	8	241	13	25	149	51	2.5%	81	242
PM		58	70	11	2	151	33	16	207	17	14	161	71	1.1%	186	139
Future Background 2030																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		60	125	26	2	92	17	8	184	13	25	193	51	1.8%	111	211
PM		59	107	11	2	166	33	16	213	17	14	255	71	1.0%	201	177
Future Background 2035																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		60	125	26	2	102	17	8	207	13	25	241	51	1.7%	121	211
PM		59	118	11	2	166	33	16	260	17	14	285	71	1.0%	201	188
Future Total 2030																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		60	382	26	2	202	24	8	184	13	42	193	51	0.9%	228	468
PM		59	288	11	2	415	50	16	213	17	27	255	71	0.4%	467	358
Future Total 2035																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		60	382	26	2	212	24	8	207	13	42	241	51	0.8%	238	468
PM		59	299	11	2	415	50	16	260	17	27	285	71	0.4%	467	369

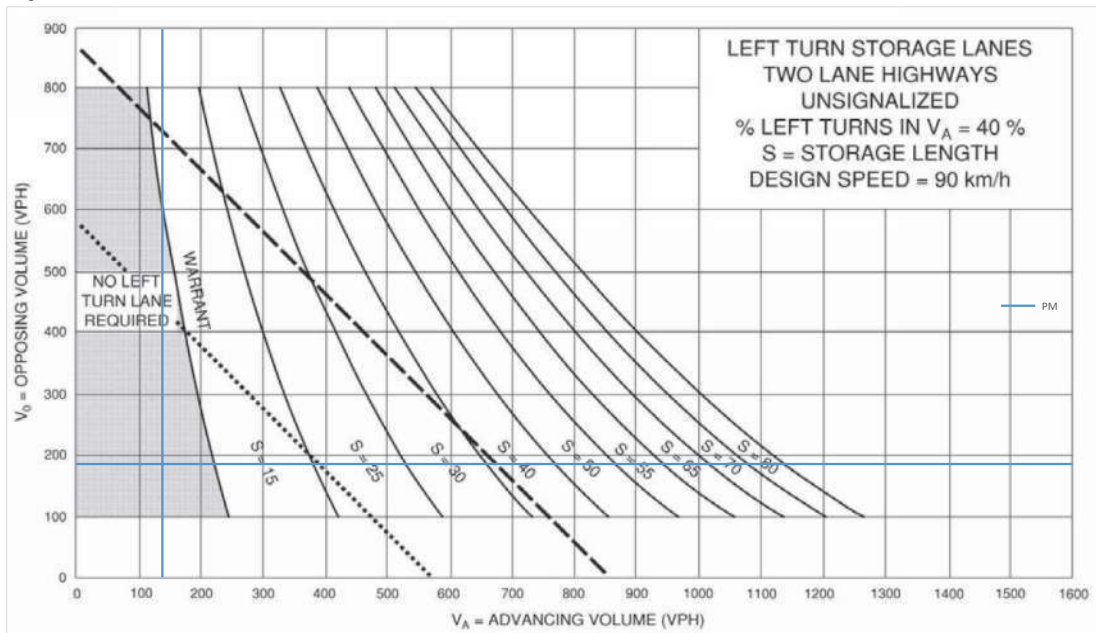
Existing																	
Design Speed																	
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	Yes NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
AM		87	129	26	2	62	17	8	241	13	25	149	51	3.1%	262	225	
PM		58	70	11	2	151	33	16	207	17	14	161	71	6.7%	240	246	
Future Background 2030																	
Design Speed																	
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	Yes NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
AM		60	125	26	2	92	17	8	184	13	25	193	51	3.9%	205	269	
PM		59	107	11	2	166	33	16	213	17	14	255	71	6.5%	246	340	
Future Background 2035																	
Design Speed																	
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	Yes NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
AM		60	125	26	2	102	17	8	207	13	25	241	51	3.5%	228	317	
PM		59	118	11	2	166	33	16	260	17	14	285	71	5.5%	293	370	
Future Total 2030																	
Design Speed																	
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	Yes NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
AM		60	382	26	2	202	24	8	184	13	42	193	51	3.9%	205	286	
PM		59	288	11	2	415	50	16	213	17	27	255	71	6.5%	246	353	
Future Total 2035																	
Design Speed																	
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	Yes NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
AM		60	382	26	2	212	24	8	207	13	42	241	51	3.5%	228	334	
PM		59	299	11	2	415	50	16	260	17	27	285	71	5.5%	293	383	

Existing																	
Design Speed																	
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	Yes SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
AM		87	129	26	2	62	17	8	241	13	25	149	51	11.1%	225	262	
PM		58	70	11	2	151	33	16	207	17	14	161	71	5.7%	246	240	
Future Background 2030																	
Design Speed																	
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	Yes SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
AM		60	125	26	2	92	17	8	184	13	25	193	51	9.3%	269	205	
PM		59	107	11	2	166	33	16	213	17	14	255	71	4.1%	340	246	
Future Background 2035																	
Design Speed																	
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	Yes SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
AM		60	125	26	2	102	17	8	207	13	25	241	51	7.9%	317	228	
PM		59	118	11	2	166	33	16	260	17	14	285	71	3.8%	370	293	
Future Total 2030																	
Design Speed																	
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	Yes SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
AM		60	382	26	2	202	24	8	184	13	42	193	51	14.7%	286	205	
PM		59	288	11	2	415	50	16	213	17	27	255	71	7.6%	353	246	
Future Total 2035																	
Design Speed																	
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	Yes SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
AM		60	382	26	2	212	24	8	207	13	42	241	51	12.6%	334	228	
PM		59	299	11	2	415	50	16	260	17	27	285	71	7.0%	383	293	

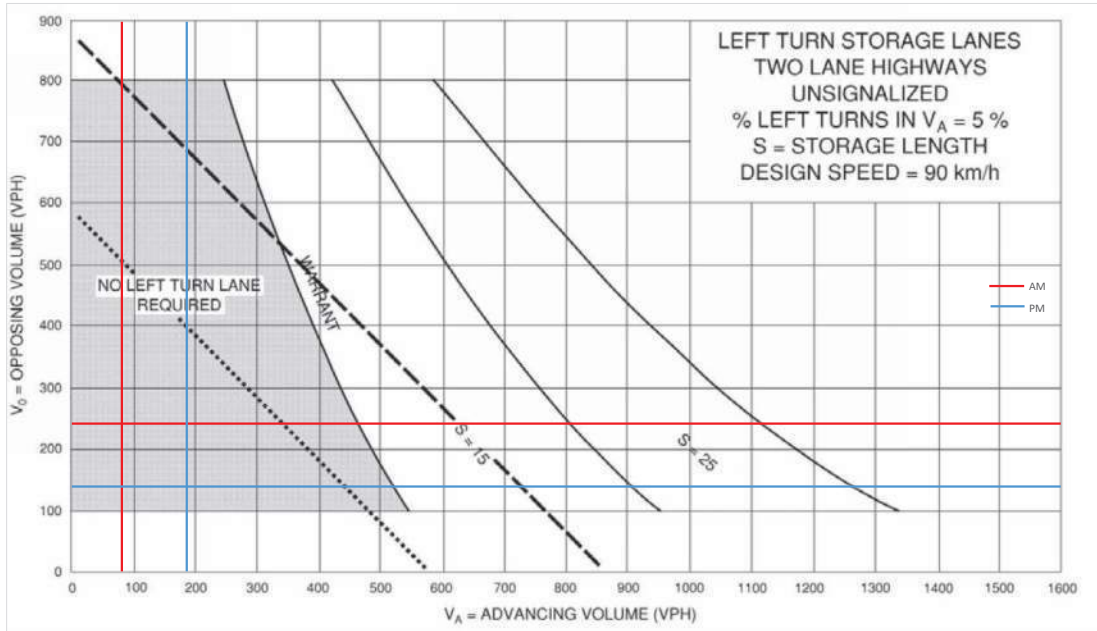
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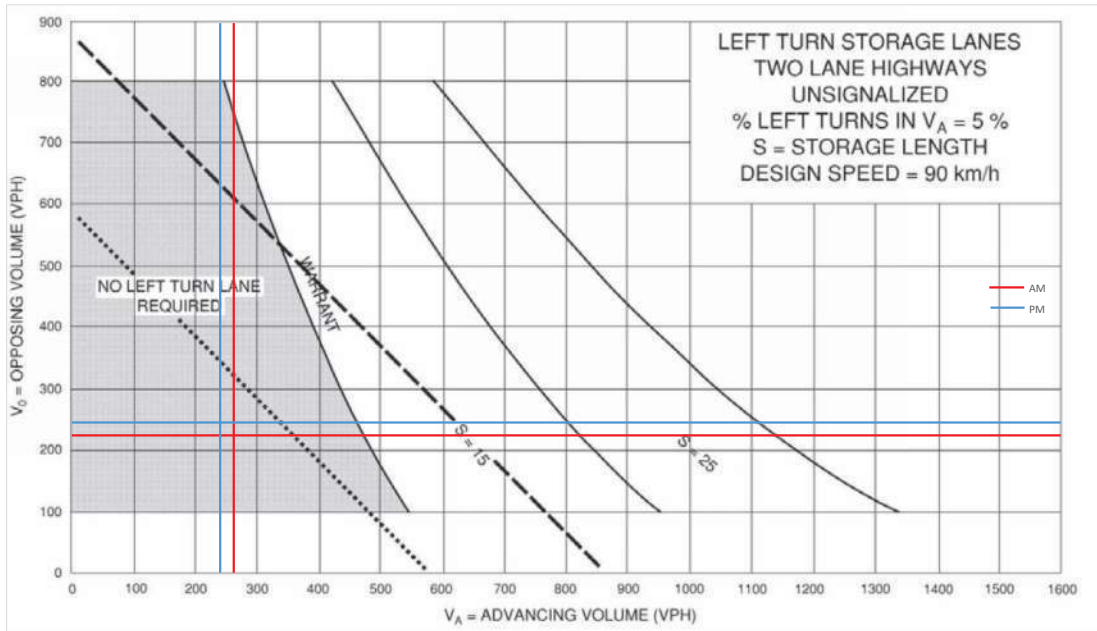
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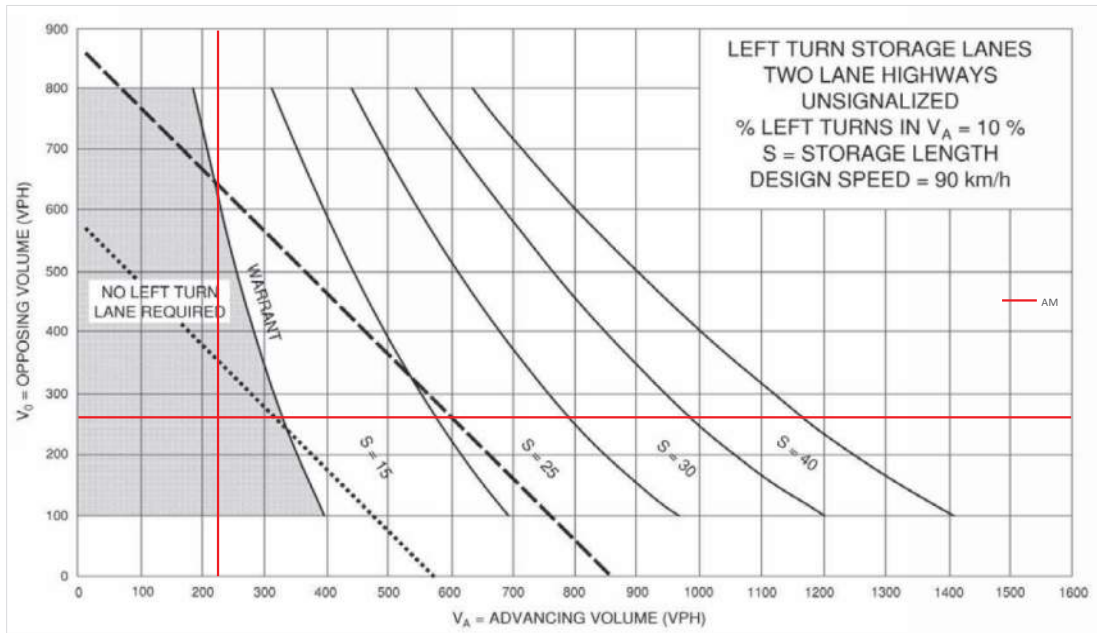
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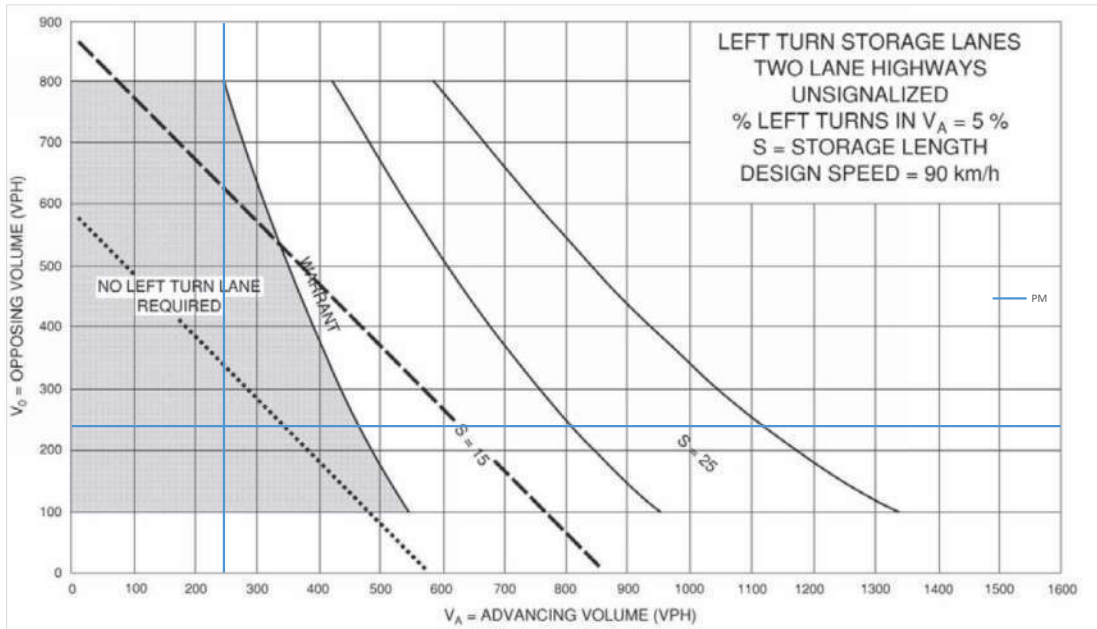
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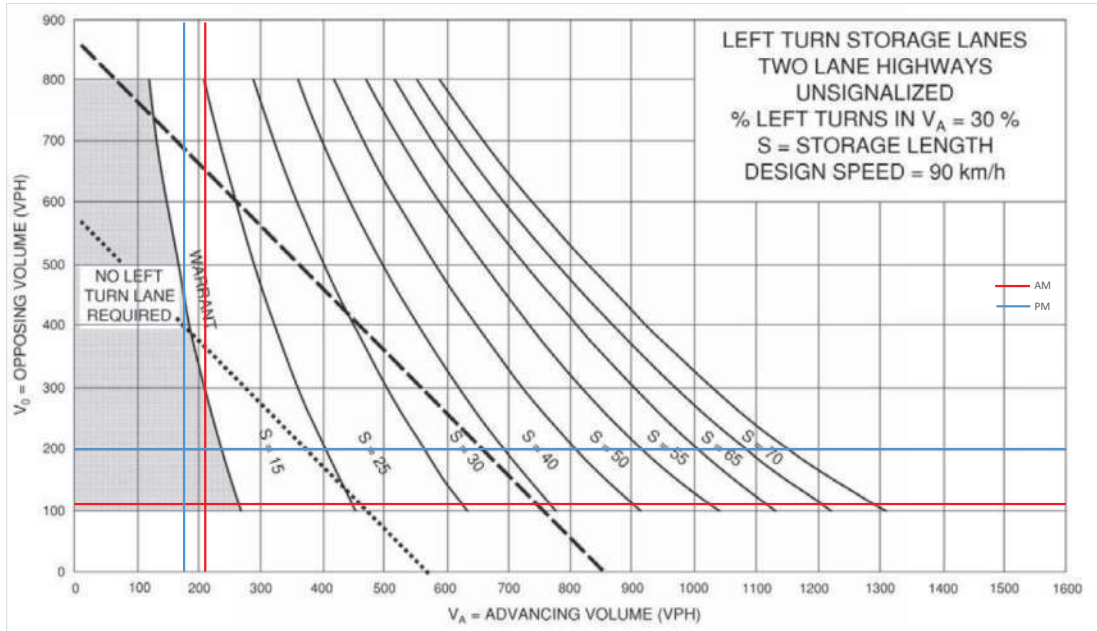
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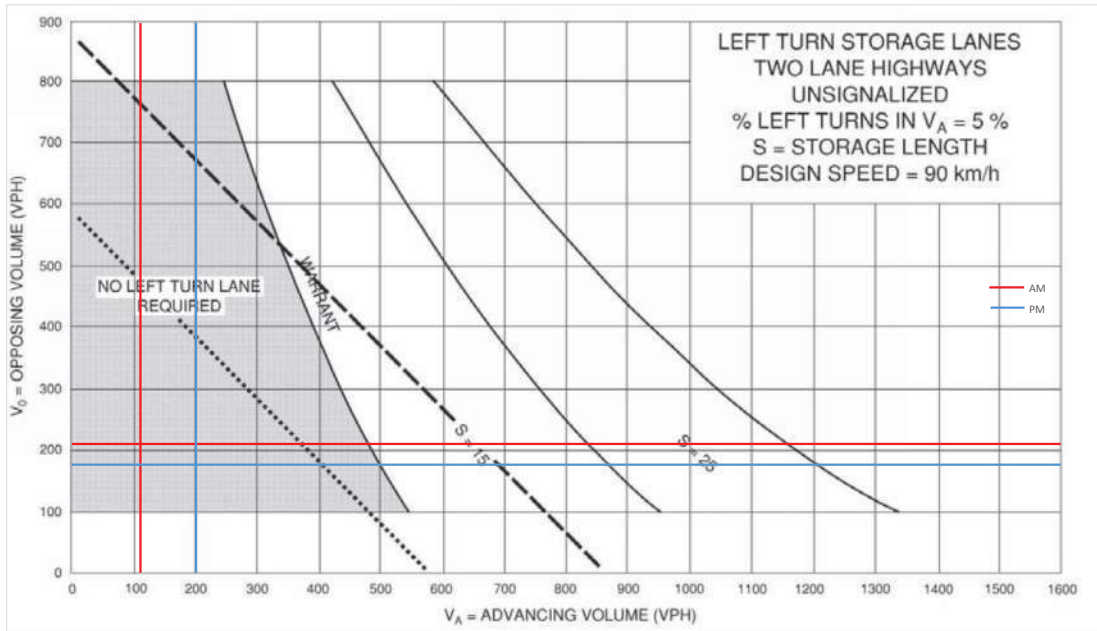
Existing - Southbound Left



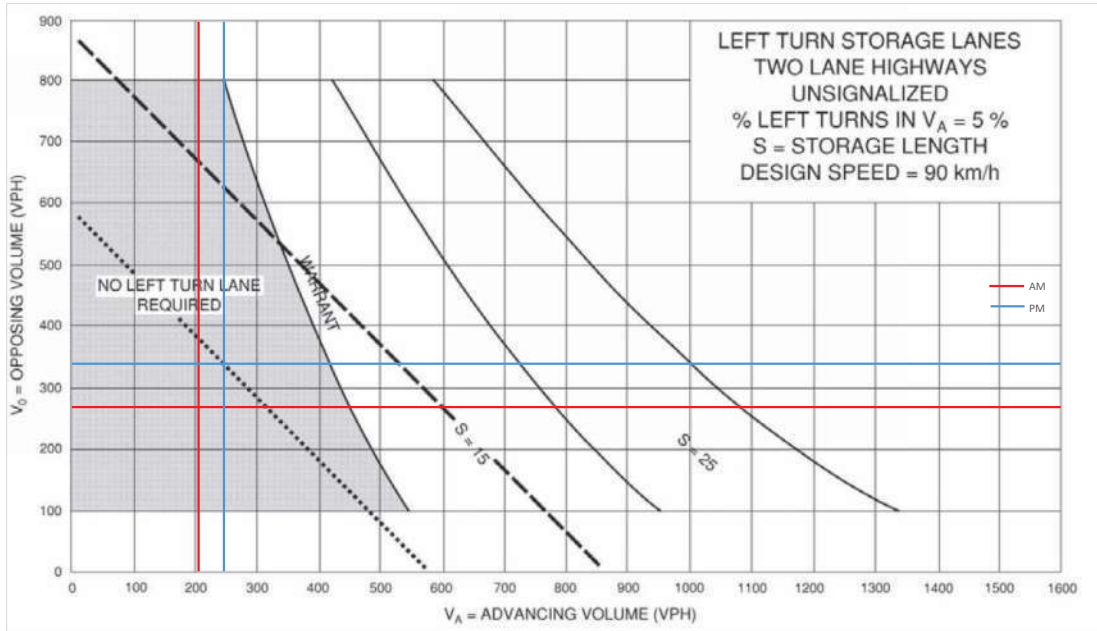
Future Background 2030 - Eastbound Left



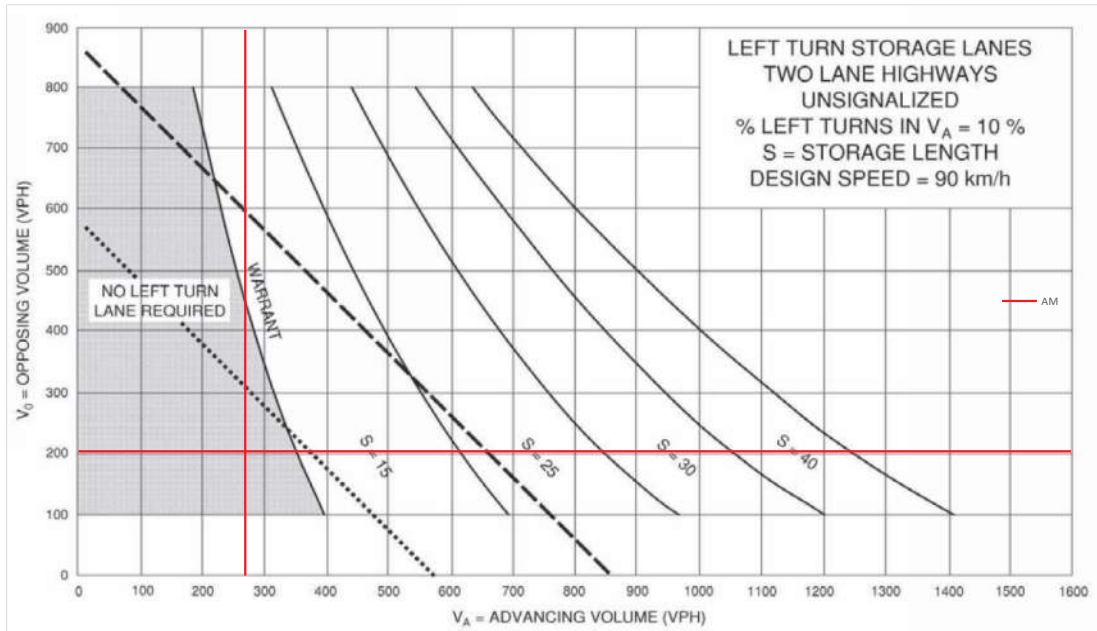
Future Background 2030 - Westbound Left



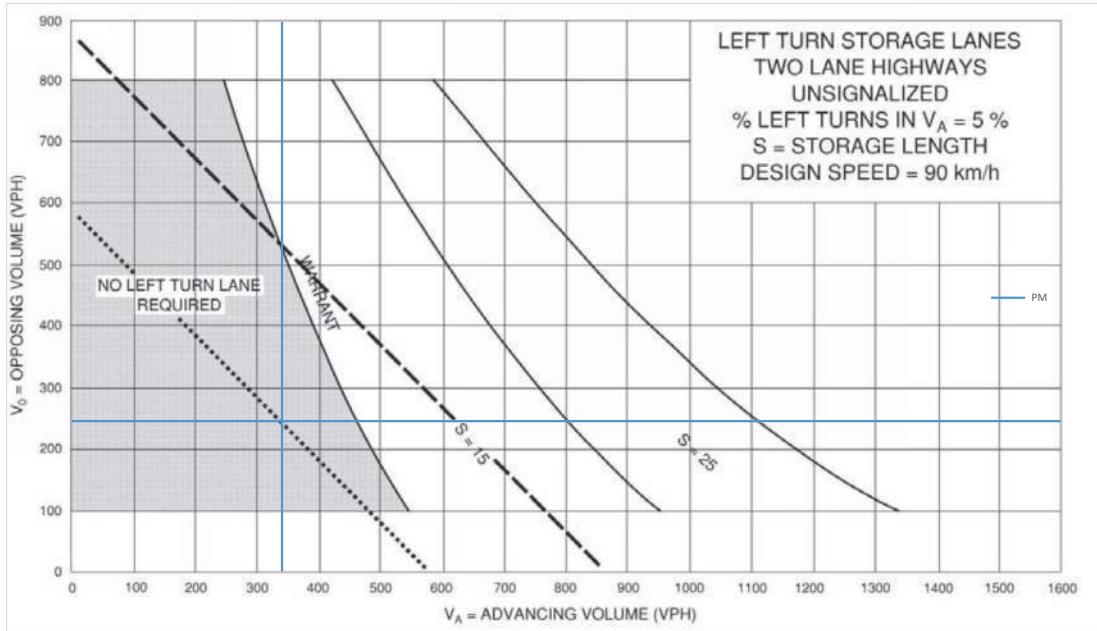
Future Background 2030 - Northbound Left



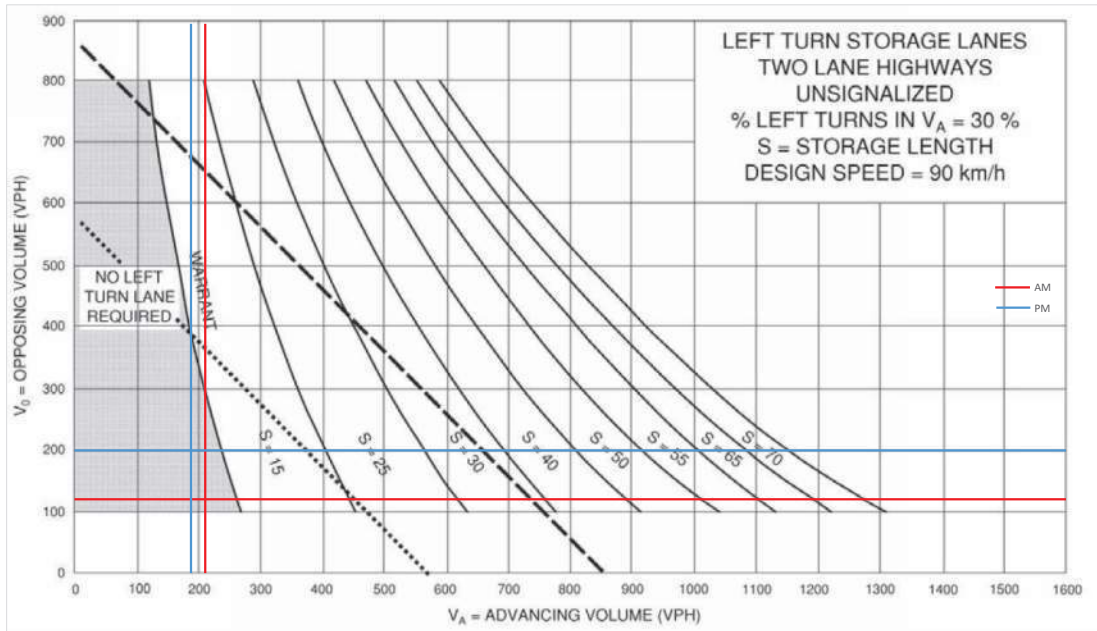
Future Background 2030 - Southbound Left



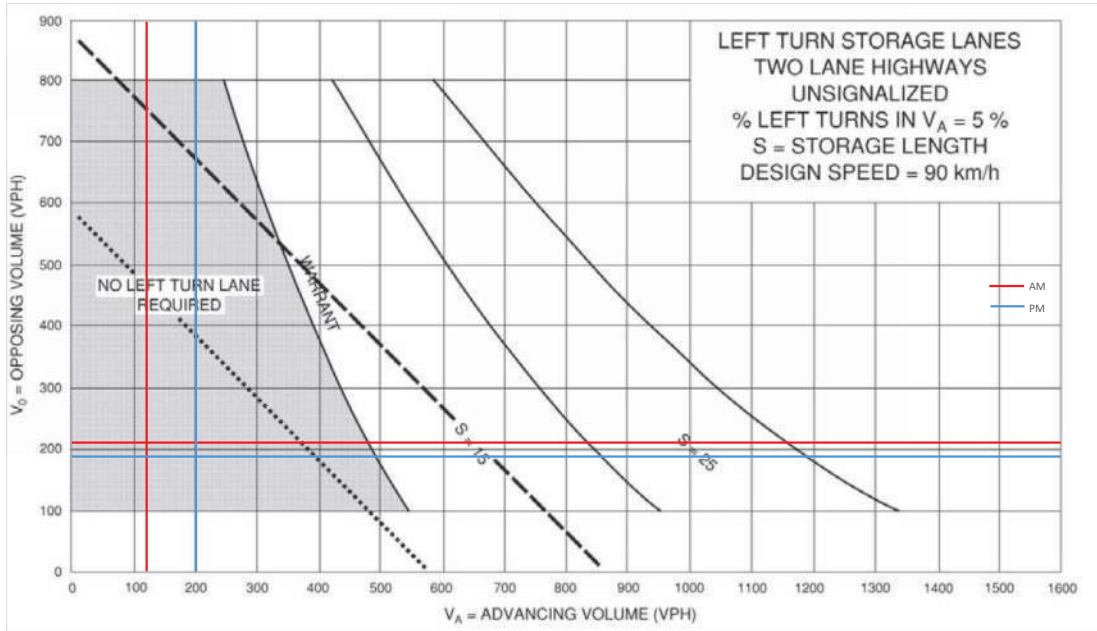
Future Background 2030 - Southbound Left



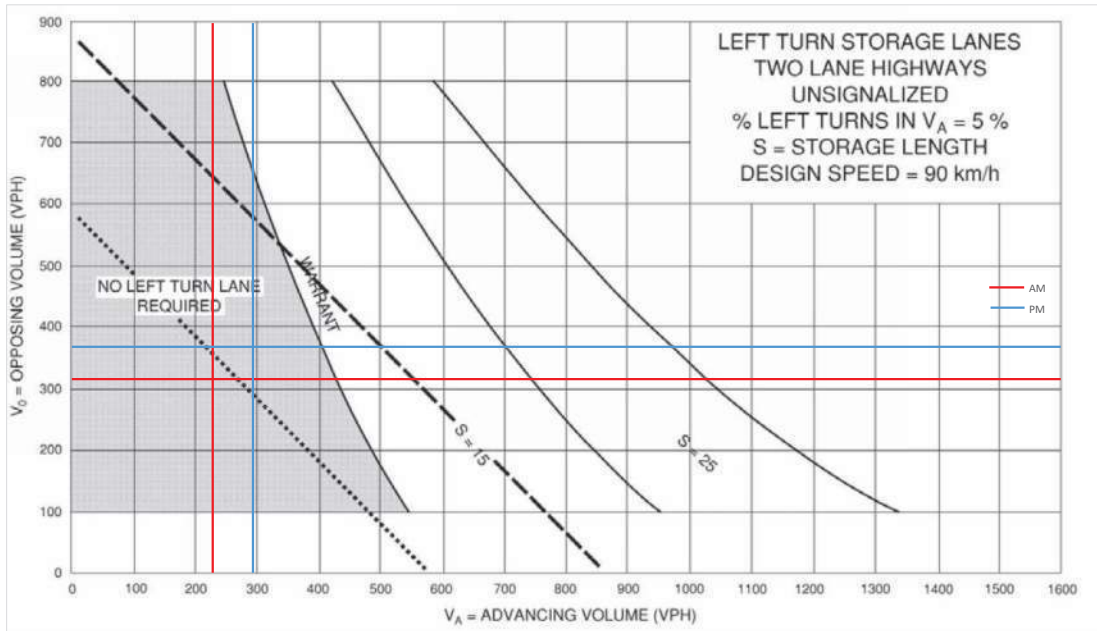
Future Background 2035 - Eastbound Left



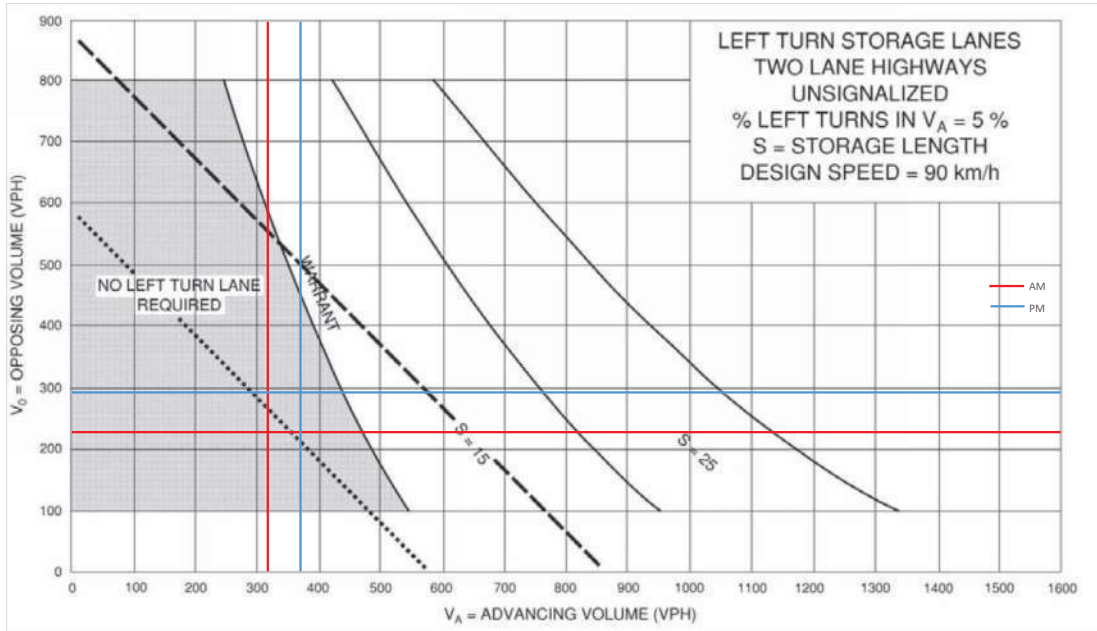
Future Background 2035 - Westbound Left



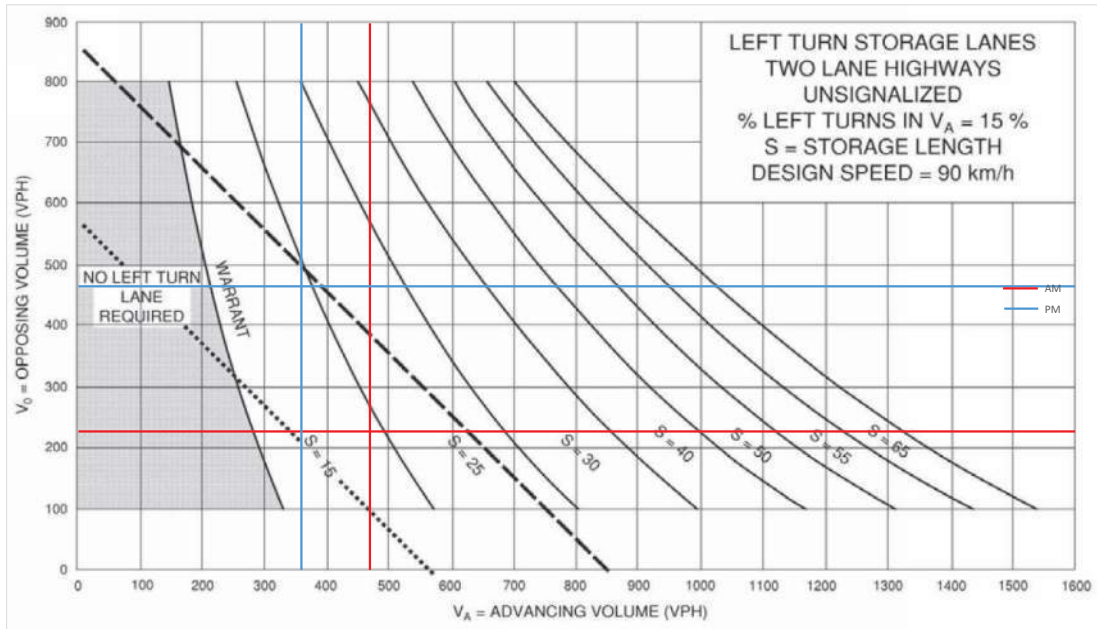
Future Background 2035 - Northbound Left



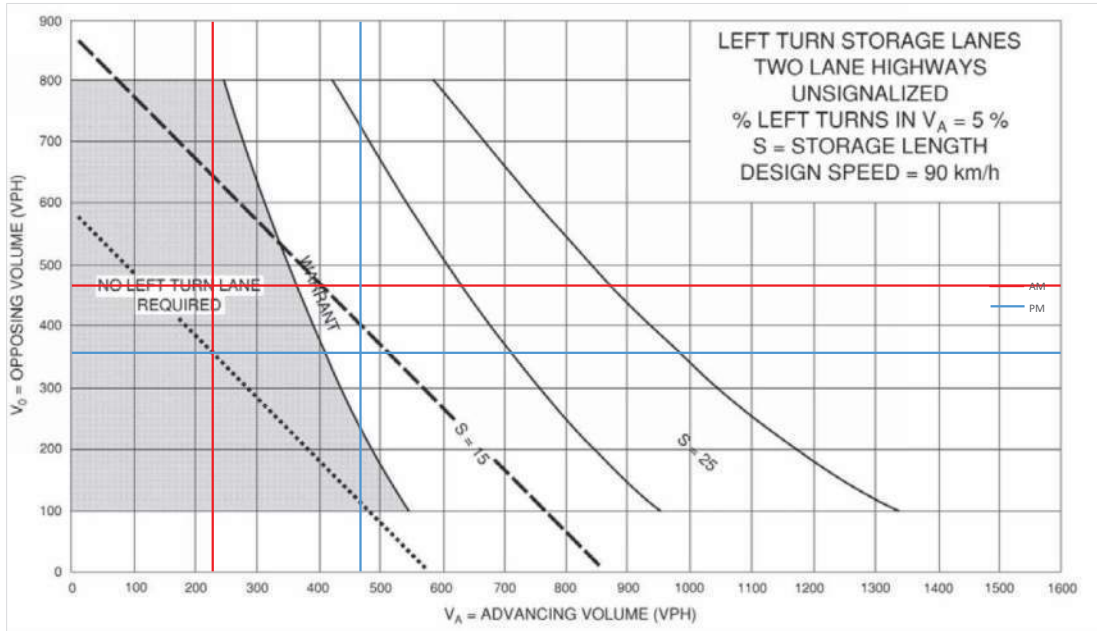
Future Background 2035 - Southbound Left



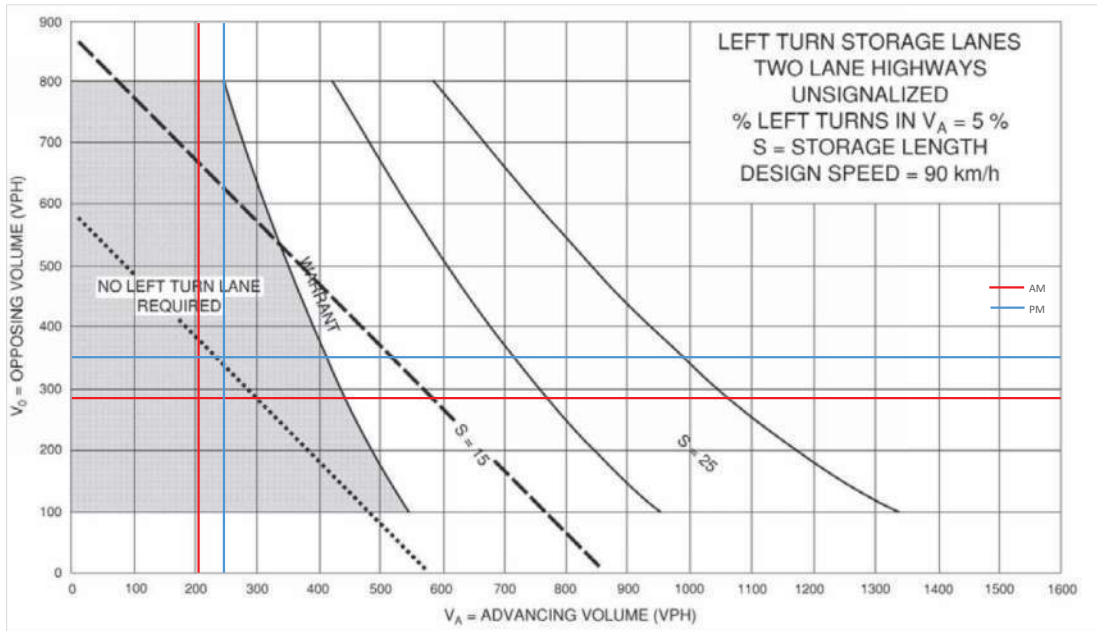
Future Total 2030 - Eastbound Left



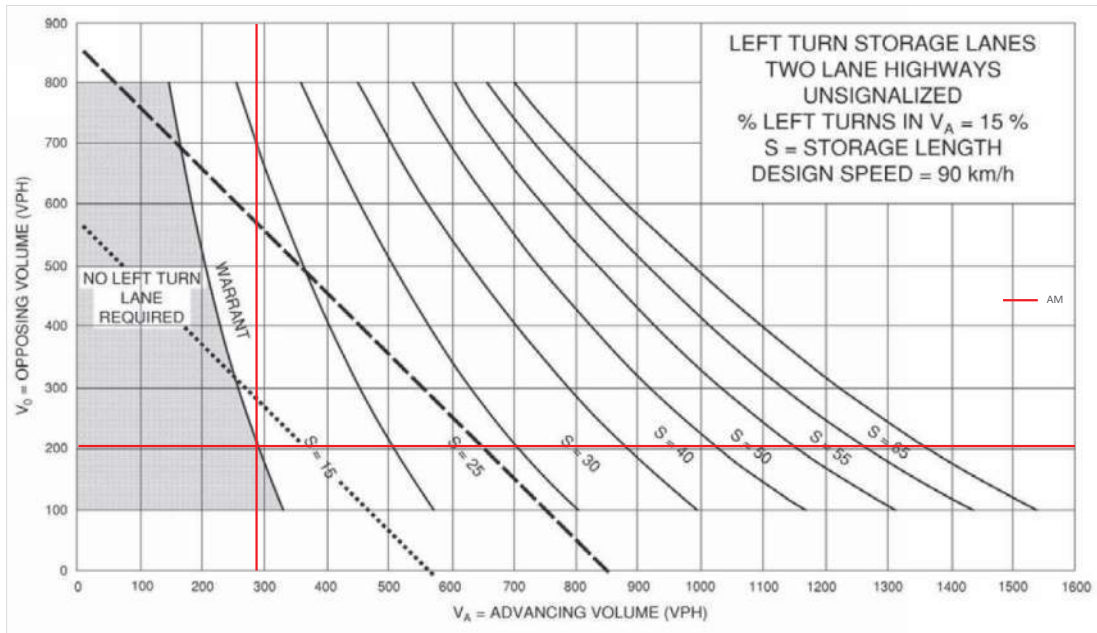
Future Total 2030 - Westbound Left



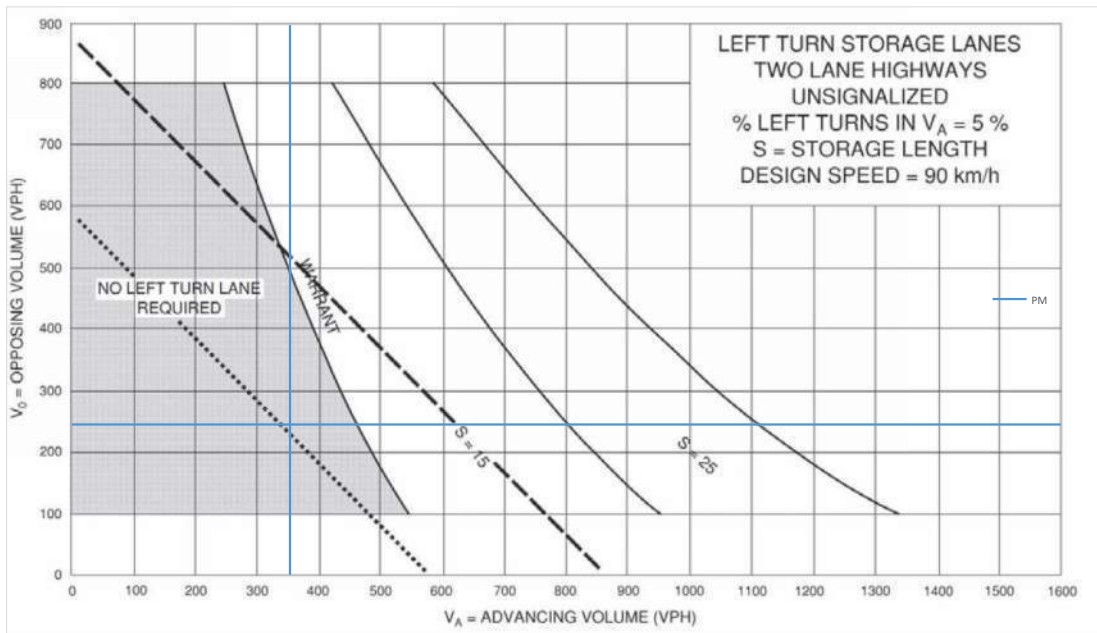
Future Total 2030 - Northbound Left



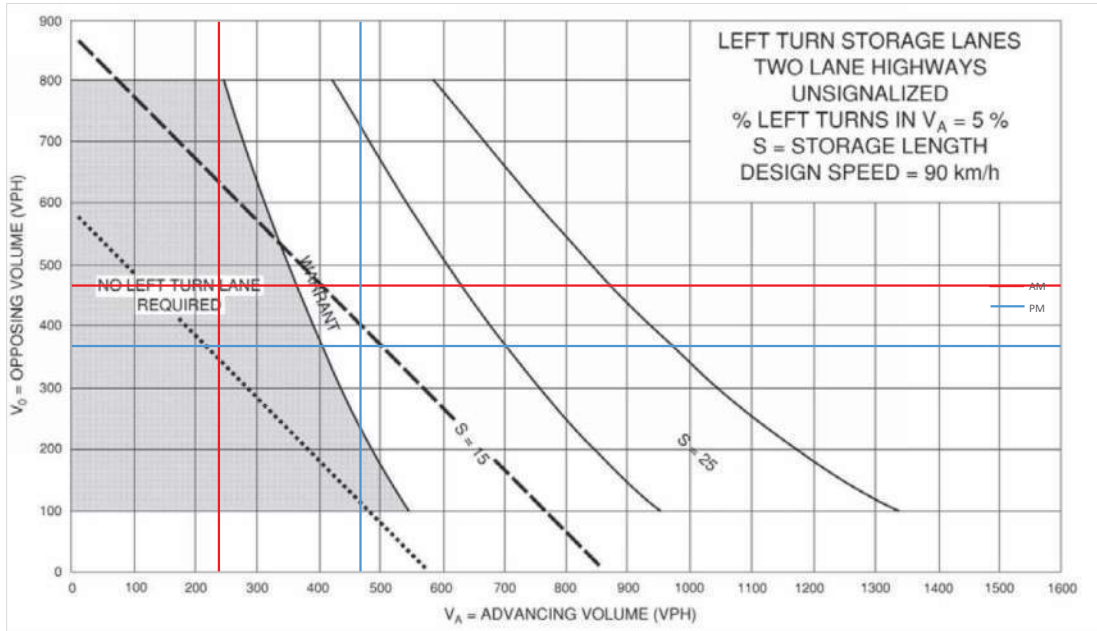
Future Total 2030 - Southbound Left



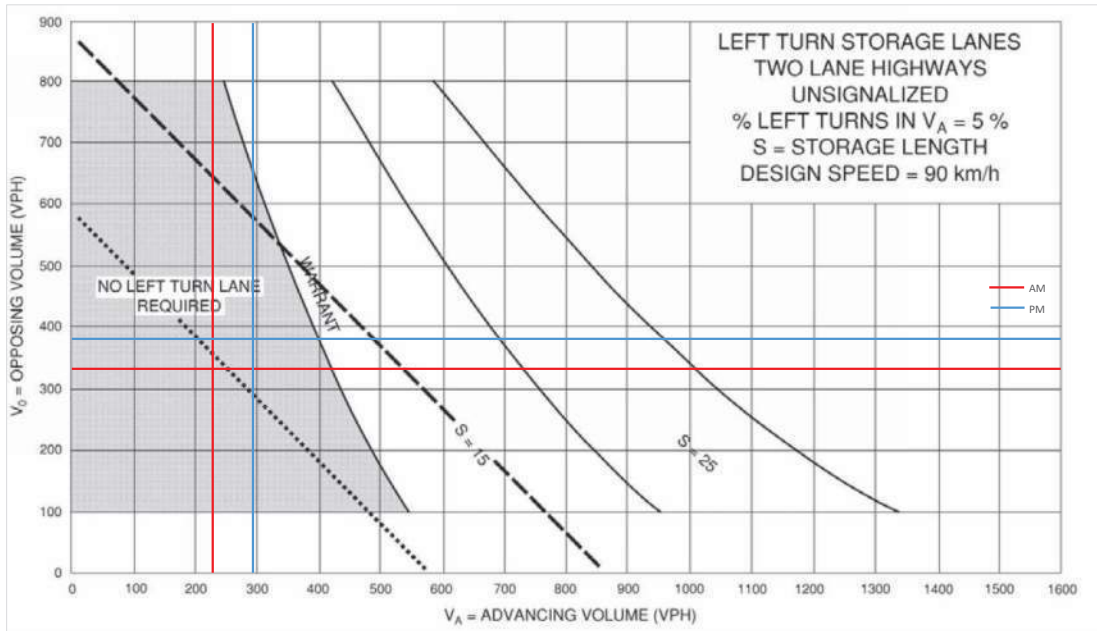
Future Total 2030 - Southbound Left

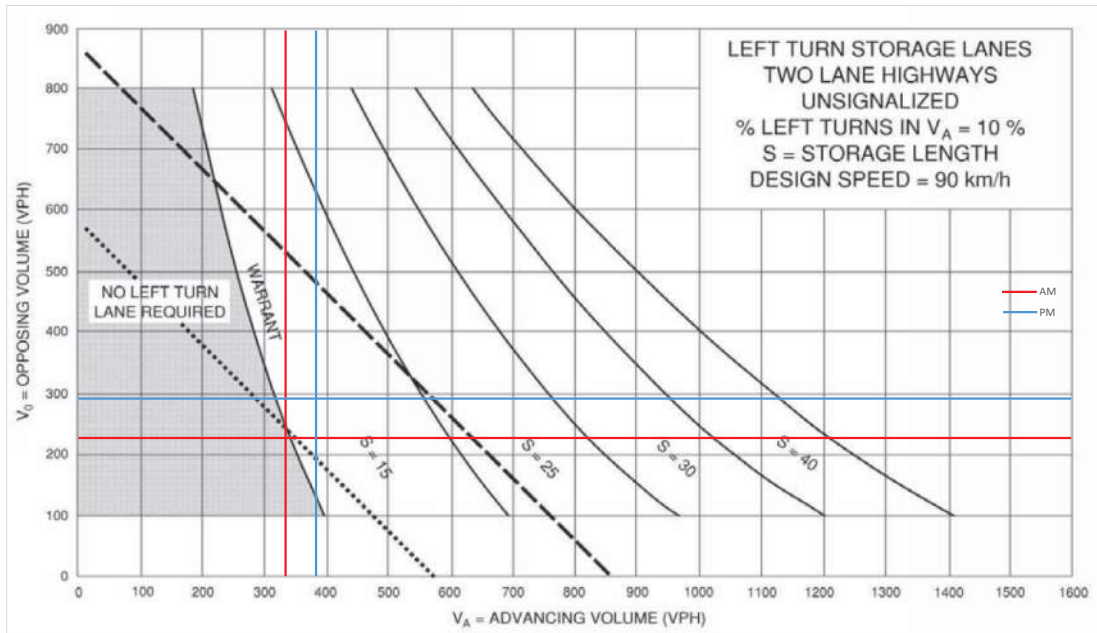


Future Total 2035 - Westbound Left



Future Total 2035 - Northbound Left





Stittville Main Street Huntley Road at Flewellyn

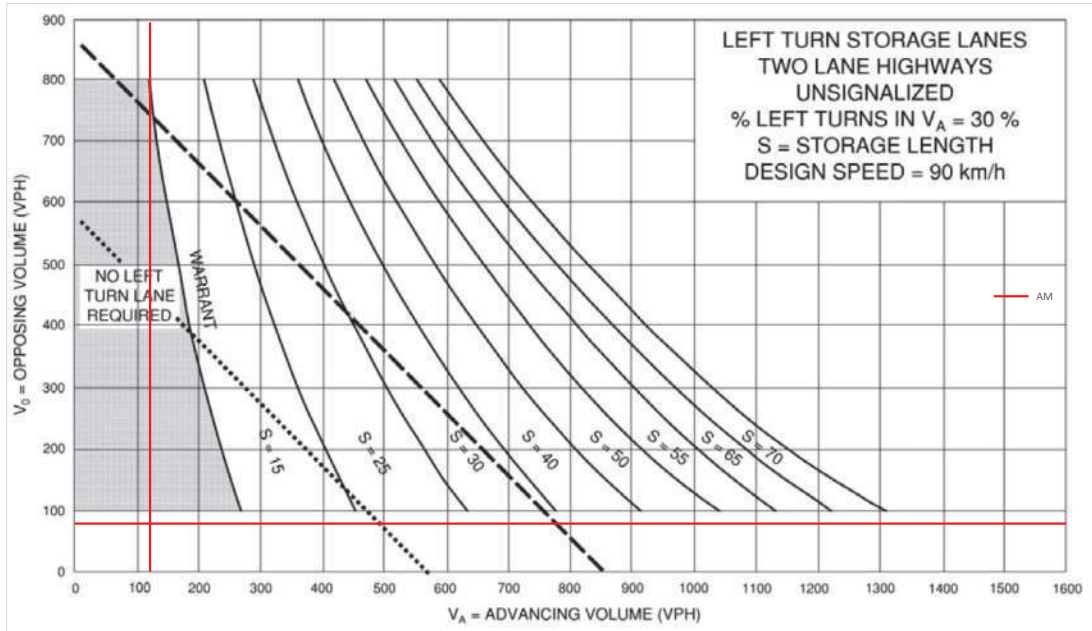
Existing																		
Design Speed	Yes															%Left Turn	Volume Advancing	Volume Opposing
90 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
AM	38	69	15	7	43	29	17	176	12	39	188	53	31.1%	122	79			
PM	44	56	14	6	71	71	27	256	14	33	255	47	38.6%	114	148			
Future Background 2030																		
Design Speed	Yes															%Left Turn	Volume Advancing	Volume Opposing
90 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
AM	38	155	15	7	125	29	17	232	12	39	259	53	18.3%	208	161			
PM	44	110	14	6	181	71	27	234	14	33	272	47	26.2%	168	258			
Future Background 2035																		
Design Speed	Yes															%Left Turn	Volume Advancing	Volume Opposing
90 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
AM	38	155	15	7	135	29	17	240	12	39	269	53	18.3%	208	171			
PM	44	121	14	6	181	71	27	245	14	33	281	47	24.6%	179	258			
Future Total 2030																		
Design Speed	Yes															%Left Turn	Volume Advancing	Volume Opposing
90 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
AM	38	168	15	24	154	233	17	232	19	127	259	53	17.2%	221	411			
PM	44	138	14	19	201	215	27	234	31	231	272	47	22.4%	196	435			
Future Total 2035																		
Design Speed	Yes															%Left Turn	Volume Advancing	Volume Opposing
90 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
AM	38	168	15	24	164	233	17	240	19	127	269	53	17.2%	221	421			
PM	44	149	14	19	201	215	27	245	31	231	281	47	21.3%	207	435			

Existing																		
Design Speed	Yes															%Left Turn	Volume Advancing	Volume Opposing
90 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
AM	38	69	15	7	43	29	17	176	12	39	188	53	8.9%	79	122			
PM	44	56	14	6	71	71	27	256	14	33	255	47	4.1%	148	114			
Future Background 2030																		
Design Speed	Yes															%Left Turn	Volume Advancing	Volume Opposing
90 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
AM	38	155	15	7	125	29	17	232	12	39	259	53	4.3%	161	208			
PM	44	110	14	6	181	71	27	234	14	33	272	47	2.3%	258	168			
Future Background 2035																		
Design Speed	Yes															%Left Turn	Volume Advancing	Volume Opposing
90 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
AM	38	155	15	7	135	29	17	240	12	39	269	53	4.1%	171	208			
PM	44	121	14	6	181	71	27	245	14	33	281	47	2.3%	258	179			
Future Total 2030																		
Design Speed	Yes															%Left Turn	Volume Advancing	Volume Opposing
90 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
AM	38	168	15	24	154	233	17	232	19	127	259	53	5.8%	411	221			
PM	44	138	14	19	201	215	27	234	31	231	272	47	4.4%	435	196			
Future Total 2035																		
Design Speed	Yes															%Left Turn	Volume Advancing	Volume Opposing
90 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
AM	38	168	15	24	164	233	17	240	19	127	269	53	5.7%	421	221			
PM	44	149	14	19	201	215	27	245	31	231	281	47	4.4%	435	207			

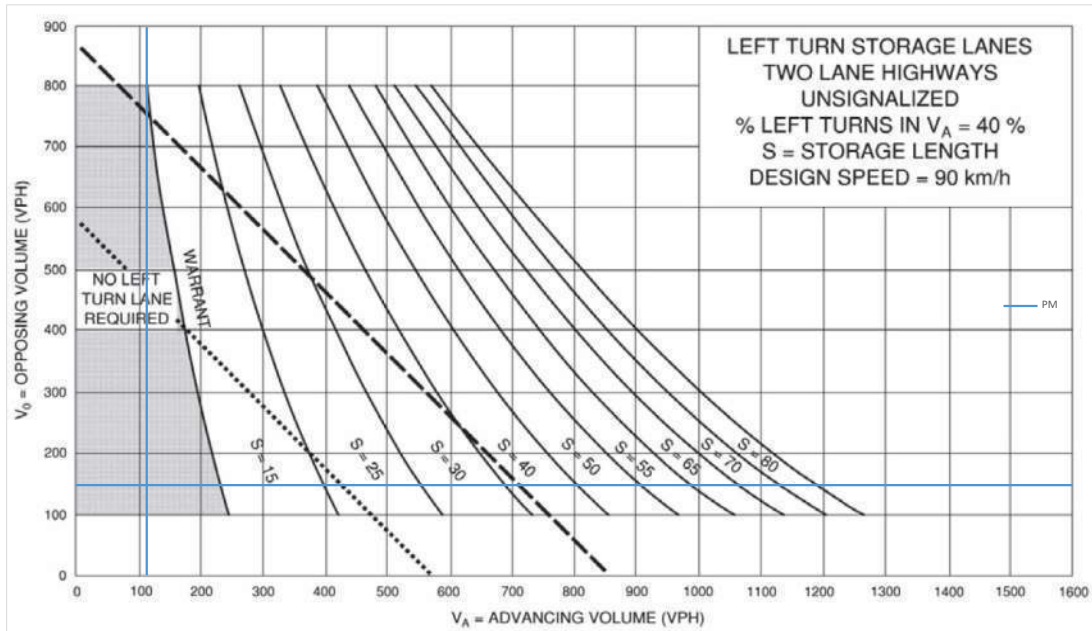
Existing																	
Design Speed																	
70 km/h																	
		EBL	EBT	EBR	WBL	WBT	WBR	Yes			SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
		AM	38	69	15	7	43	29	NBL	NBT	NBR	12	39	188	53	8.3%	205
	PM	44	56	14	6	71	71	27	256	14	33	255	47	9.1%	297	335	
Future Background 2030																	
Design Speed																	
70 km/h																	
		EBL	EBT	EBR	WBL	WBT	WBR	Yes			SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
	AM	38	155	15	7	125	29	NBL	NBT	NBR	12	39	259	53	6.5%	261	
	PM	44	110	14	6	181	71	27	234	14	33	272	47	9.8%	275	352	
Future Background 2035																	
Design Speed																	
70 km/h																	
		EBL	EBT	EBR	WBL	WBT	WBR	Yes			SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
	AM	38	155	15	7	135	29	NBL	NBT	NBR	12	39	269	53	6.3%	269	
	PM	44	121	14	6	181	71	27	245	14	33	281	47	9.4%	286	361	
Future Total 2030																	
Design Speed																	
70 km/h																	
		EBL	EBT	EBR	WBL	WBT	WBR	Yes			SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
	AM	38	168	15	24	154	233	NBL	NBT	NBR	19	127	259	53	6.3%	268	
	PM	44	138	14	19	201	215	27	234	31	231	272	47	9.2%	292	439	
Future Total 2035																	
Design Speed																	
70 km/h																	
		EBL	EBT	EBR	WBL	WBT	WBR	Yes			SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
	AM	38	168	15	24	164	233	NBL	NBT	NBR	19	127	269	53	6.2%	276	
	PM	44	149	14	19	201	215	27	245	31	231	281	47	8.9%	303	449	

Existing																	
Design Speed																	
70 km/h																	
		EBL	EBT	EBR	WBL	WBT	WBR				SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
	AM	38	69	15	7	43	29				12	39	188	53	13.9%	280	
	PM	44	56	14	6	71	71				14	33	255	47	9.9%	335	
Future Background 2030																	
Design Speed																	
70 km/h																	
		EBL	EBT	EBR	WBL	WBT	WBR				SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
	AM	38	155	15	7	125	29				12	39	259	53	11.1%	351	
	PM	44	110	14	6	181	71				14	33	272	47	9.4%	352	
Future Background 2035																	
Design Speed																	
70 km/h																	
		EBL	EBT	EBR	WBL	WBT	WBR				SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
	AM	38	155	15	7	135	29				12	39	269	53	10.8%	361	
	PM	44	121	14	6	181	71				14	33	281	47	9.1%	361	
Future Total 2030																	
Design Speed																	
70 km/h																	
		EBL	EBT	EBR	WBL	WBT	WBR				SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
	AM	38	168	15	24	154	233				19	127	259	53	28.9%	439	
	PM	44	138	14	19	201	215				31	231	272	47	42.0%	550	
Future Total 2035																	
Design Speed																	
70 km/h																	
		EBL	EBT	EBR	WBL	WBT	WBR				SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
	AM	38	168	15	24	164	233				19	127	269	53	28.3%	449	
	PM	44	149	14	19	201	215				31	231	281	47	41.3%	559	

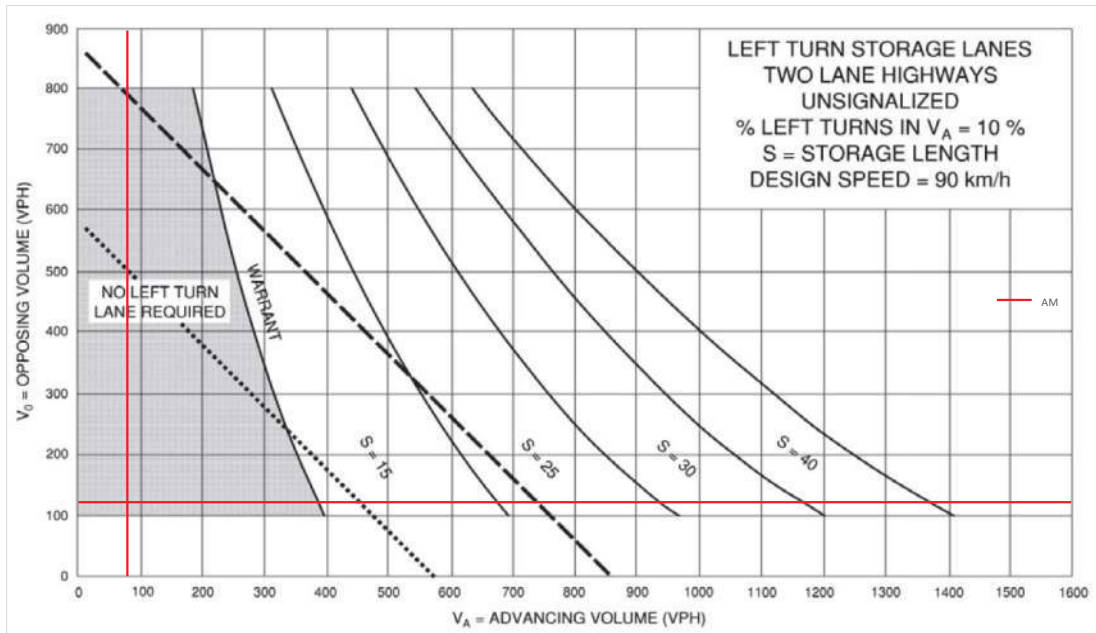
Existing - Eastbound Left



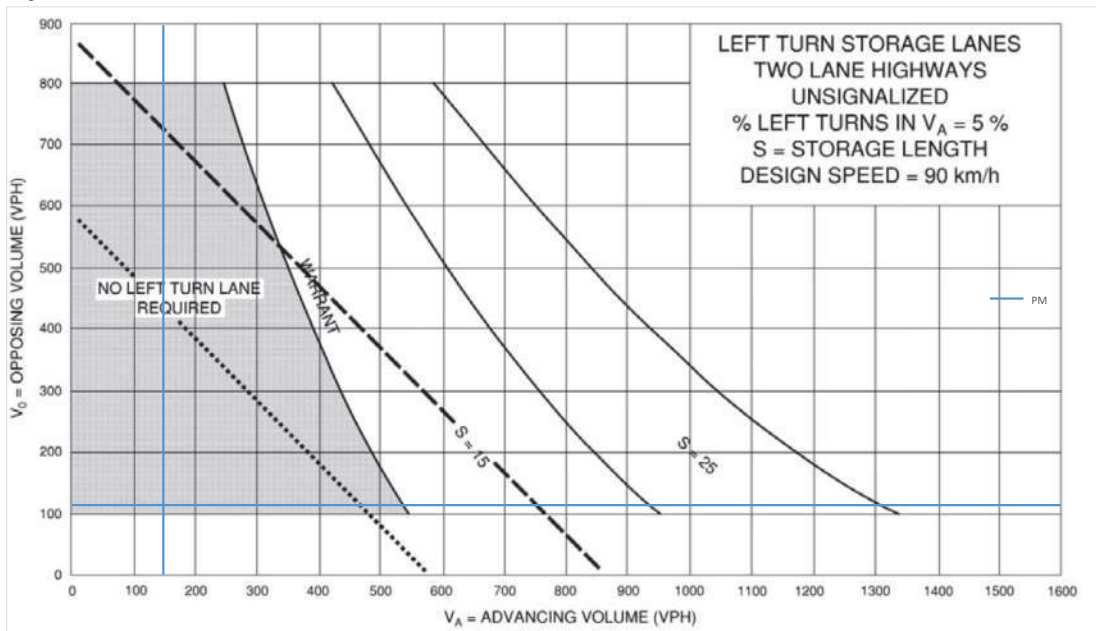
Existing - Eastbound Left



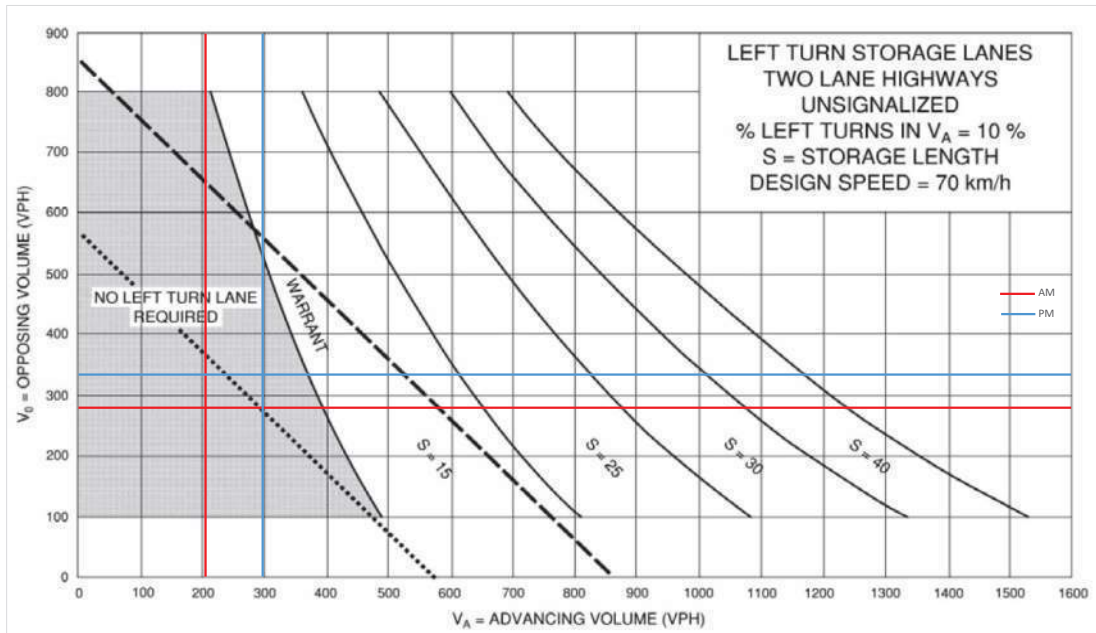
Existing - Westbound Left



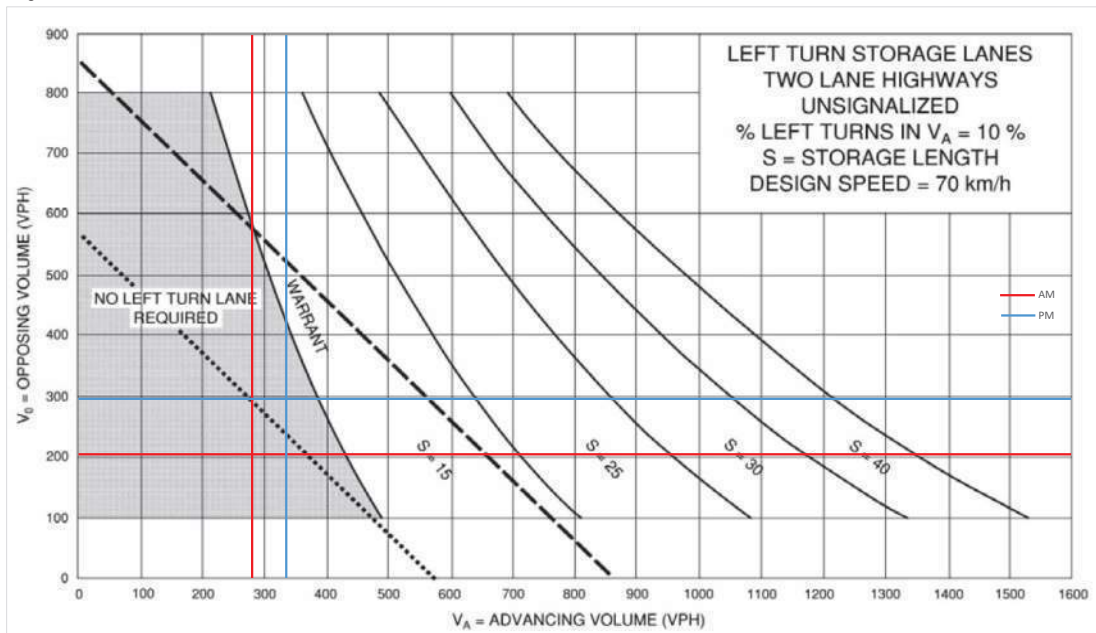
Existing - Westbound Left

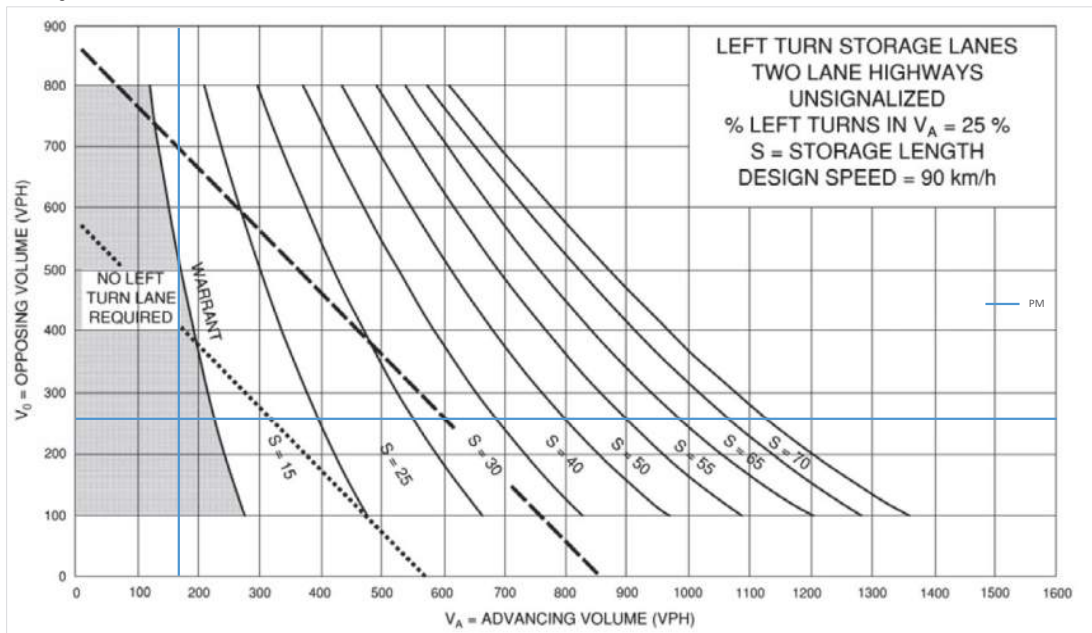
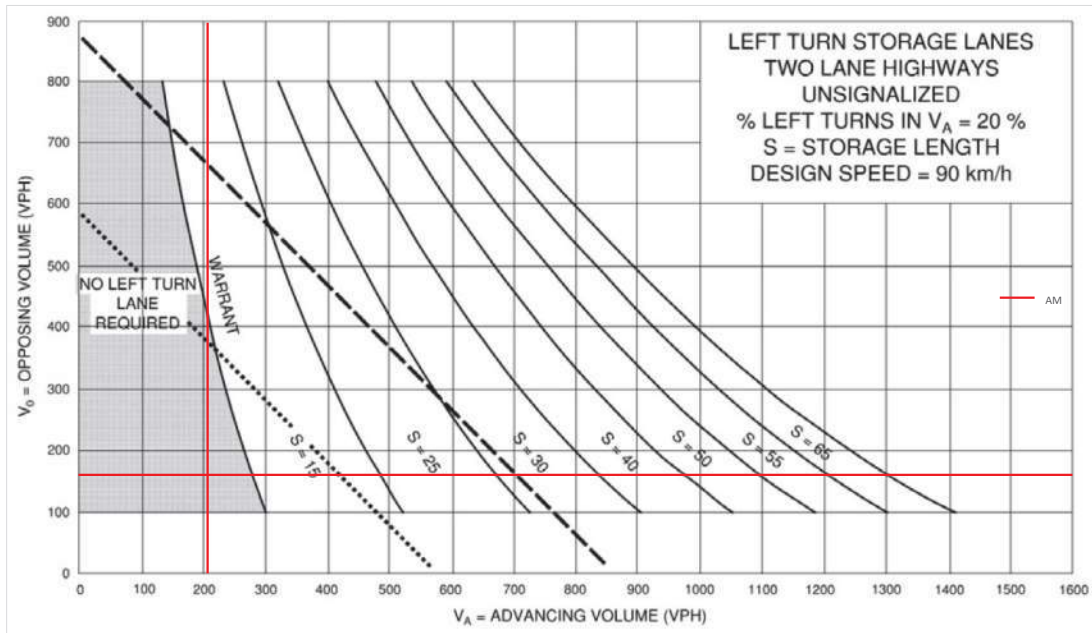


Existing - Northbound Left

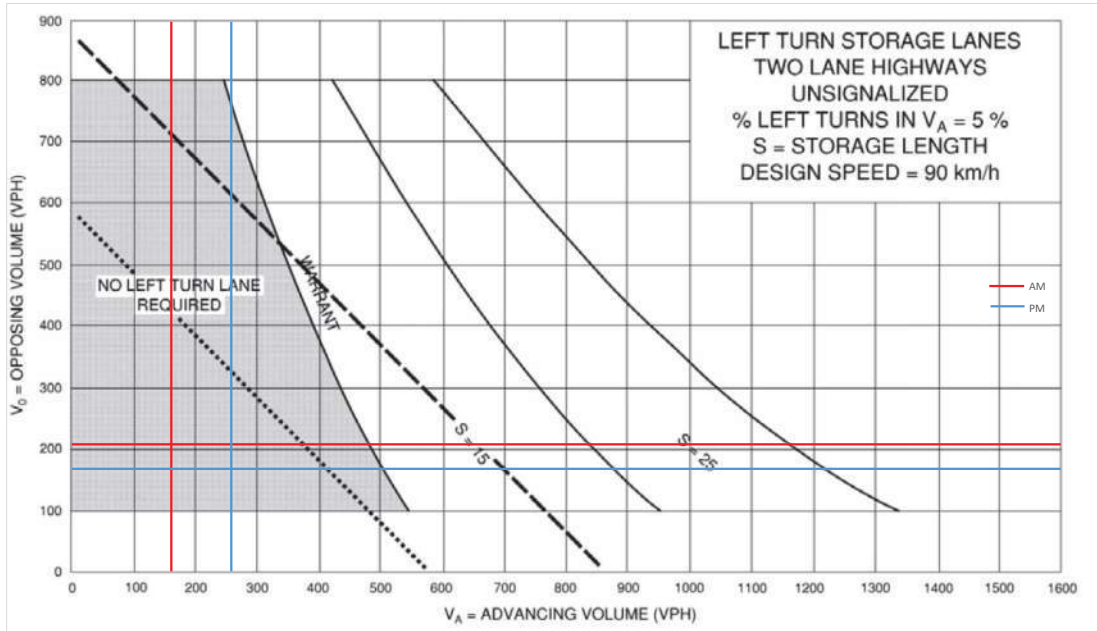


Existing - Southbound Left

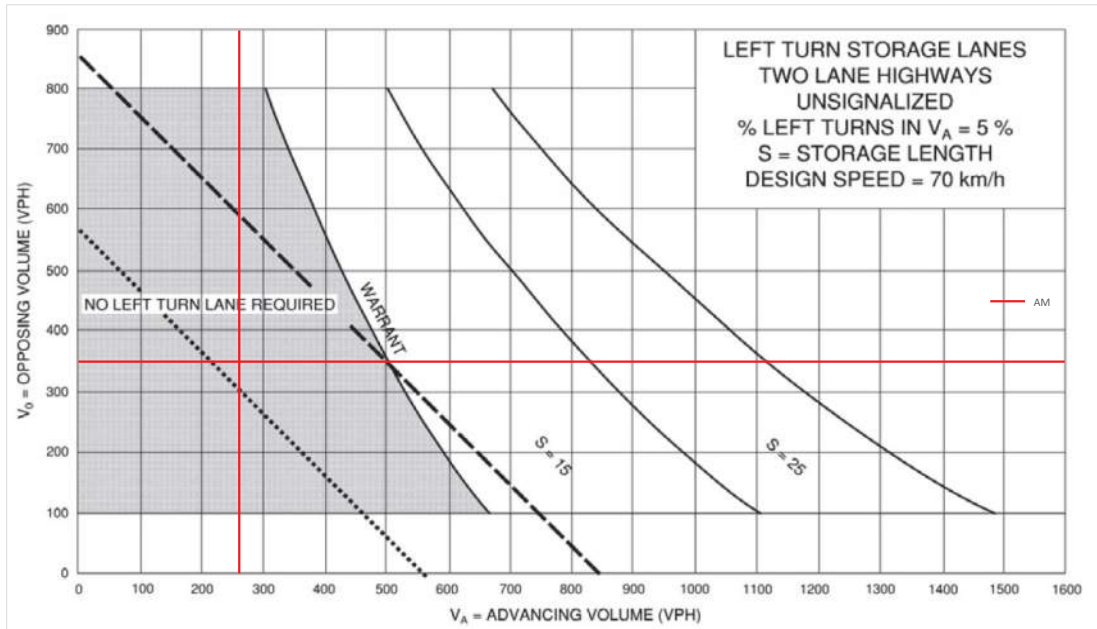




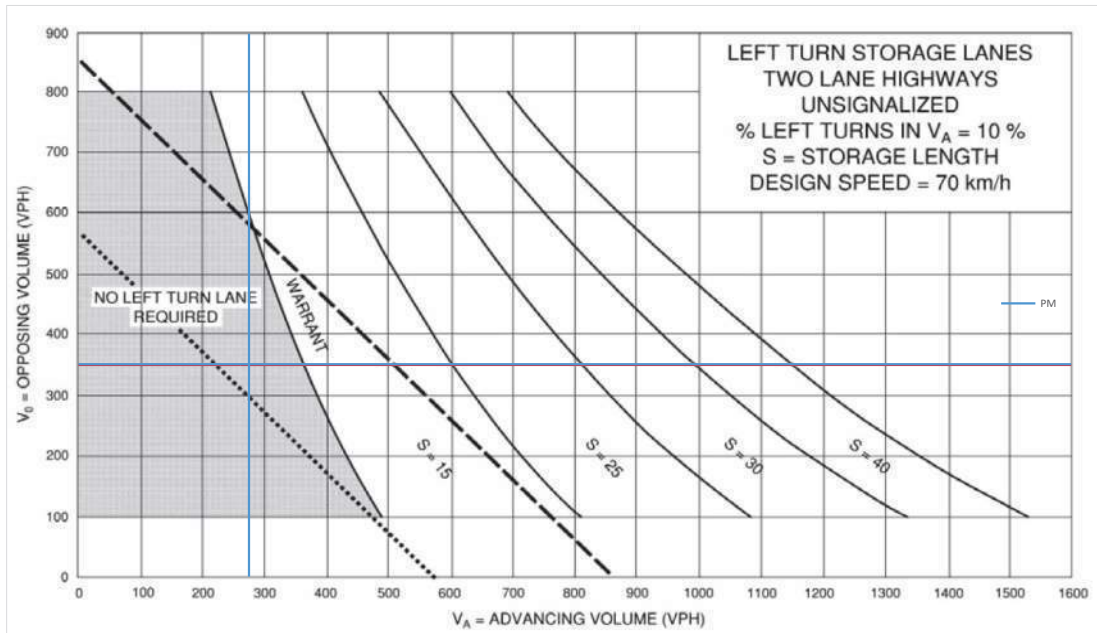
Future Background 2030 - Westbound Left



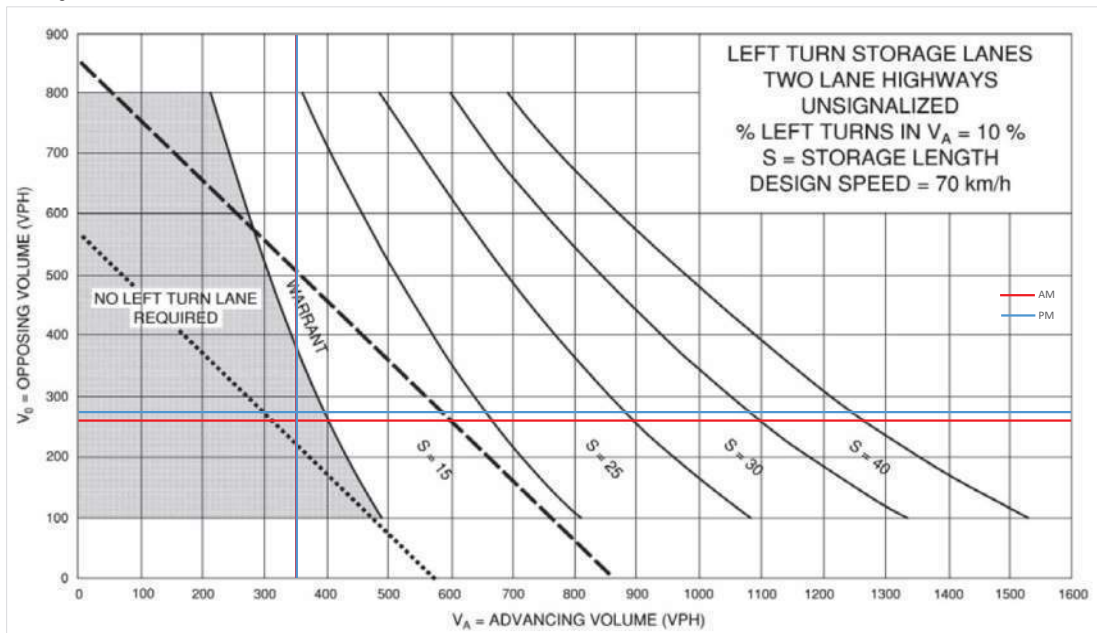
Future Background 2030 - Northbound Left

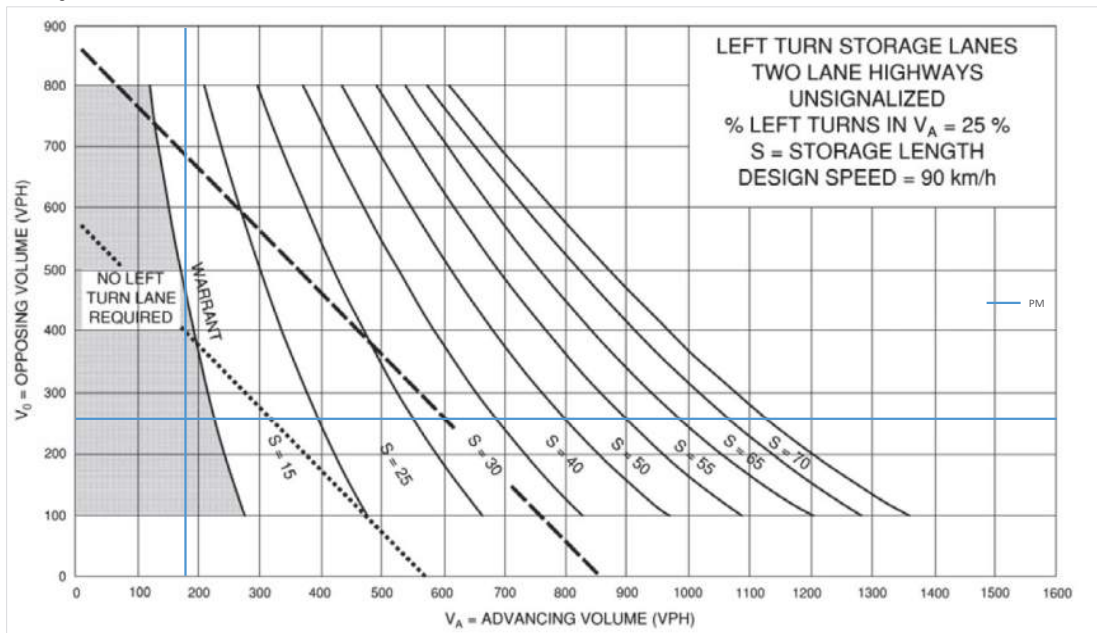
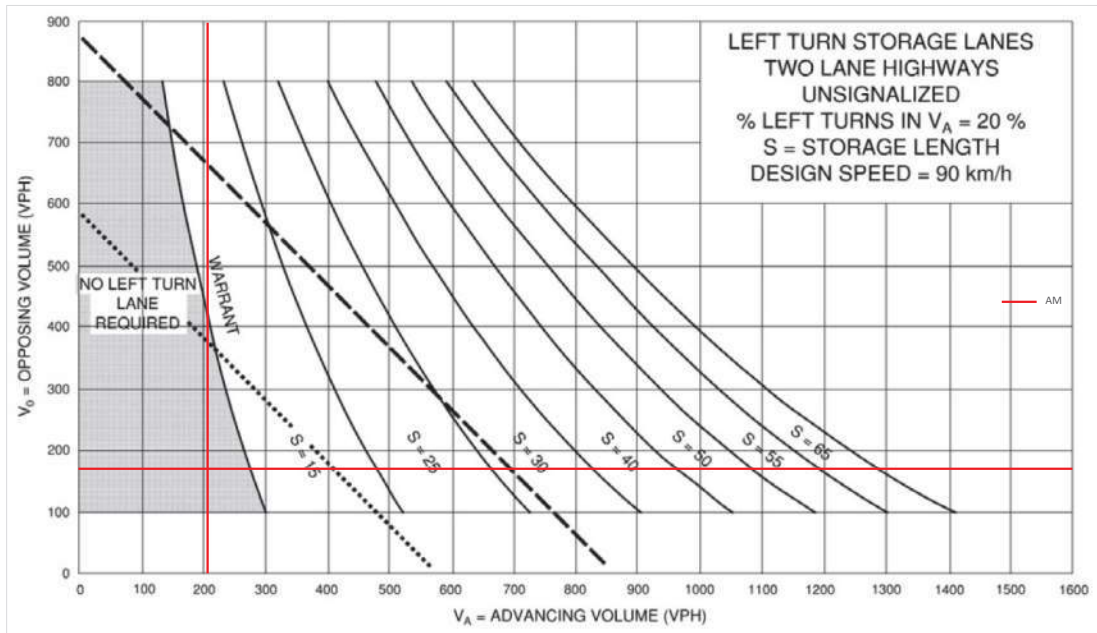


Future Background 2030 - Northbound Left

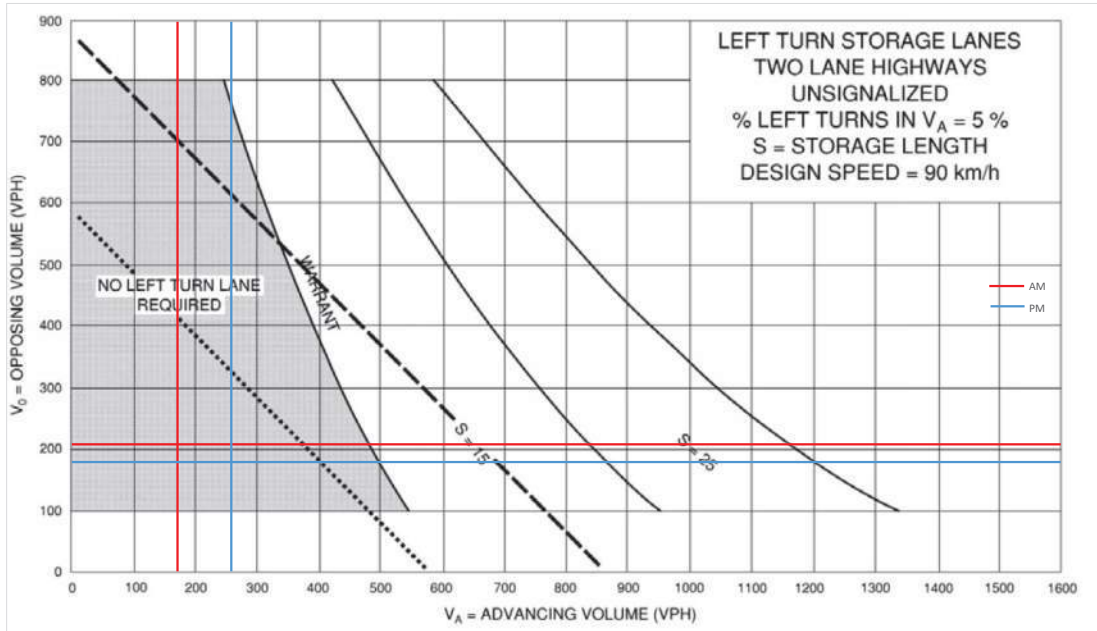


Future Background 2030 - Southbound Left

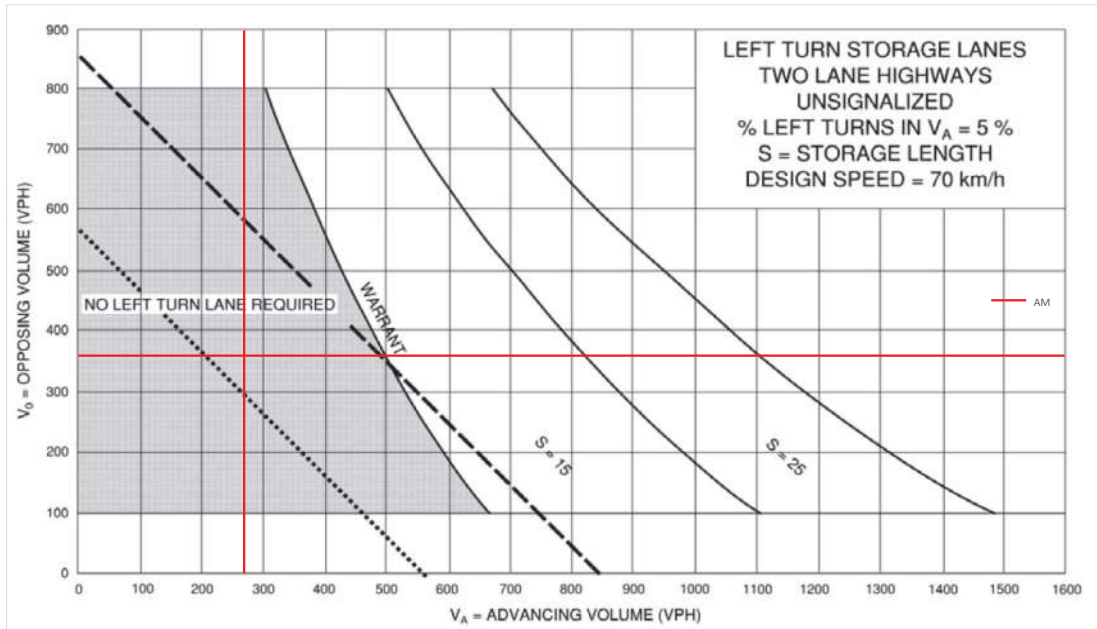


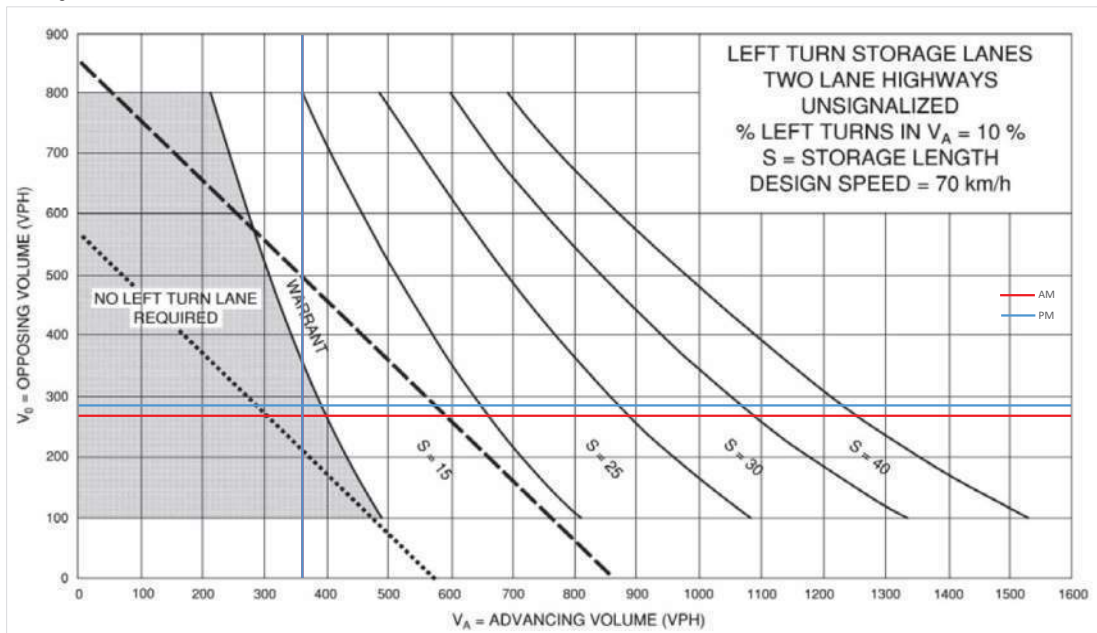
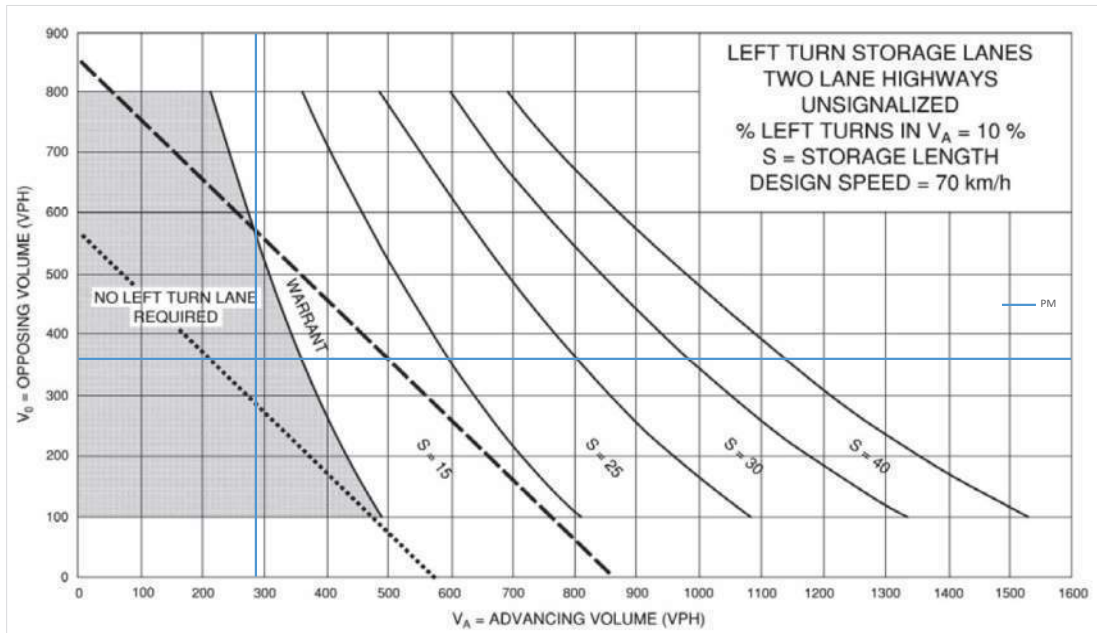


Future Background 2035 - Westbound Left

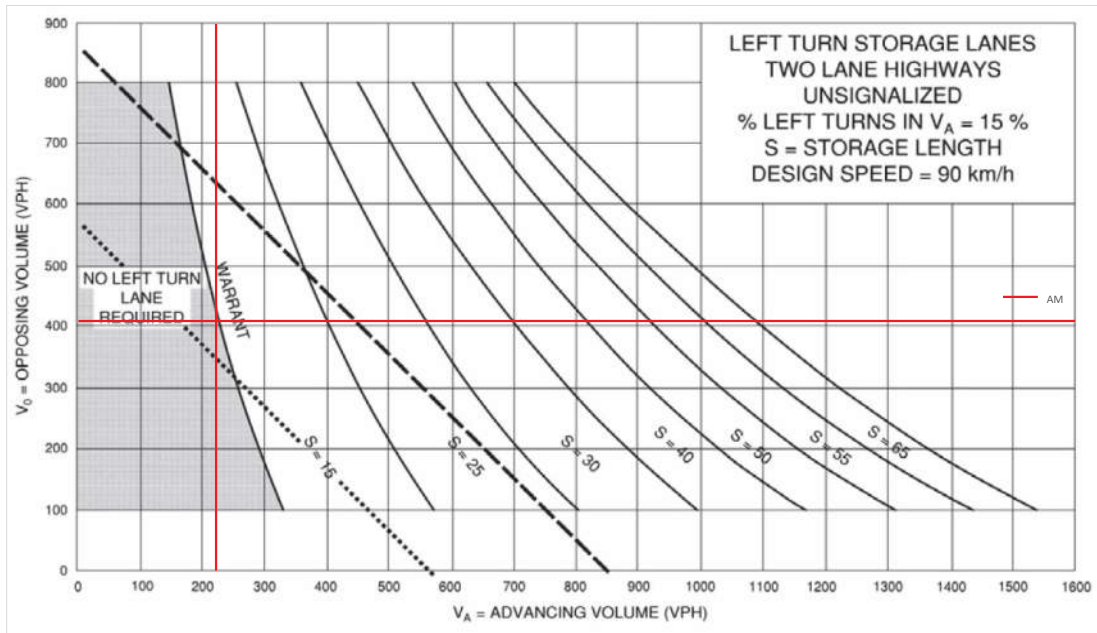


Future Background 2035 - Northbound Left

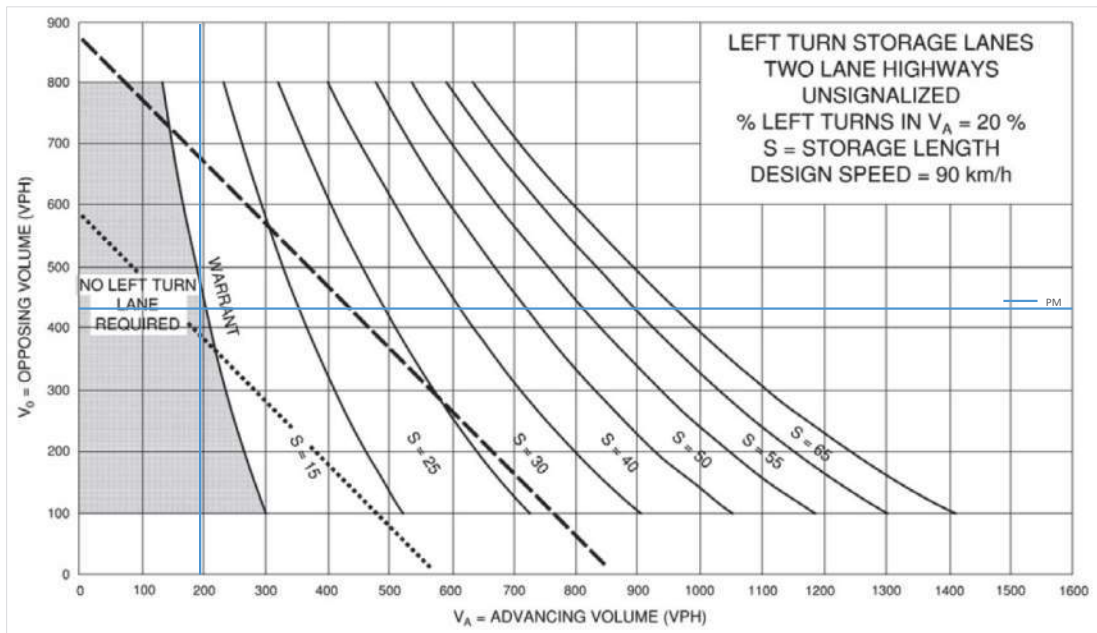




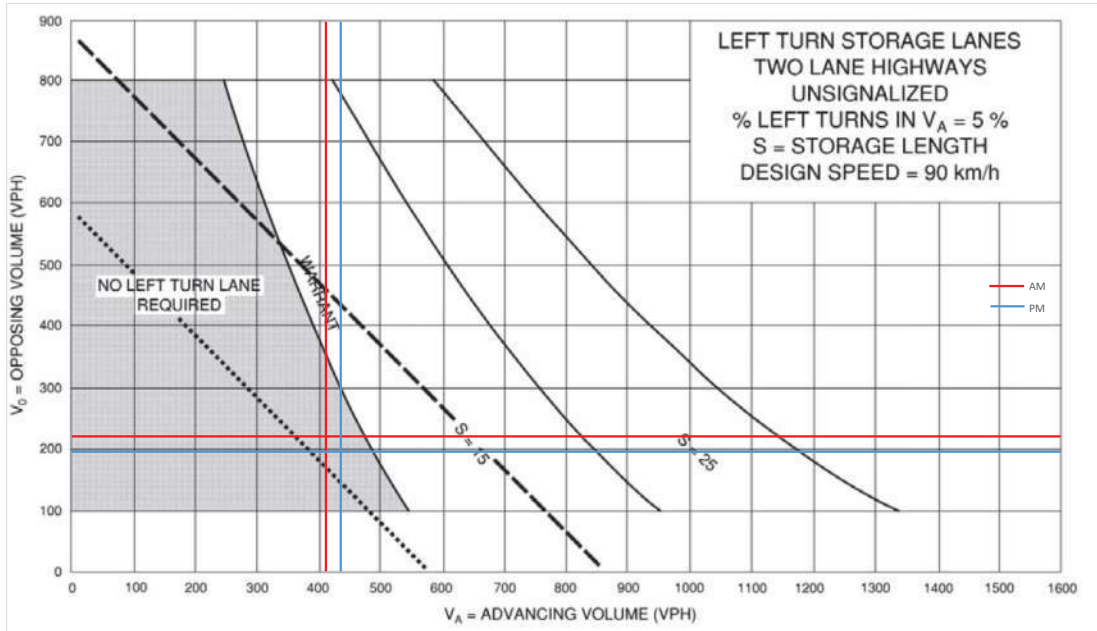
Future Total 2030 - Eastbound Left



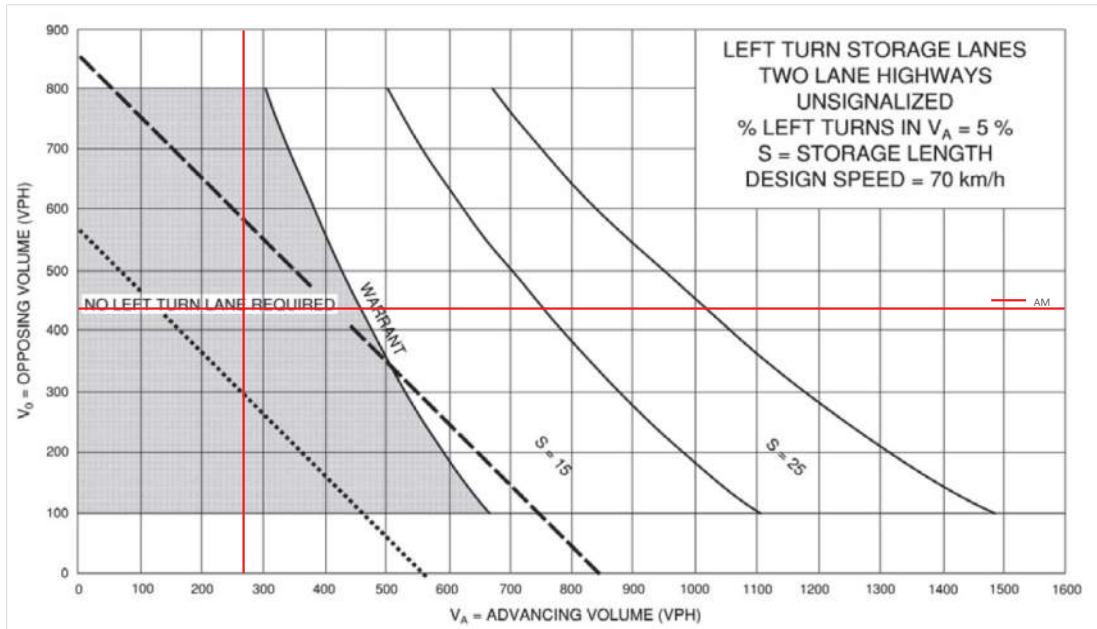
Future Total 2030 - Eastbound Left



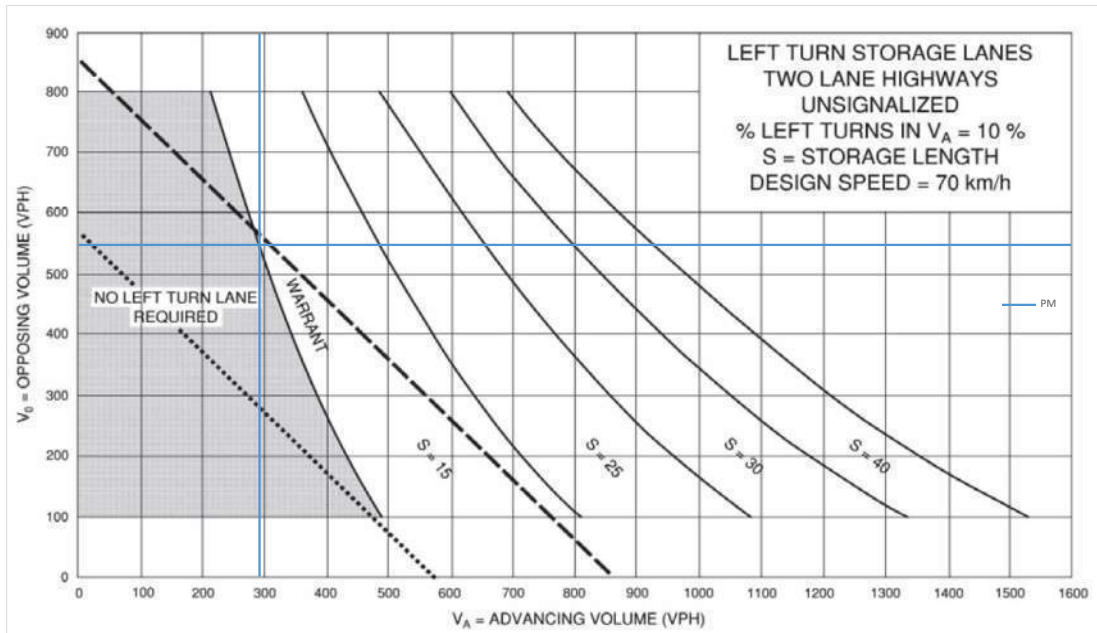
Future Total 2030 - Westbound Left



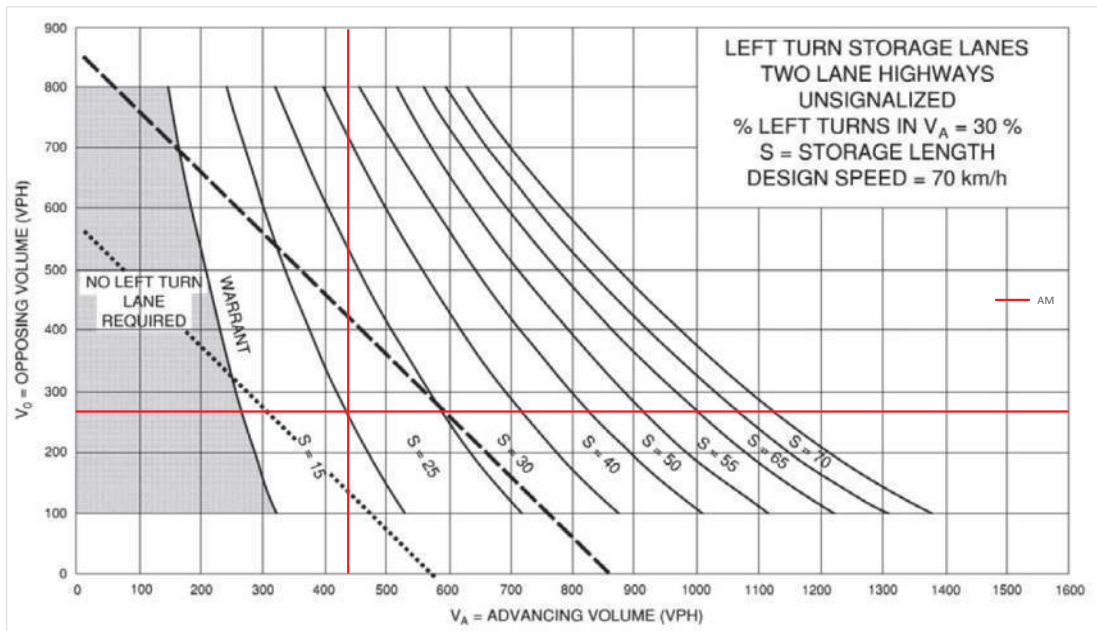
Future Total 2030 - Northbound Left



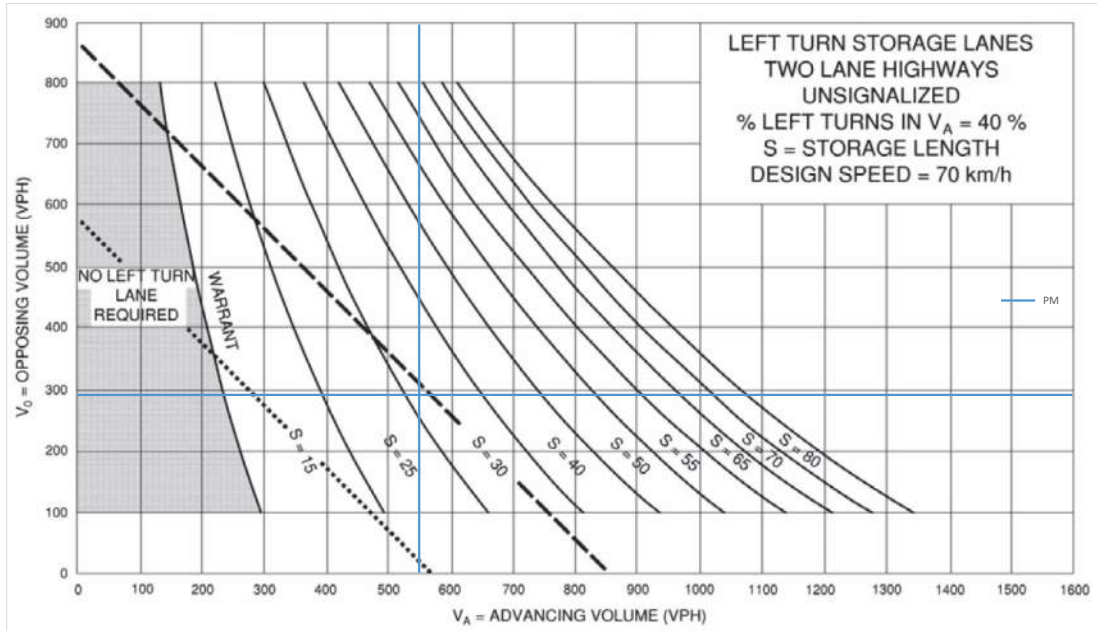
Future Total 2030 - Northbound Left



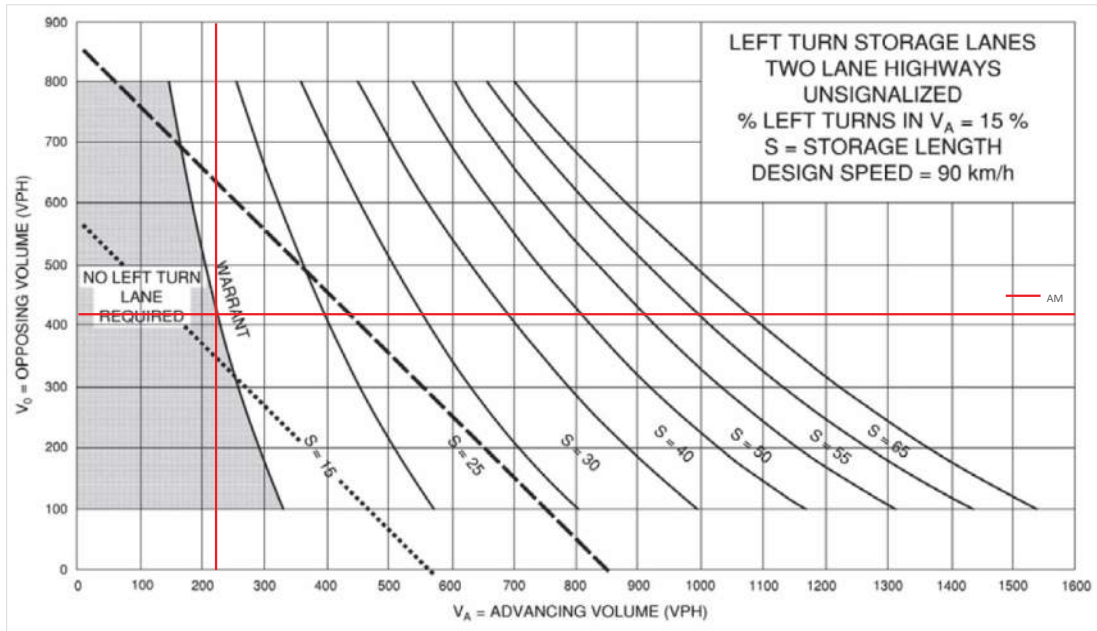
Future Total 2030 - Southbound Left



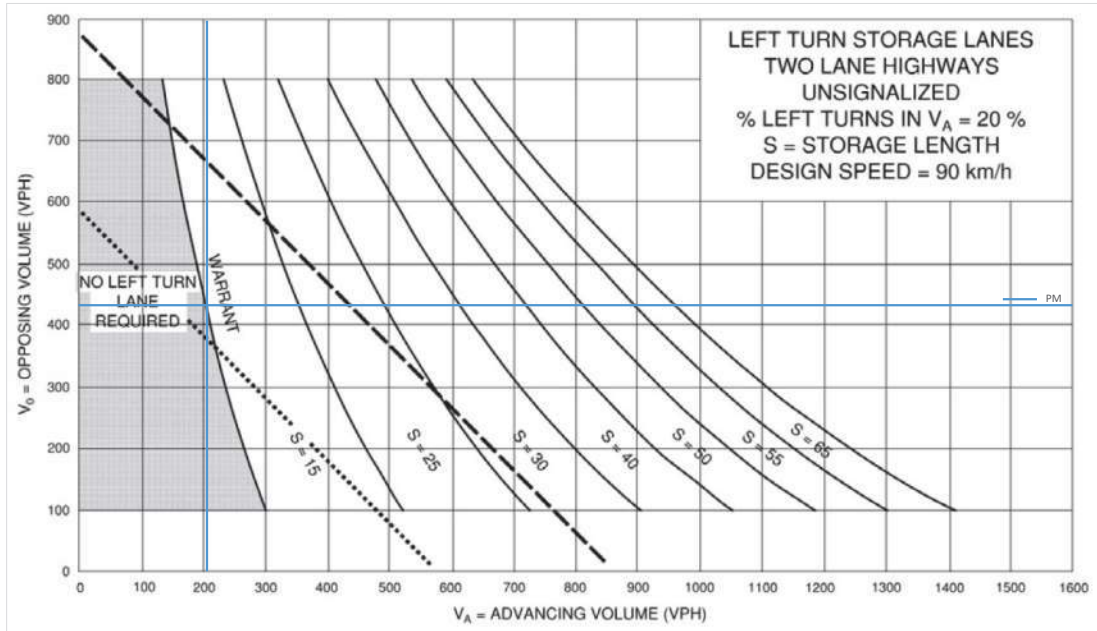
Future Total 2030 - Southbound Left



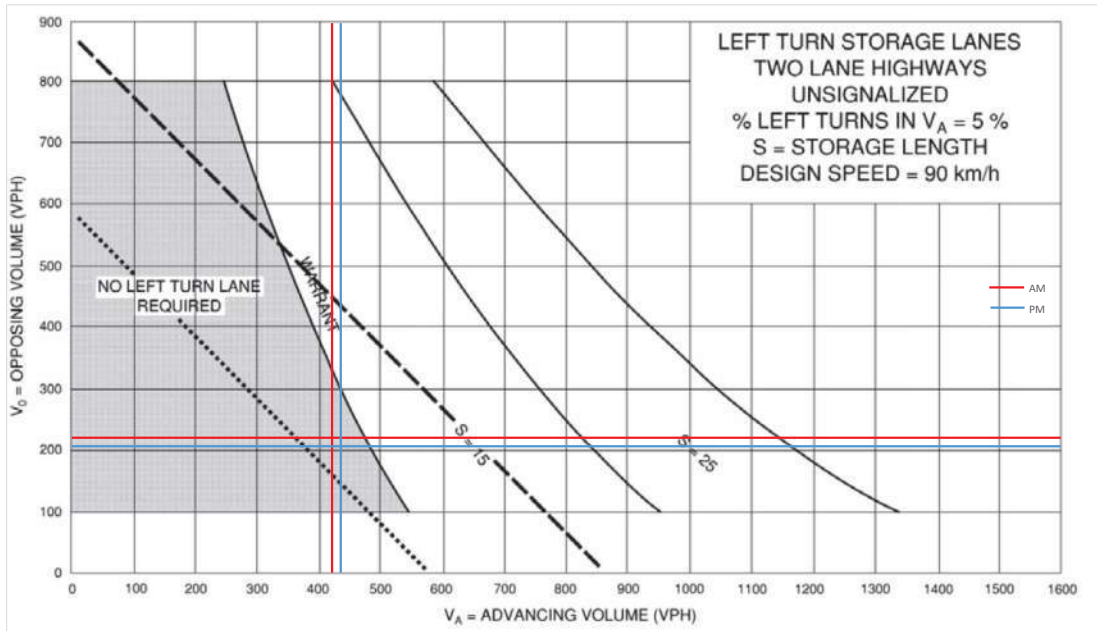
Future Total 2035 - Eastbound Left

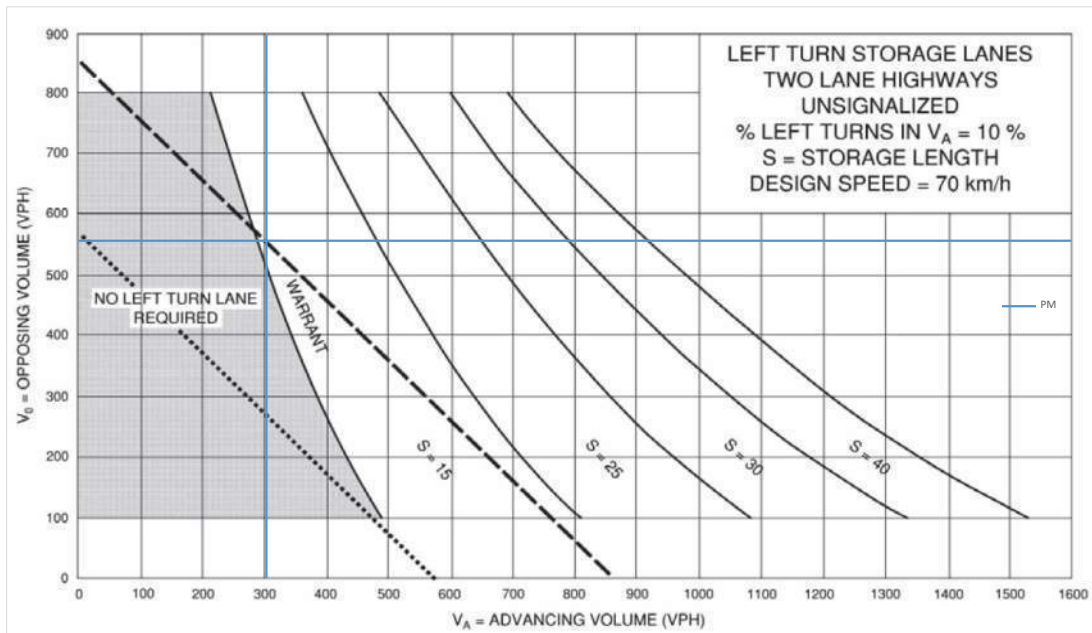
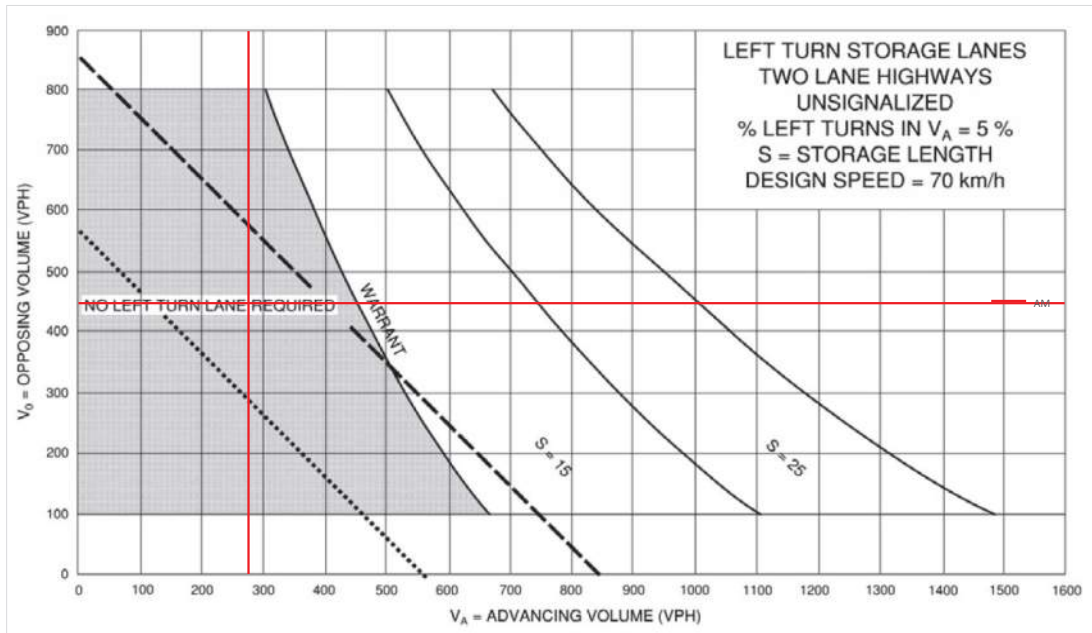


Future Total 2035 - Eastbound Left



Future Total 2035 - Westbound Left





Shea Road at Abbott Street

Existing																
Design Speed		Yes														
60 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		0	131	99	250	124	0	83	0	249	0	0	0	66.8%	374	230
PM		0	133	77	252	146	0	120	0	197	0	0	0	63.3%	398	210

Future Background 2030																
Design Speed		Yes														
60 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		0	134	118	425	150	0	122	0	394	0	0	0	73.9%	575	252
PM		0	152	104	455	151	0	153	0	399	0	0	0	75.1%	606	256

Future Background 2035																
Design Speed		Yes														
60 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		0	136	118	473	173	0	122	0	417	0	0	0	73.2%	646	254
PM		0	167	104	485	154	0	153	0	446	0	0	0	75.9%	639	271

Future Total 2030																
Design Speed		Yes														
60 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		0	134	118	450	150	0	122	0	453	0	0	0	75.0%	600	252
PM		0	152	104	512	151	0	153	0	441	0	0	0	77.2%	663	256

Future Total 2035																
Design Speed		Yes														
60 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		0	136	118	498	173	0	122	0	476	0	0	0	74.2%	671	254
PM		0	167	104	542	154	0	153	0	488	0	0	0	77.9%	696	271

Existing																
Design Speed		Yes														
70 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		0	131	99	250	124	0	83	0	249	0	0	0	25.0%	332	0
PM		0	133	77	252	146	0	120	0	197	0	0	0	37.9%	317	0

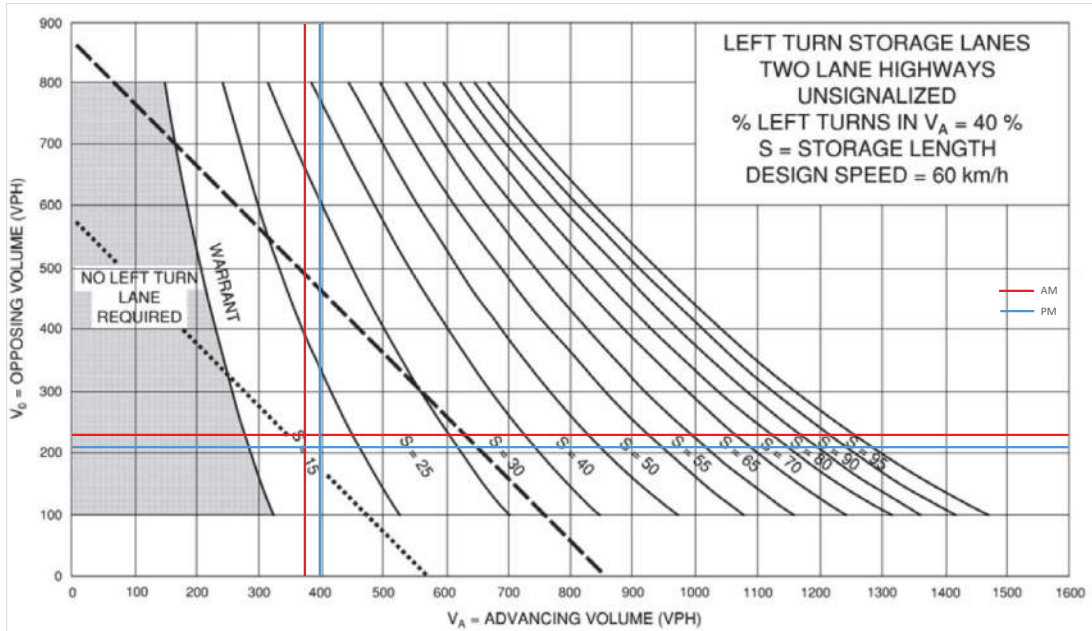
Future Background 2030																
Design Speed		Yes														
70 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		0	134	118	425	150	0	122	0	394	0	0	0	23.6%	516	0
PM		0	152	104	455	151	0	153	0	399	0	0	0	27.7%	552	0

Future Background 2035																
Design Speed		Yes														
70 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		0	136	118	473	173	0	122	0	417	0	0	0	22.6%	539	0
PM		0	167	104	485	154	0	153	0	446	0	0	0	25.5%	599	0

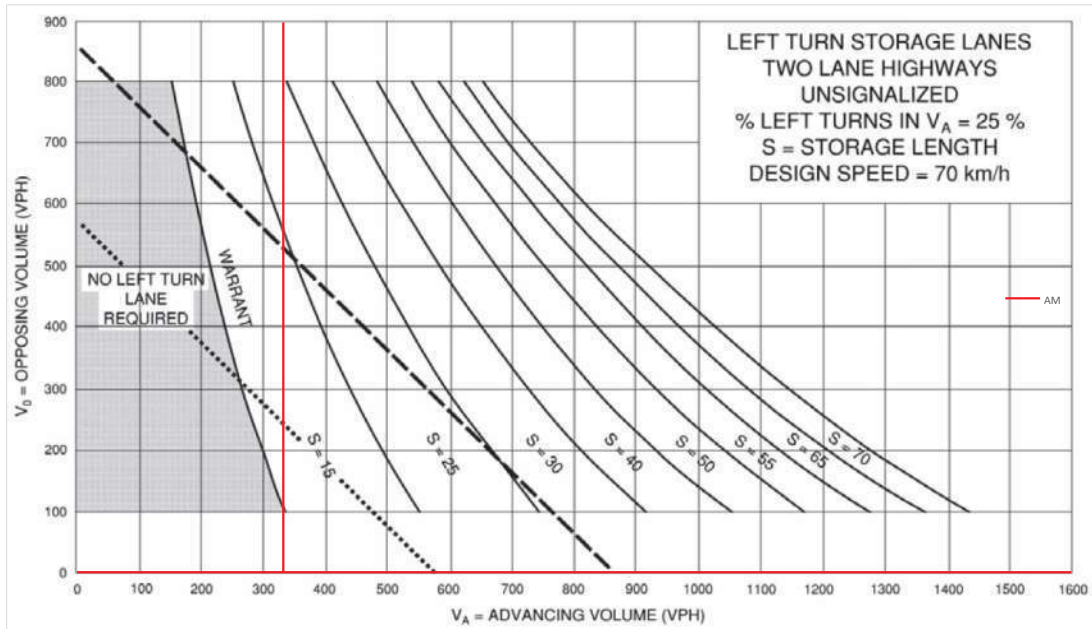
Future Total 2030																
Design Speed		Yes														
70 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		0	134	118	450	150	0	122	0	453	0	0	0	21.2%	575	0
PM		0	152	104	512	151	0	153	0	441	0	0	0	25.8%	594	0

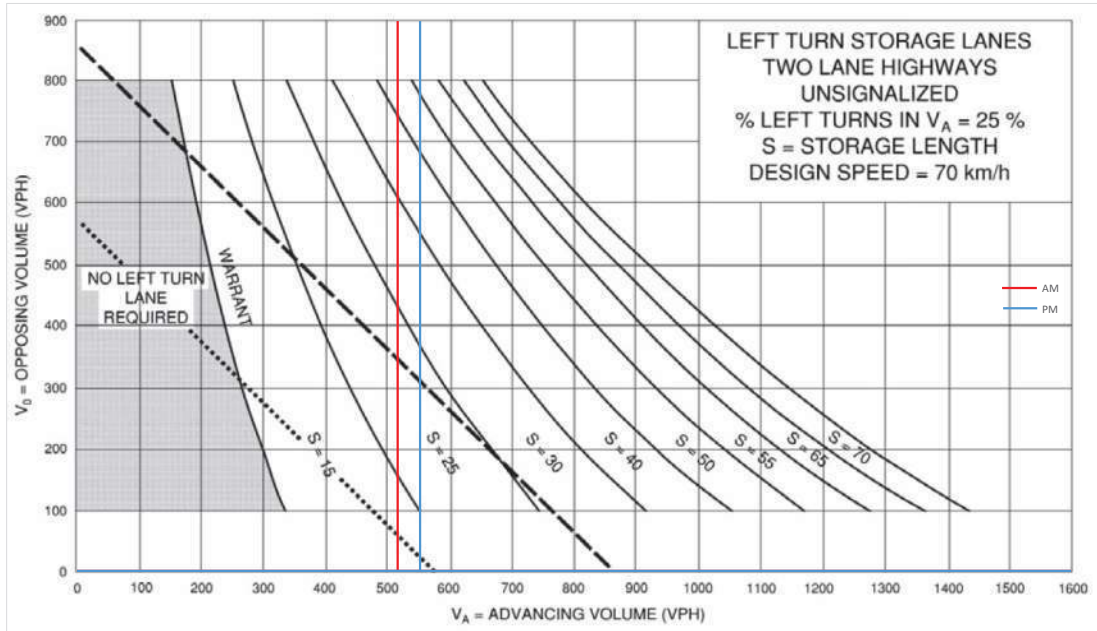
Future Total 2035																
Design Speed		Yes														
70 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		0	136	118	498	173	0	122	0	476	0	0	0	20.4%	598	0
PM		0	167	104	542	154	0	153	0	488	0	0	0	23.9%	641	0

Existing - Westbound Left



Existing - Northbound Left

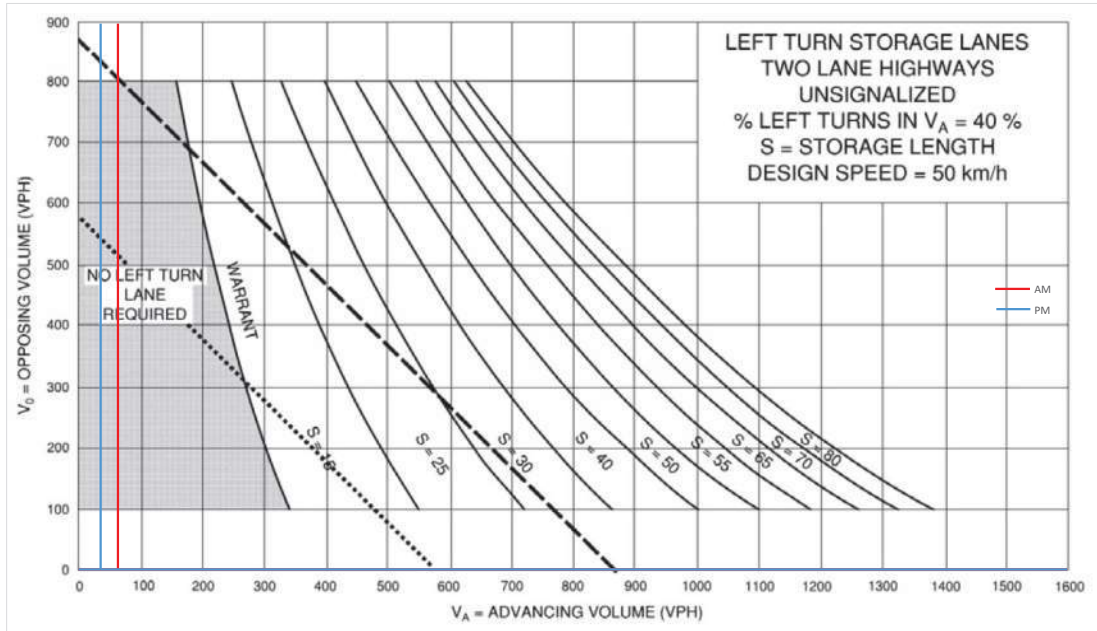




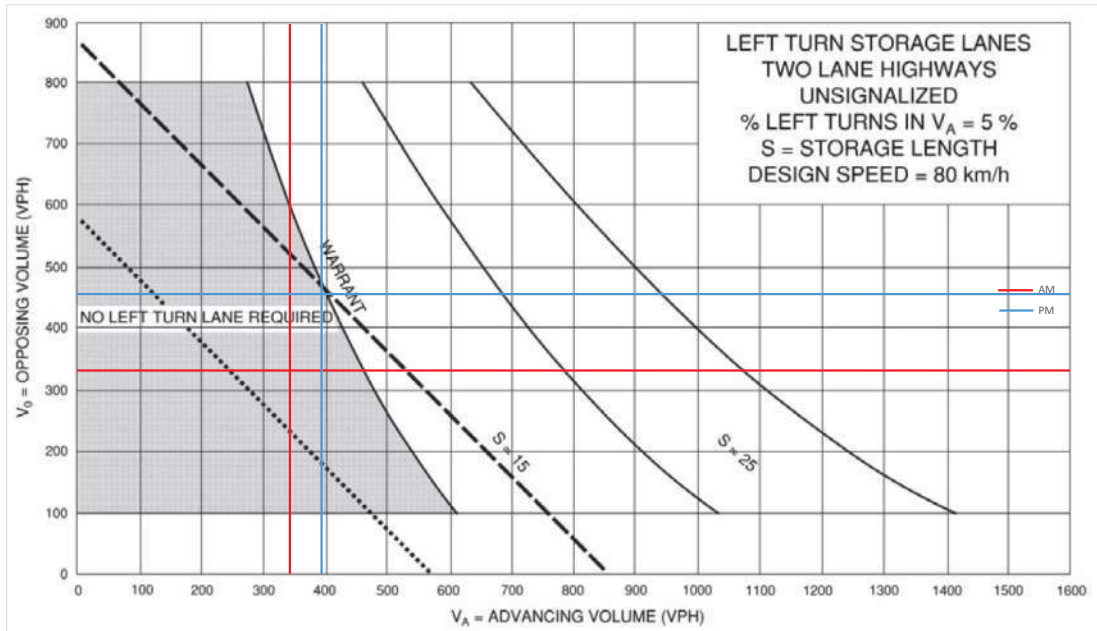
Shea Road at Cosanti Drive

Existing																
Design Speed		Yes														
50 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		39	0	19	0	0	0	5	225	0	0	101	11	67.2%	58	0
PM		22	0	11	0	0	0	19	169	0	0	114	39	66.7%	33	0
Future Background 2030																
Design Speed		Yes														
50 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		43	0	21	0	0	0	6	255	0	0	248	12	67.2%	64	0
PM		24	0	12	0	0	0	21	284	0	0	328	43	66.7%	36	0
Future Background 2035																
Design Speed		Yes														
50 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		43	0	21	0	0	0	6	278	0	0	296	12	67.2%	64	0
PM		24	0	12	0	0	0	21	331	0	0	358	43	66.7%	36	0
Future Total 2030																
Design Speed		Yes														
50 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		43	0	21	0	0	0	6	314	0	0	273	12	67.2%	64	0
PM		24	0	12	0	0	0	21	326	0	0	385	43	66.7%	36	0
Future Total 2035																
Design Speed		Yes														
50 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		43	0	21	0	0	0	6	337	0	0	321	12	67.2%	64	0
PM		24	0	12	0	0	0	21	373	0	0	415	43	66.7%	36	0

Future Total 2035 - Eastbound Left



Future Total 2035 - Northbound Left

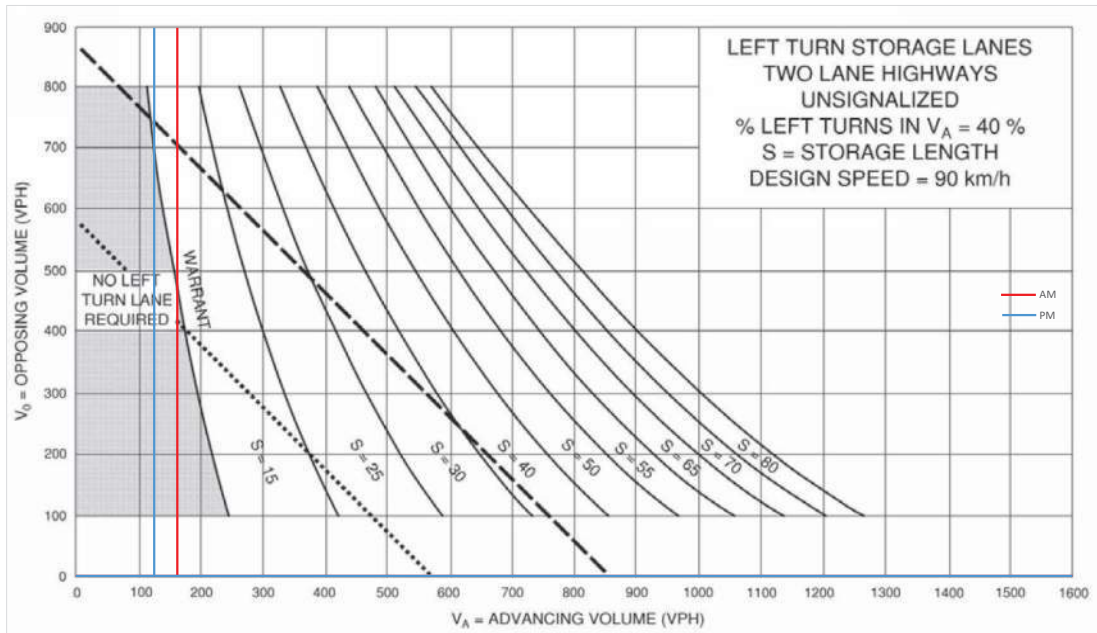


Flewellyn Road at Eagleson Road

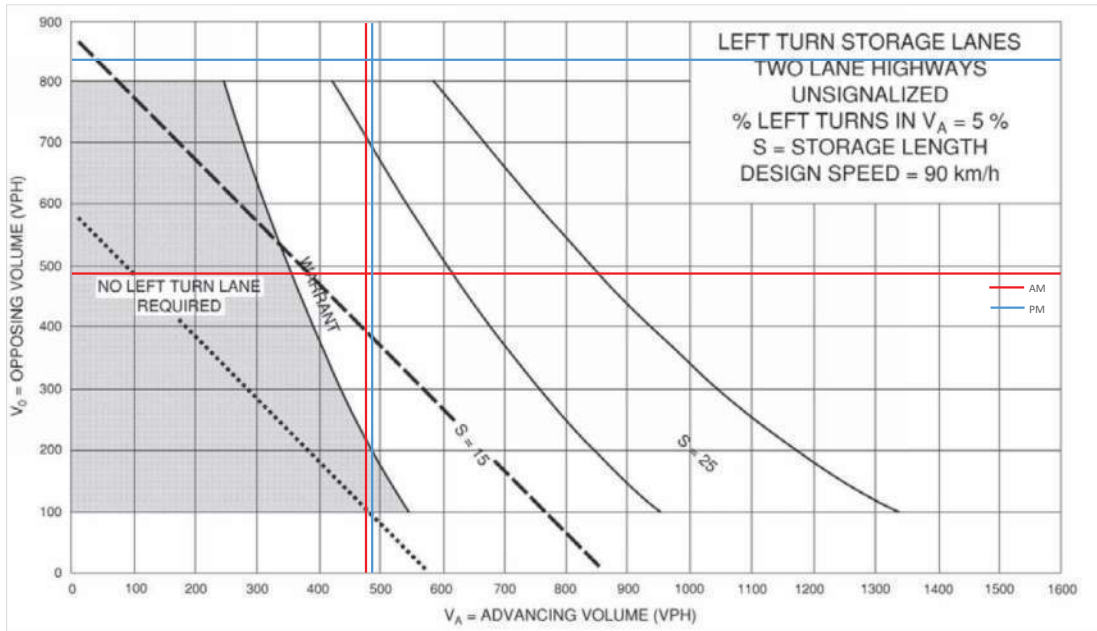
Existing																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		146	0	17				10	466	0	0	399	91	89.6%	163	0
PM		113	0	13				14	472	0	0	653	187	89.7%	126	0
Future Background 2030																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		146	0	17				10	489	0	0	449	101	89.6%	163	0
PM		125	0	13				14	530	0	0	619	187	90.6%	138	0
Future Background 2035																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		146	0	17				10	495	0	0	502	111	89.6%	163	0
PM		136	0	13				14	593	0	0	627	187	91.3%	149	0
Future Total 2030																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		420	0	17				10	489	0	0	449	219	96.1%	437	0
PM		319	0	13				14	530	0	0	619	453	96.1%	332	0
Future Total 2035																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		420	0	17				10	495	0	0	502	229	96.1%	437	0
PM		330	0	13				14	593	0	0	627	453	96.2%	343	0

Existing																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		146	0	17				10	466	0	0	399	91	2.1%	476	490
PM		113	0	13				14	472	0	0	653	187	2.9%	486	840
Future Background 2030																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		146	0	17				10	489	0	0	449	101	2.0%	499	550
PM		125	0	13				14	530	0	0	619	187	2.6%	544	806
Future Background 2035																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		146	0	17				10	495	0	0	502	111	2.0%	505	613
PM		136	0	13				14	593	0	0	627	187	2.3%	607	814
Future Total 2030																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		420	0	17				10	489	0	0	449	219	2.0%	499	668
PM		319	0	13				14	530	0	0	619	453	2.6%	544	1072
Future Total 2035																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		420	0	17				10	495	0	0	502	229	2.0%	505	731
PM		330	0	13				14	593	0	0	627	453	2.3%	607	1080

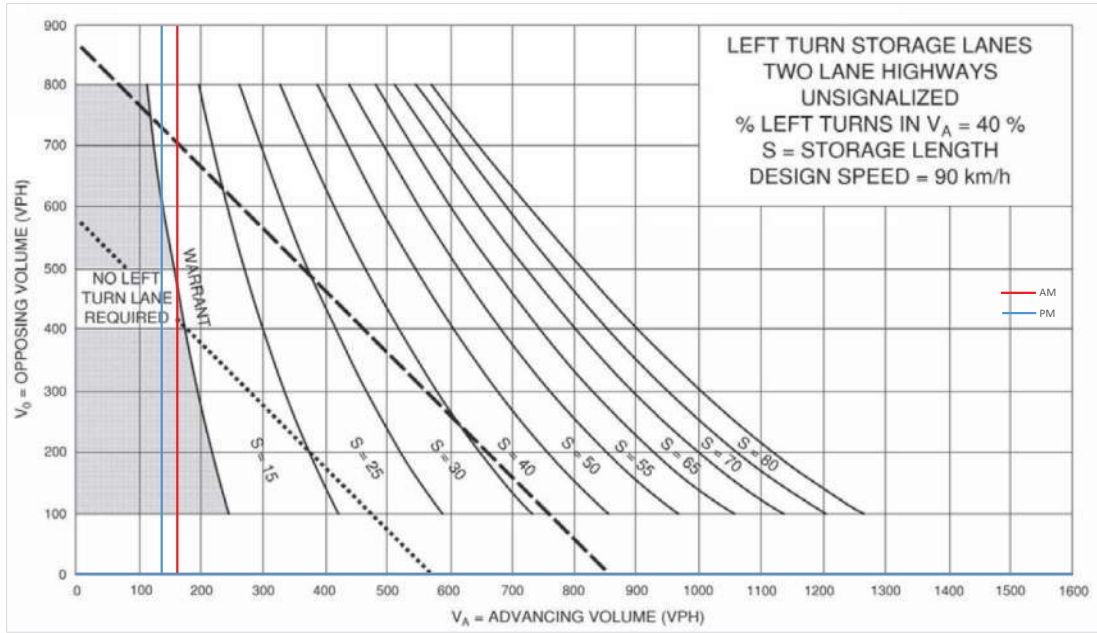
Existing - Eastbound Left



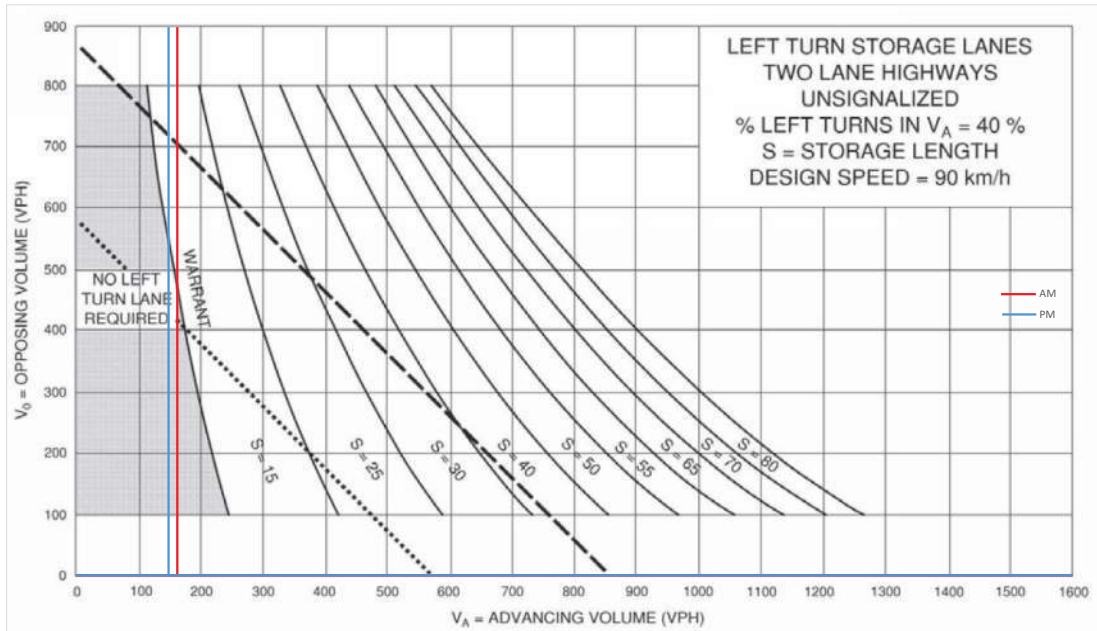
Existing - Northbound Left

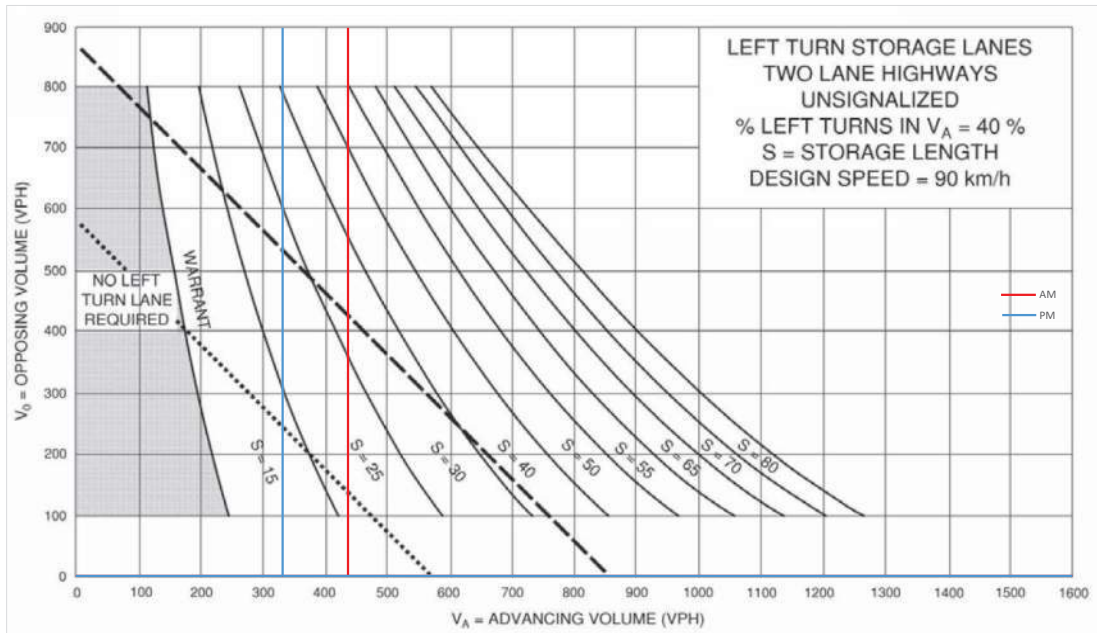


Future Background 2030 - Eastbound Left



Future Background 2035 - Eastbound Left





Shea Road at Street 21

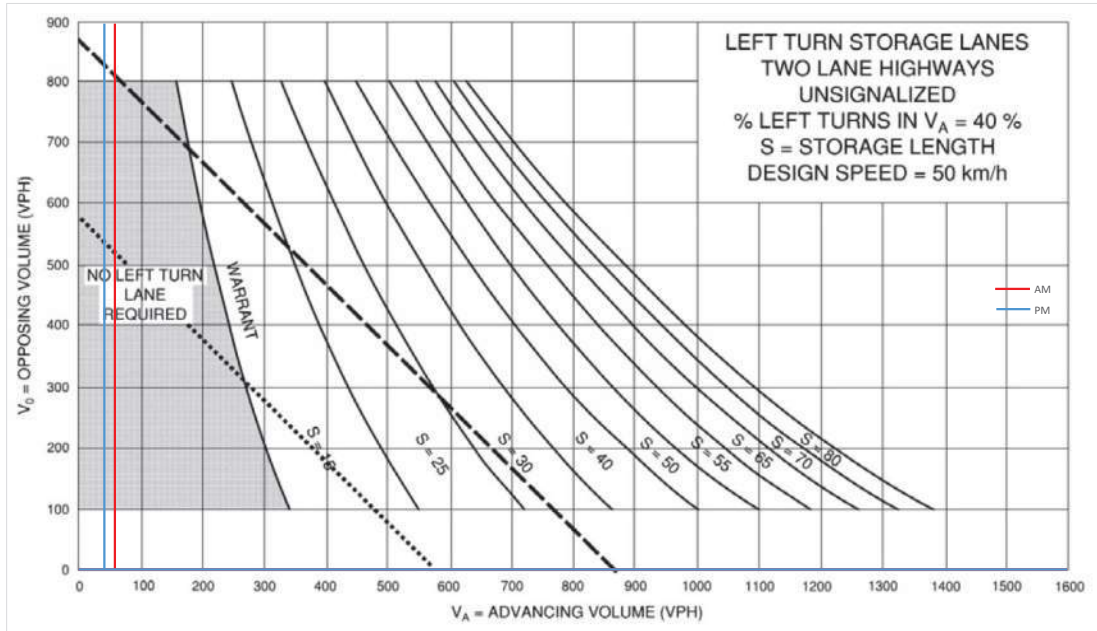
Future Total 2030																
Design Speed																
50 km/h																
	Yes	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		45	0	14				6	275	0	0	275	19	76.3%	59	0
PM		32	0	10				14	315	0	0	353	43	76.2%	42	0

Future Total 2035																
Design Speed																
50 km/h																
	Yes	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		45	0	14				6	298	0	0	323	19	76.3%	59	0
PM		32	0	10				14	362	0	0	383	43	76.2%	42	0

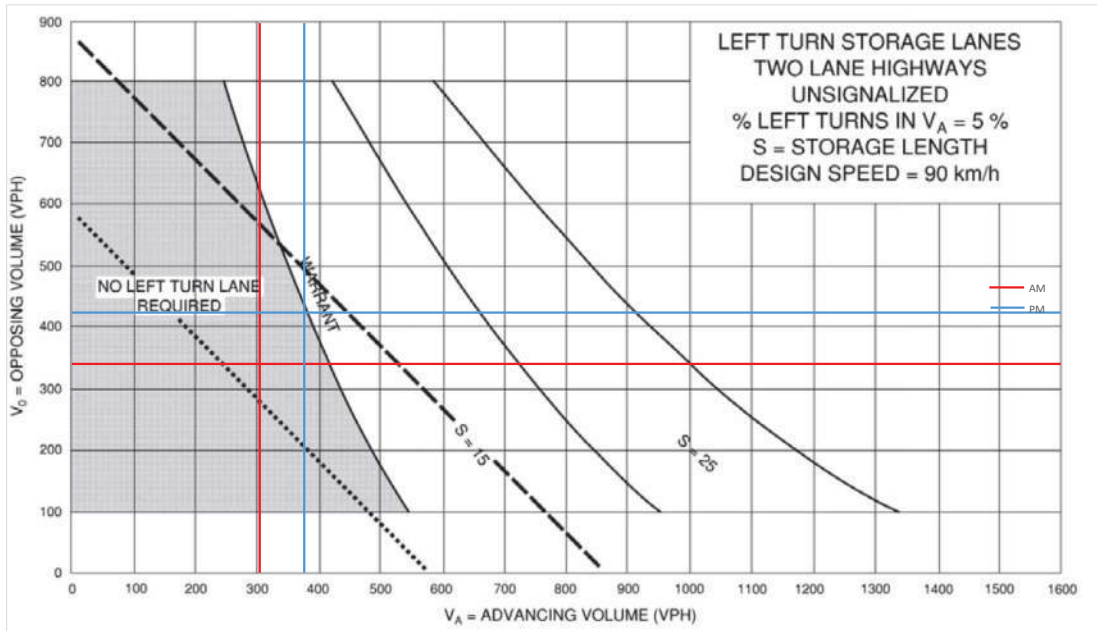
Future Total 2030																
Design Speed																
90 km/h																
	Yes	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		45	0	14				6	275	0	0	275	19	2.1%	281	294
PM		32	0	10				14	315	0	0	353	43	4.3%	329	396

Future Total 2035																
Design Speed																
90 km/h																
	Yes	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		45	0	14				6	298	0	0	323	19	2.0%	304	342
PM		32	0	10				14	362	0	0	383	43	3.7%	376	426

Future Total 2035 - Eastbound Left



Future Total 2035 - Northbound Left



Shea Road at Street 22

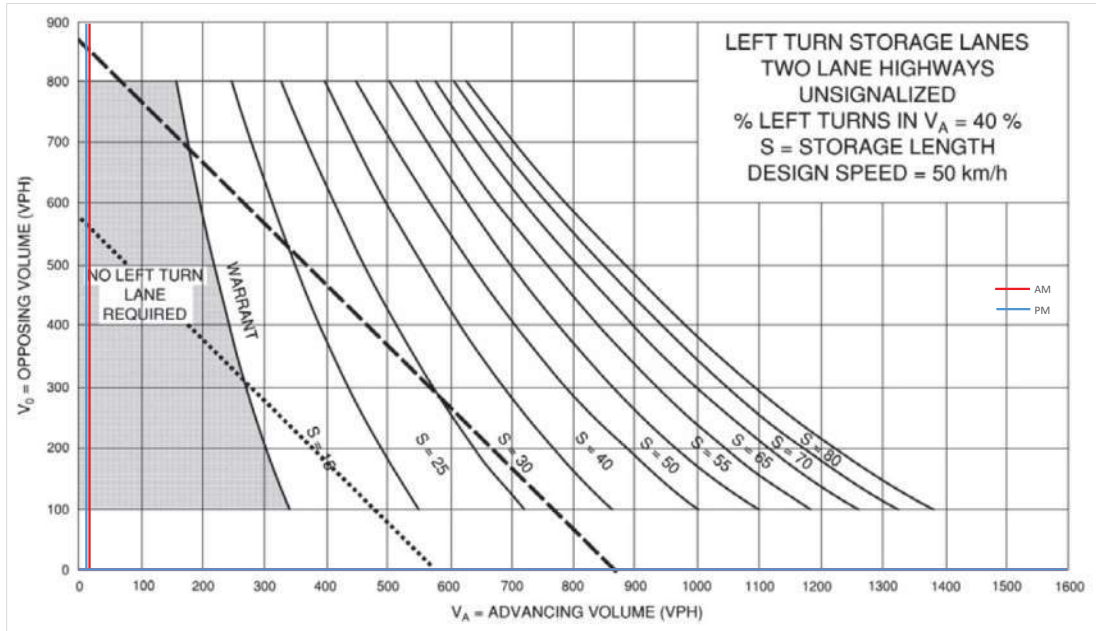
Future Total 2030																	
Design Speed	Yes																
50 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing		
AM	14	0	4				2	267	0	0	283	6	77.8%	18	0		
PM	10	0	3				3	319	0	0	350	13	76.9%	13	0		

Future Total 2035																	
Design Speed	Yes																
50 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing		
AM	14	0	4				2	290	0	0	331	6	77.8%	18	0		
PM	10	0	3				3	366	0	0	380	13	76.9%	13	0		

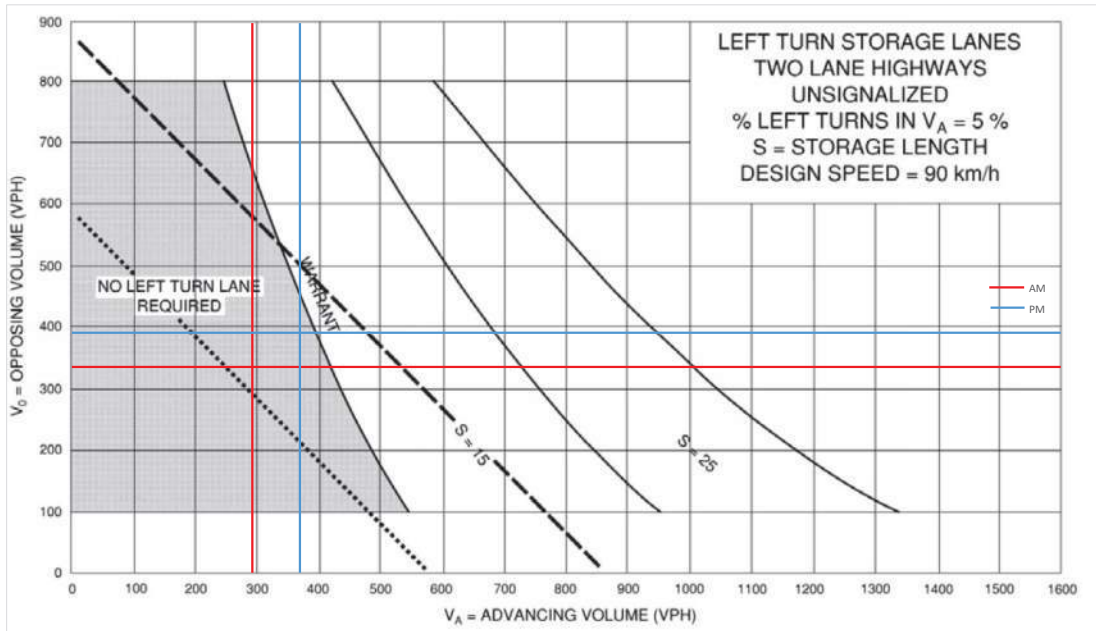
Future Total 2030																	
Design Speed	Yes																
90 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing		
AM	14	0	4				2	267	0	0	283	6	0.7%	269	289		
PM	10	0	3				3	319	0	0	350	13	0.9%	322	363		

Future Total 2035																	
Design Speed	Yes																
90 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing		
AM	14	0	4				2	290	0	0	331	6	0.7%	292	337		
PM	10	0	3				3	366	0	0	380	13	0.8%	369	393		

Future Total 2035 - Eastbound Left



Future Total 2035 - Northbound Left



Flewellyn Road at Street 7

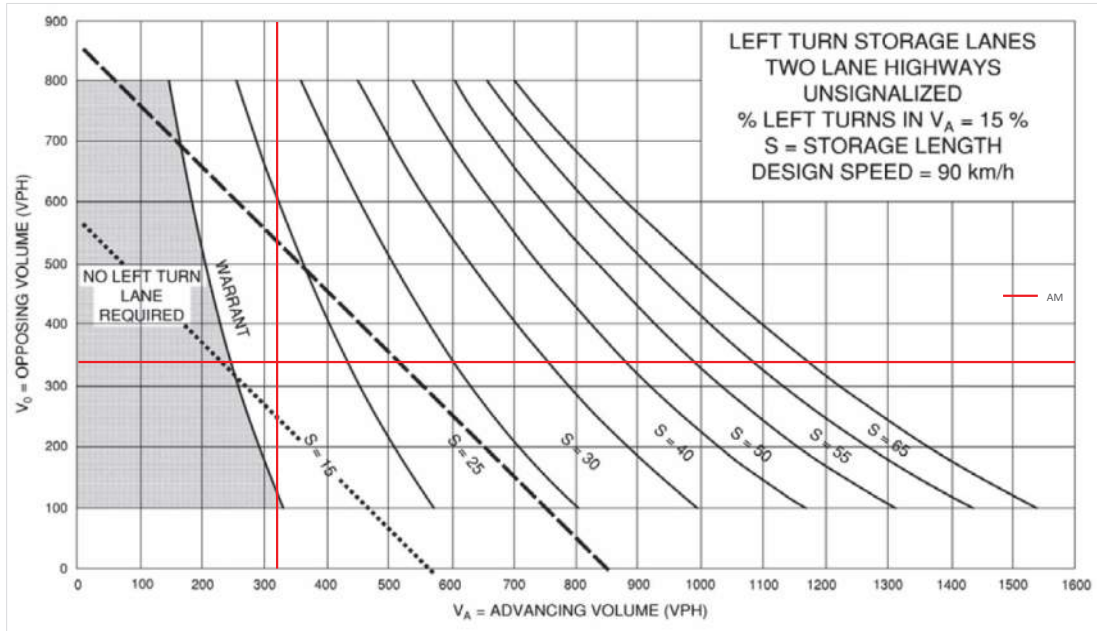
Future Total 2030																	
Design Speed																	
90 km/h																	
	Yes																
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing		
AM	52	267	0	0	288	52	0	0	0	0	118	0	114	16.3%	319	340	
PM	120	300	0	0	350	120	0	0	0	83	0	80	28.6%	420	470		

Future Total 2035																	
Design Speed																	
90 km/h																	
	Yes																
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing		
AM	52	267	0	0	298	52	0	0	0	0	118	0	114	16.3%	319	350	
PM	120	311	0	0	350	120	0	0	0	83	0	80	27.8%	431	470		

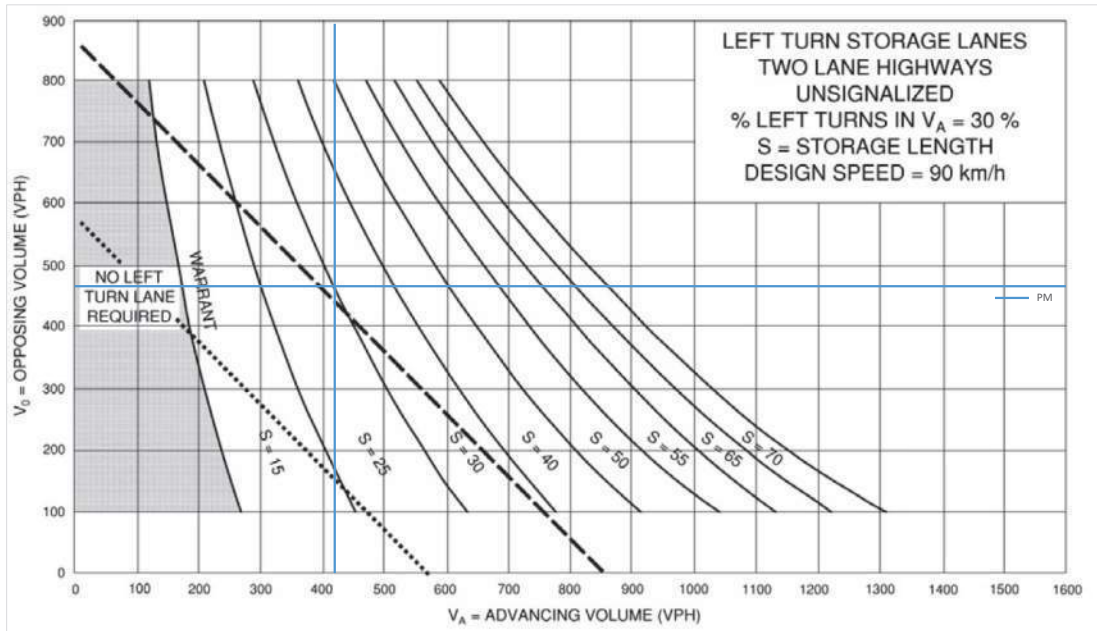
Future Total 2030																	
Design Speed																	
50 km/h																	
	Yes																
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing		
AM	52	267	0	0	288	52	0	0	0	0	118	0	114	50.9%	232	0	
PM	120	300	0	0	350	120	0	0	0	0	83	0	80	50.9%	163	0	

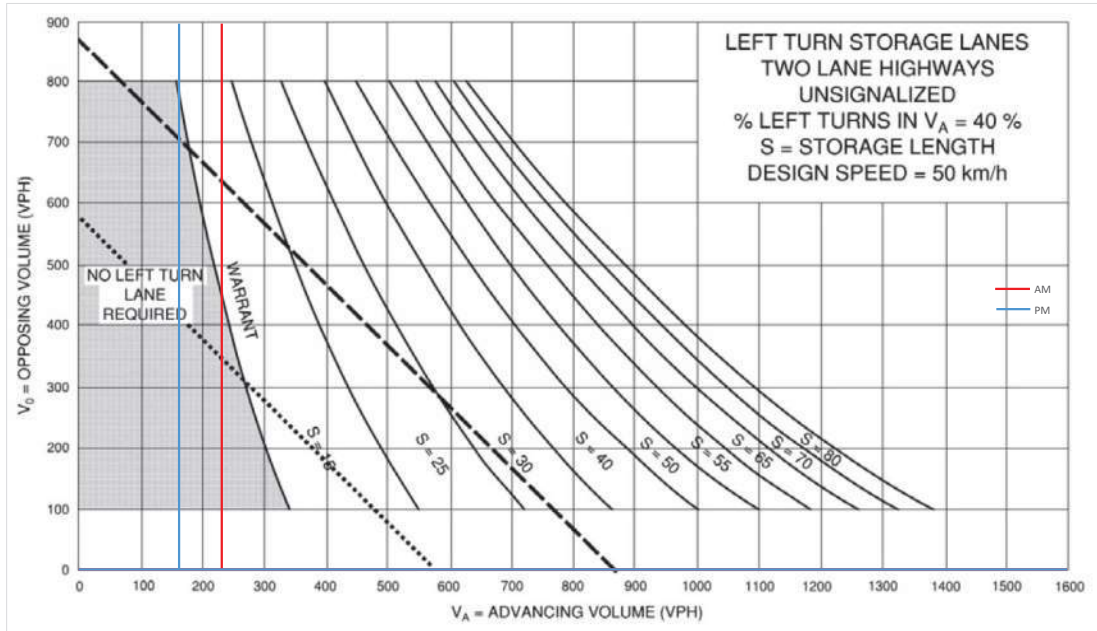
Future Total 2035																	
Design Speed																	
50 km/h																	
	Yes																
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing		
AM	52	267	0	0	298	52	0	0	0	0	118	0	114	50.9%	232	0	
PM	120	311	0	0	350	120	0	0	0	0	83	0	80	50.9%	163	0	

Future Total 2030 - Eastbound Left



Future Total 2030 - Eastbound Left





Flewellyn Road at Street 19

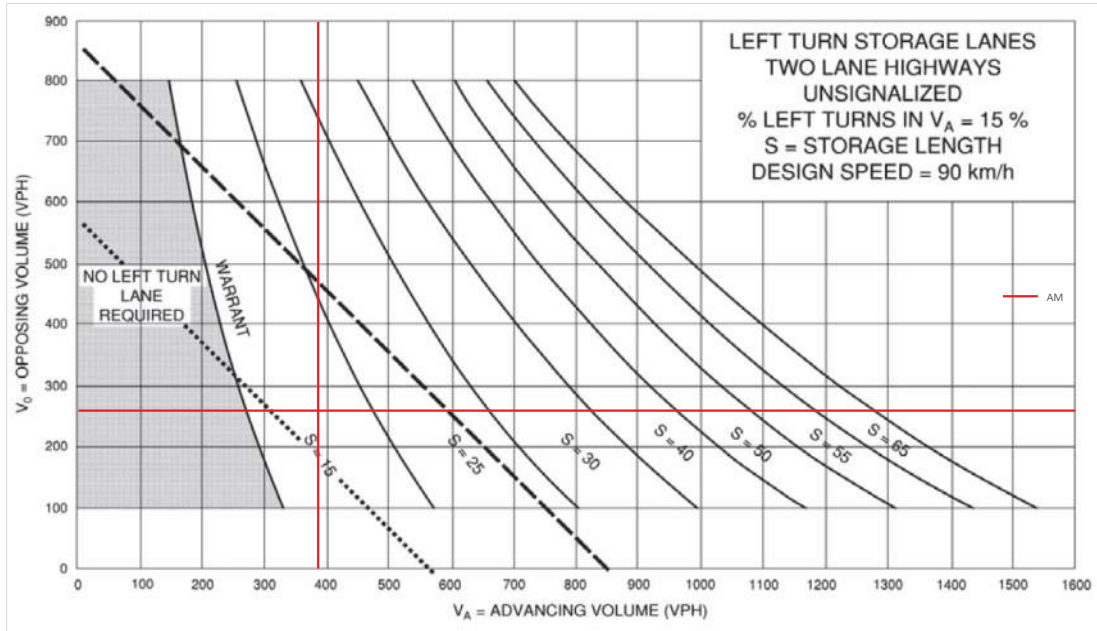
Future Total 2030																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		56	329	0	0	203	57	0	0	0	139	0	137	14.5%	385	260
PM		123	260	0	0	373	129	0	0	0	98	0	97	32.1%	383	502

Future Total 2035																
Design Speed		Yes														
90 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		56	329	0	0	213	57	0	0	0	139	0	137	14.5%	385	270
PM		123	271	0	0	373	129	0	0	0	98	0	97	31.2%	394	502

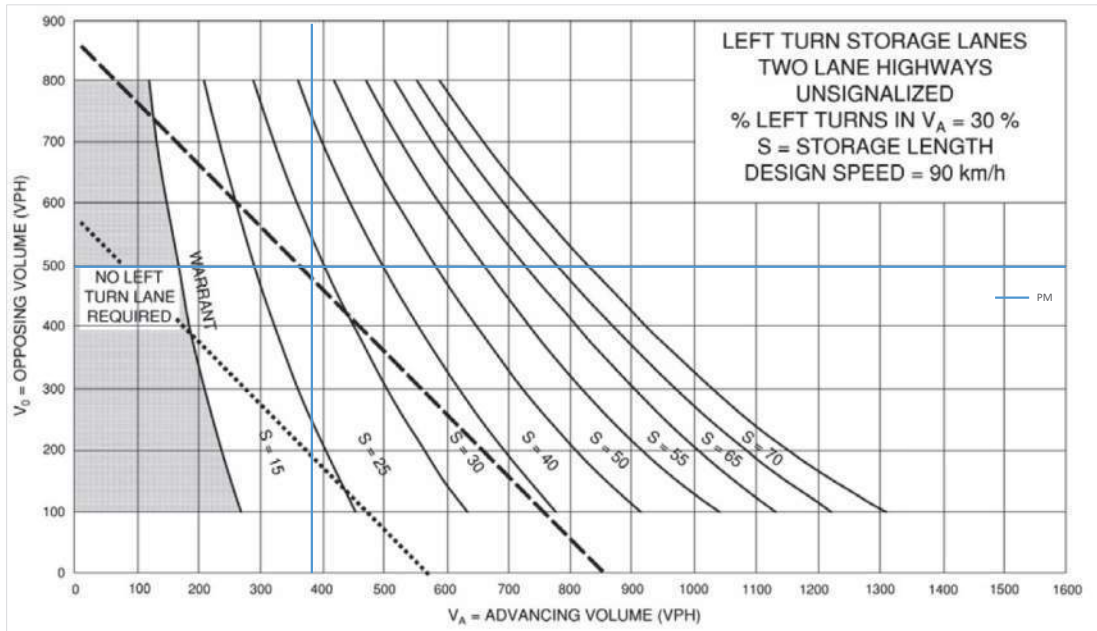
Future Total 2030																
Design Speed		Yes														
50 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		56	329	0	0	203	57	0	0	0	139	0	137	50.4%	276	0
PM		123	260	0	0	373	129	0	0	0	98	0	97	50.3%	195	0

Future Total 2035																
Design Speed		Yes														
50 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		56	329	0	0	213	57	0	0	0	139	0	137	50.4%	276	0
PM		123	271	0	0	373	129	0	0	0	98	0	97	50.3%	195	0

Future Total 2030 - Eastbound Left



Future Total 2030 - Eastbound Left



Appendix F

Collision Data

Accident Date	Accident Year	Accident Time	Location	Environment Condition	Light	Traffic Control	Traffic Control Condition	Classification Of Accident	Initial Impact Type	Road Surface Condition	# Vehicles	# Motorcycles	# Bicycles	# Pedestrians
7/27/2018	2018	18:03	FERNBANK RD @ SHEA RD (0000399)	01 - Clear	01 - Daylight	11 - Roundabout	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
8/30/2018	2018	11:00	FERNBANK RD @ SHEA RD (0000399)	01 - Clear	01 - Daylight	11 - Roundabout	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
11/14/2018	2018	7:46	FERNBANK RD @ SHEA RD (0000399)	01 - Clear	01 - Daylight	11 - Roundabout	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
2/26/2019	2019	8:58	FERNBANK RD @ SHEA RD (0000399)	01 - Clear	01 - Daylight	11 - Roundabout	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
4/1/2019	2019	7:10	FERNBANK RD @ SHEA RD (0000399)	01 - Clear	01 - Daylight	11 - Roundabout	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
11/16/2019	2019	7:15	FERNBANK RD @ SHEA RD (0000399)	01 - Clear	03 - Dawn	11 - Roundabout	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
12/4/2019	2019	10:28	FERNBANK RD @ SHEA RD (0000399)	01 - Clear	01 - Daylight	11 - Roundabout	0	03 - P.D. only	02 - Angle	02 - Wet	0	0	0	0
4/22/2018	2018	11:30	FLEWELLYN RD @ SHEA RD (0000398)	01 - Clear	01 - Daylight	02 - Stop sign	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
7/30/2018	2018	17:09	FLEWELLYN RD @ SHEA RD (0000398)	01 - Clear	01 - Daylight	02 - Stop sign	0	02 - Non-fatal injury	02 - Angle	01 - Dry	0	0	0	0
8/31/2018	2018	17:29	FLEWELLYN RD @ SHEA RD (0000398)	01 - Clear	01 - Daylight	02 - Stop sign	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
11/28/2018	2018	18:43	FLEWELLYN RD @ SHEA RD (0000398)	01 - Clear	07 - Dark	02 - Stop sign	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
1/31/2019	2019	16:50	FLEWELLYN RD @ SHEA RD (0000398)	01 - Clear	05 - Dusk	02 - Stop sign	0	02 - Non-fatal injury	02 - Angle	01 - Dry	0	0	0	0
3/29/2019	2019	17:26	FLEWELLYN RD @ SHEA RD (0000398)	01 - Clear	01 - Daylight	02 - Stop sign	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
5/4/2019	2019	15:59	FLEWELLYN RD @ SHEA RD (0000398)	01 - Clear	01 - Daylight	02 - Stop sign	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
11/7/2019	2019	7:51	FLEWELLYN RD @ SHEA RD (0000398)	03 - Snow	01 - Daylight	02 - Stop sign	0	03 - P.D. only	02 - Angle	06 - Ice	0	0	0	0
2/13/2020	2020	7:08	FLEWELLYN RD @ SHEA RD (0000398)	03 - Snow	03 - Dawn	02 - Stop sign	0	03 - P.D. only	02 - Angle	02 - Wet	0	0	0	0
6/16/2021	2021	15:15	FLEWELLYN RD @ SHEA RD (0000398)	01 - Clear	01 - Daylight	02 - Stop sign	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
9/21/2021	2021	16:17	FLEWELLYN RD @ SHEA RD (0000398)	01 - Clear	01 - Daylight	02 - Stop sign	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
10/23/2021	2021	14:48	FLEWELLYN RD @ SHEA RD (0000398)	01 - Clear	01 - Daylight	02 - Stop sign	0	02 - Non-fatal injury	02 - Angle	01 - Dry	0	0	0	0
1/14/2022	2022	16:26	FLEWELLYN RD @ SHEA RD (0000398)	01 - Clear	01 - Daylight	02 - Stop sign	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
2/22/2022	2022	19:20	FLEWELLYN RD @ SHEA RD (0000398)	04 - Freezing Rain	07 - Dark	02 - Stop sign	0	03 - P.D. only	02 - Angle	06 - Ice	0	0	0	0
2/24/2022	2022	7:11	FLEWELLYN RD @ SHEA RD (0000398)	01 - Clear	03 - Dawn	02 - Stop sign	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0
7/30/2022	2022	11:13	FLEWELLYN RD @ SHEA RD (0000398)	01 - Clear	01 - Daylight	02 - Stop sign	0	02 - Non-fatal injury	02 - Angle	01 - Dry	0	0	0	0
8/23/2022	2022	16:46	FLEWELLYN RD @ SHEA RD (0000398)	01 - Clear	01 - Daylight	02 - Stop sign	0	02 - Non-fatal injury	02 - Angle	01 - Dry	0	0	0	0
4/4/2018	2018	20:24	FLEWELLYN RD btwn FORESTGROVE DR & POPLARWOOD AVE (_3ZA1X5)	06 - Strong wind	07 - Dark	10 - No control	0	03 - P.D. only	07 - SMV other	01 - Dry	0	0	0	0
1/12/2019	2019	17:26	FLEWELLYN RD btwn FORESTGROVE DR & STITTSVILLE MAIN ST (_3ZA1C1W)	01 - Clear	05 - Dusk	10 - No control	0	03 - P.D. only	99 - Other	03 - Loose snow	0	0	0	0
11/16/2018	2018	18:23	FLEWELLYN RD btwn POPLARWOOD AVE & SHEA RD (_3ZABG1)	03 - Snow	07 - Dark	10 - No control	0	03 - P.D. only	07 - SMV other	03 - Loose snow	0	0	0	0
1/10/2019	2019	9:15	FLEWELLYN RD btwn POPLARWOOD AVE & SHEA RD (_3ZABG1)	03 - Snow	01 - Daylight	10 - No control	0	03 - P.D. only	03 - Rear end	05 - Packed snow	0	0	0	0
1/24/2019	2019	8:33	FLEWELLYN RD btwn POPLARWOOD AVE & SHEA RD (_3ZABG1)	04 - Freezing Rain	01 - Daylight	10 - No control	0	03 - P.D. only	07 - SMV other	04 - Slush	0	0	0	0
9/27/2019	2019	20:05	FLEWELLYN RD btwn POPLARWOOD AVE & SHEA RD (_3ZABG1)	01 - Clear	07 - Dark	10 - No control	0	03 - P.D. only	07 - SMV other	01 - Dry	0	0	0	0
9/27/2020	2020	23:15	FLEWELLYN RD btwn POPLARWOOD AVE & SHEA RD (_3ZABG1)	01 - Clear	07 - Dark	10 - No control	0	03 - P.D. only	07 - SMV other	01 - Dry	0	0	0	0
11/9/2020	2020	6:36	FLEWELLYN RD btwn POPLARWOOD AVE & SHEA RD (_3ZABG1)	01 - Clear	07 - Dark	10 - No control	0	03 - P.D. only	07 - SMV other	01 - Dry	0	0	0	0
12/2/2021	2021	19:47	FLEWELLYN RD btwn POPLARWOOD AVE & SHEA RD (_3ZABG1)	02 - Rain	07 - Dark	10 - No control	0	03 - P.D. only	07 - SMV other	02 - Wet	0	0	0	0
8/27/2018	2018	6:10	SHEA RD btwn FERNBANK RD & FLEWELLYN RD (_3ZABG1)	01 - Clear	03 - Dawn	10 - No control	0	03 - P.D. only	07 - SMV other	01 - Dry	0	0	0	0
11/9/2018	2018	23:17	SHEA RD btwn FERNBANK RD & FLEWELLYN RD (_3ZABG1)	03 - Snow	07 - Dark	10 - No control	0	03 - P.D. only	07 - SMV other	03 - Loose snow	0	0	0	0
2/19/2022	2022	17:29	SHEA RD btwn FERNBANK RD & FLEWELLYN RD (_3ZABG1)	03 - Snow	07 - Dark	10 - No control	0	03 - P.D. only	07 - SMV other	06 - Ice	0	0	0	0
5/3/2018	2018	9:59	STITTSVILLE MAIN ST/HUNTLEY RD @ FLEWELLYN RD (0004602)	01 - Clear	01 - Daylight	02 - Stop sign	0	03 - P.D. only	02 - Angle	02 - Wet	0	0	0	0
8/8/2018	2018	6:56	STITTSVILLE MAIN ST/HUNTLEY RD @ FLEWELLYN RD (0004602)	01 - Clear	01 - Daylight	02 - Stop sign	0	02 - Non-fatal injury	02 - Angle	01 - Dry	0	0	0	0
10/29/2018	2018	18:01	STITTSVILLE MAIN ST/HUNTLEY RD @ FLEWELLYN RD (0004602)	02 - Rain	07 - Dark	02 - Stop sign	0	03 - P.D. only	05 - Turning movement	02 - Wet	0	0	0	0
1/20/2020	2020	10:22	STITTSVILLE MAIN ST/HUNTLEY RD @ FLEWELLYN RD (0004602)	01 - Clear	01 - Daylight	02 - Stop sign	0	02 - Non-fatal injury	02 - Angle	02 - Wet	0	0	0	0
3/9/2022	2022	12:54	STITTSVILLE MAIN ST/HUNTLEY RD @ FLEWELLYN RD (0004602)	01 - Clear	01 - Daylight	02 - Stop sign	0	03 - P.D. only	02 - Angle	01 - Dry	0	0	0	0



Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: FLEWELLYN RD @ SHEA RD

Traffic Control: Stop sign

Total Collisions: 20

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2017-Mar-30, Thu,17:03	Clear	Angle	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: FLEWELLYN RD @ SHEA RD

Traffic Control: Stop sign

Total Collisions: 20

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Aug-18, Fri,18:57	Clear	SMV other	P.D. only	Dry	West	Turning left	Automobile, station wagon	Steel guide rail	0
2017-Oct-24, Tue,18:26	Clear	SMV other	P.D. only	Dry	South	Turning right	Automobile, station wagon	Ran off road	0
2017-Nov-05, Sun,14:18	Rain	Angle	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Apr-22, Sun,11:30	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-May-15, Tue,13:45	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	
2018-Jul-30, Mon,17:09	Clear	Angle	Non-fatal injury	Dry	South	Turning right	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Aug-31, Fri,17:29	Clear	Angle	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-16, Fri,09:35	Snow	Rear end	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2018-Nov-28, Wed,18:43	Clear	Angle	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jan-31, Thu,16:50	Clear	Angle	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Passenger van	Other motor vehicle	
2019-Mar-29, Fri,17:26	Clear	Angle	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-May-04, Sat,15:59	Clear	Angle	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jun-03, Mon,13:50	Rain	Rear end	P.D. only	Wet	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Passenger van	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: FLEWELLYN RD @ SHEA RD

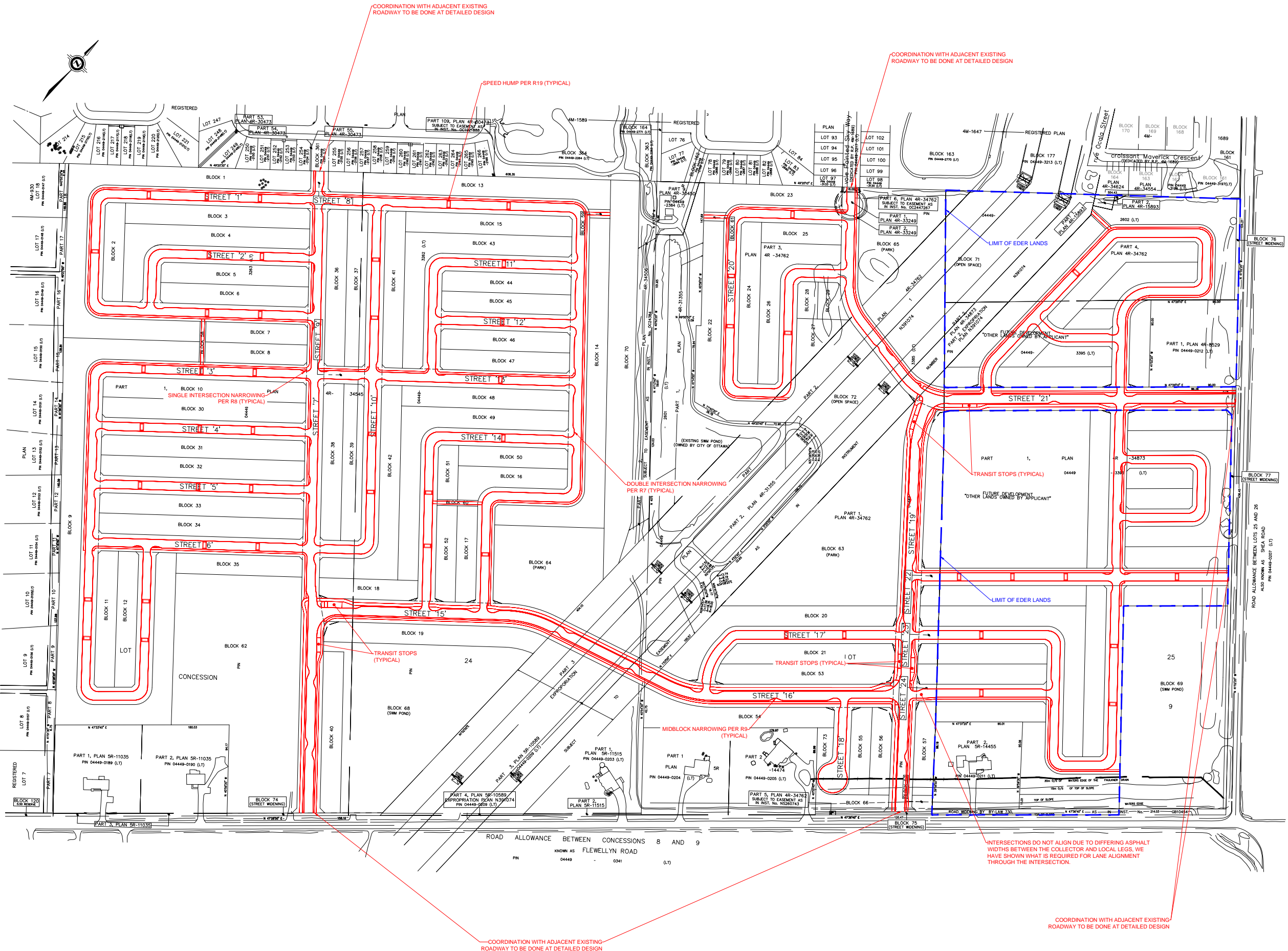
Traffic Control: Stop sign

Total Collisions: 20

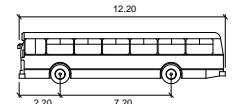
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Nov-07, Thu,07:51	Snow	Angle	P.D. only	Ice	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-Feb-13, Thu,07:08	Snow	Angle	P.D. only	Wet	South	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
2020-Nov-01, Sun,12:17	Rain	SMV other	P.D. only	Wet	South	Turning right	Pick-up truck	Skidding/sliding	0
2021-Jun-16, Wed,15:15	Clear	Angle	P.D. only	Dry	South	Turning left	Truck - dump	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2021-Sep-21, Tue,16:17	Clear	Angle	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2021-Oct-23, Sat,14:48	Clear	Angle	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Appendix G

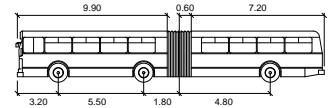
Conceptual Traffic Calming Plan



Notes:



B-12
 meters
 Width : 2.40
 Track : 2.40
 Lock to Lock Time : 6.0
 Steering Angle : 37.1



A-BUS
 meters
 Lock to Lock Time : 6.0 Width : 2.40
 Steering Angle : 27.2 Track : 2.40
 Articulating Angle : 70.0

01	Issued for Review	BB	2024-07-26
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			

CGH Transportation
 6 Plaza Court
 Ottawa, ON
 K2H 7W1
 (343) 999-9117

CLIENT: **Caivan Communities**
 2934 Baseline Road, Suite 320h
 Ottawa, ON
 K2H 1B2

ARCHITECT:

SITE: **Caivan Flewellyn**

TITLE: **GRDD Redline**

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2024-07-26	BB	AL
PROJECT NO:	DRAWING NO:	REVISION:	
2021-128	001	01	

INTERSECTIONS DO NOT ALIGN DUE TO DIFFERING ASPHALT WIDTHS BETWEEN THE COLLECTOR AND LOCAL LEGS. WE HAVE SHOWN WHAT IS REQUIRED FOR LANE ALIGNMENT THROUGH THE INTERSECTION.

COORDINATION WITH ADJACENT EXISTING ROADWAY TO BE DONE AT DETAILED DESIGN

COORDINATION WITH ADJACENT EXISTING ROADWAY TO BE DONE AT DETAILED DESIGN

DOUBLE INTERSECTION NARROWING PER R7 (TYPICAL)

SPEED HUMP PER R19 (TYPICAL)

COORDINATION WITH ADJACENT EXISTING ROADWAY TO BE DONE AT DETAILED DESIGN

COORDINATION WITH ADJACENT EXISTING ROADWAY TO BE DONE AT DETAILED DESIGN

Appendix H

TRANS Model Plots

TRANS Regional Model

Version 2.16 - Assigned Dec, 2021

AM Peak Hour Total Traffic Volume

Stittsville Growth

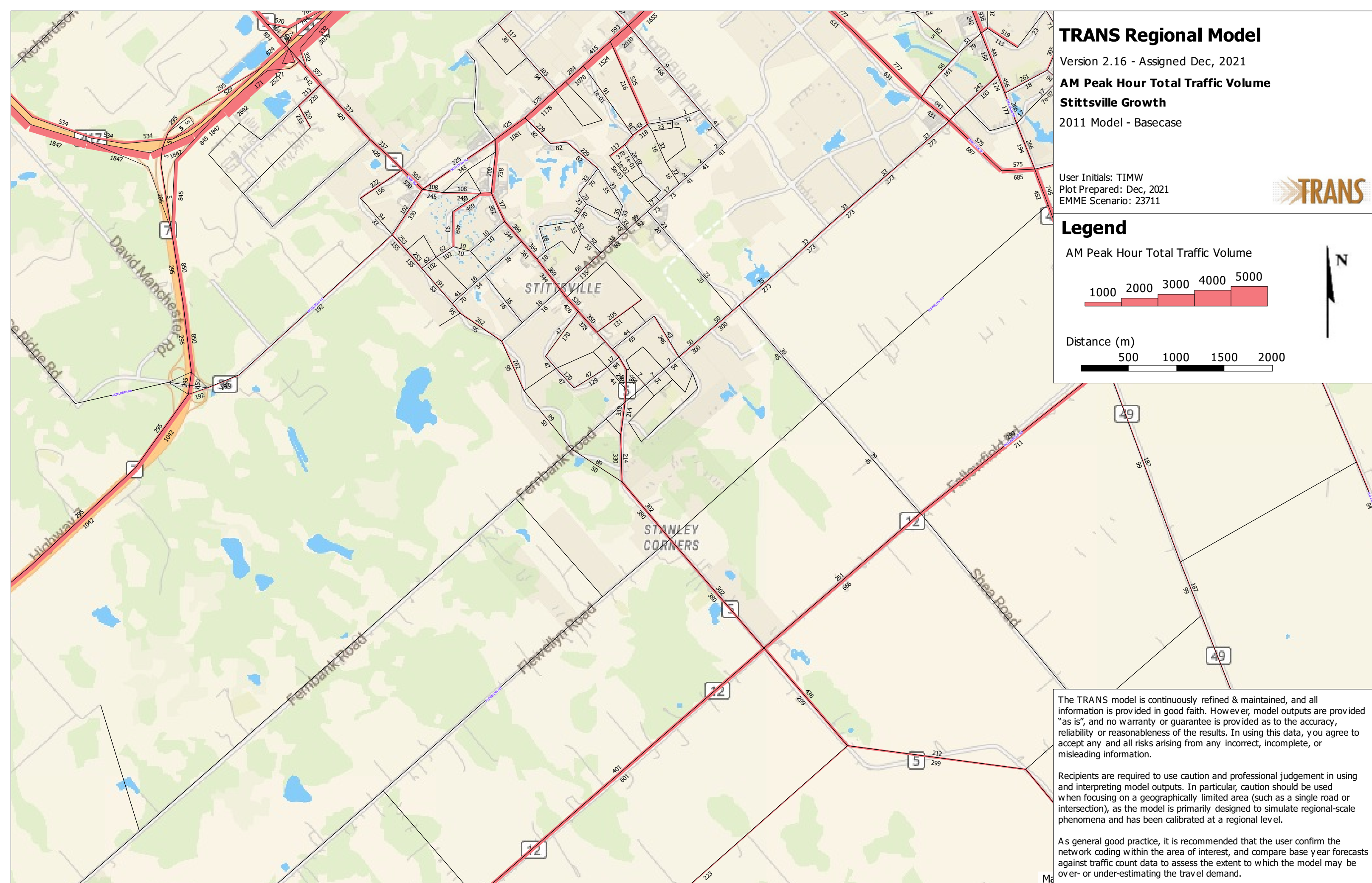
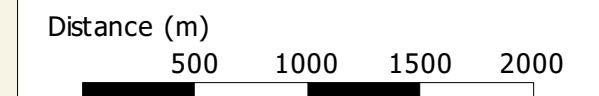
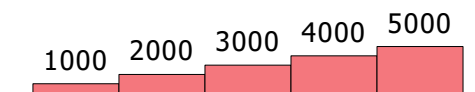
2011 Model - Basecase

User Initials: TIMW
Plot Prepared: Dec, 2021
EMME Scenario: 23711



Legend

AM Peak Hour Total Traffic Volume



The TRANS model is continuously refined & maintained, and all information is provided in good faith. However, model outputs are provided "as is", and no warranty or guarantee is provided as to the accuracy, reliability or reasonableness of the results. In using this data, you agree to accept any and all risks arising from any incorrect, incomplete, or misleading information.

Recipients are required to use caution and professional judgement in using and interpreting model outputs. In particular, caution should be used when focusing on a geographically limited area (such as a single road or intersection), as the model is primarily designed to simulate regional-scale phenomena and has been calibrated at a regional level.

As general good practice, it is recommended that the user confirm the network coding within the area of interest, and compare base year forecasts against traffic count data to assess the extent to which the model may be over- or under-estimating the travel demand.

Appendix I

Synchro And Sidra Worksheets - 2030 Future Background Horizon

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2030 Future Background
AM Peak Hour

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Traffic Volume (vph)	38	147	13	54	59	187	7	584	72	83	344	19
Future Volume (vph)	38	147	13	54	59	187	7	584	72	83	344	19
Satd. Flow (prot)	1642	1718	0	1626	1478	0	1483	1712	1455	1510	1649	0
Fit Permitted	0.386			0.603			0.535			0.391		
Satd. Flow (perm)	663	1718	0	1016	1478	0	830	1712	1405	620	1649	0
Satd. Flow (RTOR)		6			187				40		5	
Lane Group Flow (vph)	38	160	0	54	246	0	7	584	72	83	363	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		2	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	28.3	28.3		28.3	28.3		30.2	30.2	30.2	30.2	30.2	
Total Split (s)	31.0	31.0		31.0	31.0		49.0	49.0	49.0	49.0	49.0	
Total Split (%)	38.8%	38.8%		38.8%	38.8%		61.3%	61.3%	61.3%	61.3%	61.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.9	1.9	1.9	1.9	1.9	
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)	5.3	5.3		5.3	5.3		5.2	5.2	5.2	5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	14.1	14.1		14.1	14.1		55.4	55.4	55.4	55.4	55.4	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.69	0.69	0.69	0.69	0.69	
v/c Ratio	0.33	0.52		0.30	0.59		0.01	0.49	0.07	0.19	0.32	
Control Delay	34.4	33.8		31.2	14.2		5.9	8.6	3.4	7.2	6.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	34.4	33.8		31.2	14.2		5.9	8.6	3.4	7.2	6.6	
LOS	C	C		C	B		A	A	A	A	A	
Approach Delay		33.9			17.2			8.0			6.7	
Approach LOS		C			B			A			A	
Queue Length 50th (m)	5.2	22.0		7.4	8.0		0.3	31.9	1.2	3.5	16.4	
Queue Length 95th (m)	11.9	33.6		14.9	24.3		1.9	80.6	6.9	13.2	43.2	
Internal Link Dist (m)		510.2			520.3			230.2			333.2	
Turn Bay Length (m)	25.0			23.0			15.0		17.0	23.5		
Base Capacity (vph)	212	555		326	601		574	1185	985	429	1143	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.18	0.29		0.17	0.41		0.01	0.49	0.07	0.19	0.32	

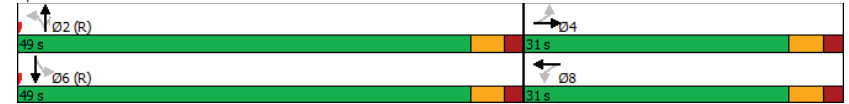
Intersection Summary	
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	7 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2030 Future Background
AM Peak Hour

Maximum v/c Ratio:	0.59
Intersection Signal Delay:	12.5
Intersection Capacity Utilization:	83.0%
Analysis Period (min):	15
Intersection LOS:	B
ICU Level of Service:	E

Splits and Phases: 1: Stittsville Main & Abbott



Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2030 Future Background
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	17	99	6	25	186	65	0	348	43	24	228	26
Future Volume (vph)	17	99	6	25	186	65	0	348	43	24	228	26
Satd. Flow (prot)	1433	1699	0	1658	1664	1427	1745	1649	0	1496	1654	0
Fit Permitted	0.640			0.689						0.522		
Satd. Flow (perm)	965	1699	0	1202	1664	1427	1745	1649	0	819	1654	0
Satd. Flow (RTOR)		4				65		11			10	
Lane Group Flow (vph)	17	105	0	25	186	65	0	391	0	24	254	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.9	24.9		24.9	24.9	
Total Split (s)	34.6	34.6		34.6	34.6	34.6	46.9	46.9		46.9	46.9	
Total Split (%)	42.5%	42.5%		42.5%	42.5%	42.5%	57.5%	57.5%		57.5%	57.5%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	4.6	4.6		4.6	4.6	4.6	3.6	3.6		3.6	3.6	
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)	7.6	7.6		7.6	7.6	7.6	6.9	6.9		6.9	6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Ped	Ped		Ped	Ped	
Act Effct Green (s)	11.5	11.5		11.5	11.5	11.5	20.0	20.0		20.0	20.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.25	0.43	0.43		0.43	0.43	
v/c Ratio	0.07	0.25		0.08	0.45	0.16	0.54	0.07		0.35	0.35	
Control Delay	13.8	14.6		13.7	18.2	5.7	13.3	9.1		10.6	10.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	13.8	14.6		13.7	18.2	5.7	13.3	9.1		10.6	10.6	
LOS	B	B		B	B	A	B	A		B	B	
Approach Delay		14.4			14.8		13.3			10.4		
Approach LOS		B			B		B			B		
Queue Length 50th (m)	0.9	5.6		1.3	10.9	0.0	19.4	1.0		11.2		
Queue Length 95th (m)	4.7	16.5		6.0	27.9	6.6	45.6	4.5		27.7		
Internal Link Dist (m)		229.8			252.5		682.0			280.4		
Turn Bay Length (m)	40.0			75.0		55.0		110.0				
Base Capacity (vph)	572	1010		713	987	873	1451	719		1455		
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.10		0.04	0.19	0.07	0.27	0.03		0.17		

Intersection Summary	
Cycle Length:	81.5
Actuated Cycle Length:	46.2
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.54

Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2030 Future Background
AM Peak Hour

Intersection Signal Delay: 13.1	Intersection LOS: B
Intersection Capacity Utilization 57.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Stittsville Main & Fernbank



Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2030 Future Background
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	42	14	103	63	6	34	36	246	32	22	190	15
Future Volume (vph)	42	14	103	63	6	34	36	246	32	22	190	15
Satd. Flow (prot)	1610	1481	0	1566	1454	0	1510	1626	0	1483	1633	1327
Fit Permitted	0.731			0.682			0.638			0.589		
Satd. Flow (perm)	1230	1481	0	1124	1454	0	1012	1626	0	918	1633	1298
Satd. Flow (RTOR)		103			34			12				41
Lane Group Flow (vph)	42	117	0	63	40	0	36	278	0	22	190	15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	29.5	29.5		29.5	29.5		29.0	29.0		29.0	29.0	29.0
Total Split (s)	33.5	33.5		33.5	33.5		59.0	59.0		59.0	59.0	59.0
Total Split (%)	36.2%	36.2%		36.2%	36.2%		63.8%	63.8%		63.8%	63.8%	63.8%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	3.5	3.5		3.5	3.5		2.7	2.7		2.7	2.7	2.7
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)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Ped	Ped		Ped	Ped	Ped
Act Effct Green (s)	12.2	12.2		12.2	12.2		27.8	27.8		27.8	27.8	27.8
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.58	0.58		0.58	0.58	0.58
v/c Ratio	0.13	0.26		0.22	0.10		0.06	0.29		0.04	0.20	0.02
Control Delay	14.1	5.9		15.5	6.7		8.9	9.4		8.9	9.1	1.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	14.1	5.9		15.5	6.7		8.9	9.4		8.9	9.1	1.4
LOS	B	A		B	A		A	A		A	A	A
Approach Delay		8.0			12.1			9.3			8.6	
Approach LOS		A			B			A			A	
Queue Length 50th (m)	2.7	0.9		4.2	0.4		1.3	11.1		0.8	7.5	0.0
Queue Length 95th (m)	7.8	8.8		10.7	5.0		7.1	36.8		5.1	25.9	1.2
Internal Link Dist (m)		217.6			205.7			888.7			682.0	
Turn Bay Length (m)	30.0			20.0			135.0			120.0		110.0
Base Capacity (vph)	702	889		641	844		993	1596		901	1602	1274
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.06	0.13		0.10	0.05		0.04	0.17		0.02	0.12	0.01

Intersection Summary												
Cycle Length: 92.5												
Actuated Cycle Length: 47.8												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.29												

Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2030 Future Background
AM Peak Hour

Intersection Signal Delay: 9.2	Intersection LOS: A
Intersection Capacity Utilization 53.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Stittsville Main & West Ridge/Parade



HCM 2010 AWSC
4: Huntley/Stittsville Main & Flewellyn

2030 Future Background
AM Peak Hour

Intersection												
Intersection Delay, s/veh	13.2											
Intersection LOS	B											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↕			↕			↔		
Traffic Vol, veh/h	38	155	15	7	125	29	17	232	12	39	259	53
Future Vol, veh/h	38	155	15	7	125	29	17	232	12	39	259	53
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
Heavy Vehicles, %	2	4	2	2	2	3	18	10	2	3	5	2
Mvmt Flow	38	155	15	7	125	29	17	232	12	39	259	53
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	12.2			11.3			13.3			14.7		
HCM LOS	B			B			B			B		
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	7%	18%	4%	11%								
Vol Thru, %	89%	75%	78%	74%								
Vol Right, %	5%	7%	18%	15%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	261	208	161	351								
LT Vol	17	38	7	39								
Through Vol	232	155	125	259								
RT Vol	12	15	29	53								
Lane Flow Rate	261	208	161	351								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.427	0.345	0.268	0.533								
Departure Headway (Hd)	5.894	5.968	5.982	5.462								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	608	599	596	656								
Service Time	3.968	4.046	4.065	3.528								
HCM Lane V/C Ratio	0.429	0.347	0.27	0.535								
HCM Control Delay	13.3	12.2	11.3	14.7								
HCM Lane LOS	B	B	B	B								
HCM 95th-tile Q	2.1	1.5	1.1	3.2								

HCM 2010 TWSC
5: Edenwyld/Cope & Fernbank

2030 Future Background
AM Peak Hour

Intersection												
Int Delay, s/veh	18.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↕			↕			↔		
Traffic Vol, veh/h	26	520	13	43	370	67	23	5	125	87	9	34
Future Vol, veh/h	26	520	13	43	370	67	23	5	125	87	9	34
Conflicting Peds, #/hr	1	0	1	1	0	1	4	0	1	1	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	4	25	2	6	58	5	20	3	76	11	2
Mvmt Flow	26	520	13	43	370	67	23	5	125	87	9	34
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	438	0	0	534	0	0	1095	1104	529	1136	1077	409
Stage 1	-	-	-	-	-	-	580	580	-	491	491	-
Stage 2	-	-	-	-	-	-	515	524	-	645	586	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.15	6.7	6.23	7.86	6.61	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.7	-	6.86	5.61	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.7	-	6.86	5.61	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.545	4.18	3.327	4.184	4.099	3.318
Pot Cap-1 Maneuver	1122	-	-	1034	-	-	189	196	548	130	211	642
Stage 1	-	-	-	-	-	-	495	472	-	443	533	-
Stage 2	-	-	-	-	-	-	537	501	-	358	483	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1121	-	-	1033	-	-	164	183	547	93	197	640
Mov Cap-2 Maneuver	-	-	-	-	-	-	164	183	-	93	197	-
Stage 1	-	-	-	-	-	-	483	461	-	432	510	-
Stage 2	-	-	-	-	-	-	477	479	-	267	471	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.8			20.3			156.1		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	386	1121	-	-	1033	-	-	126				
HCM Lane V/C Ratio	0.396	0.023	-	-	0.042	-	-	1.032				
HCM Control Delay (s)	20.3	8.3	-	-	8.6	-	-	156.1				
HCM Lane LOS	C	A	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	1.9	0.1	-	-	0.1	-	-	7.2				

Intersection						
Intersection Delay, s/veh	45.8					
Intersection LOS	E					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	134	118	425	150	122	394
Future Vol, veh/h	134	118	425	150	122	394
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	9	4	2	6	4
Mvmt Flow	134	118	425	150	122	394
Number of Lanes	1	0	0	1	1	0
Approach	EB	WB	NB			
Opposing Approach	WB	EB				
Opposing Lanes	1	1	0			
Conflicting Approach Left		NB	EB			
Conflicting Lanes Left	0	1	1			
Conflicting Approach Right	NB		WB			
Conflicting Lanes Right	1	0	1			
HCM Control Delay	15.1	66.7	37.5			
HCM LOS	C	F	E			
Lane	NBLn1	EBLn1	WBLn1			
Vol Left, %	24%	0%	74%			
Vol Thru, %	0%	53%	26%			
Vol Right, %	76%	47%	0%			
Sign Control	Stop	Stop	Stop			
Traffic Vol by Lane	516	252	575			
LT Vol	122	0	425			
Through Vol	0	134	150			
RT Vol	394	118	0			
Lane Flow Rate	516	252	575			
Geometry Grp	1	1	1			
Degree of Util (X)	0.874	0.46	1.014			
Departure Headway (Hd)	6.101	6.567	6.351			
Convergence, Y/N	Yes	Yes	Yes			
Cap	593	547	569			
Service Time	4.144	4.627	4.399			
HCM Lane V/C Ratio	0.87	0.461	1.011			
HCM Control Delay	37.5	15.1	66.7			
HCM Lane LOS	E	C	F			
HCM 95th-tile Q	10	2.4	15.1			

Intersection												
Int Delay, s/veh	10.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	60	125	26	2	92	17	8	184	13	25	193	51
Future Vol, veh/h	60	125	26	2	92	17	8	184	13	25	193	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	2	4	2	2	12	13	5	2	2	3	8
Mvmt Flow	60	125	26	2	92	17	8	184	13	25	193	51
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	109	0	0	151	0	0	485	371	138	462	376	101
Stage 1	-	-	-	-	-	-	258	258	-	105	105	-
Stage 2	-	-	-	-	-	-	227	113	-	357	271	-
Critical Hdwy	4.17	-	-	4.12	-	-	7.23	6.55	6.22	7.12	6.53	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.55	-	6.12	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.55	-	6.12	5.53	-
Follow-up Hdwy	2.263	-	-	2.218	-	-	3.617	4.045	3.318	3.518	4.027	3.372
Pot Cap-1 Maneuver	1451	-	-	1430	-	-	475	554	910	510	554	938
Stage 1	-	-	-	-	-	-	723	689	-	901	806	-
Stage 2	-	-	-	-	-	-	752	796	-	661	683	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1451	-	-	1430	-	-	311	529	910	355	529	938
Mov Cap-2 Maneuver	-	-	-	-	-	-	311	529	-	355	529	-
Stage 1	-	-	-	-	-	-	690	658	-	860	805	-
Stage 2	-	-	-	-	-	-	540	795	-	448	652	-
Approach	EB	WB	NB	SB								
HCM Control Delay, s	2.2	0.1	16	17.7								
HCM LOS			C	C								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	529	1451	-	-	1430	-	-	549				
HCM Lane V/C Ratio	0.388	0.041	-	-	0.001	-	-	0.49				
HCM Control Delay (s)	16	7.6	0	-	7.5	0	-	17.7				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	1.8	0.1	-	-	0	-	-	2.7				

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2030 Future Background
AM Peak Hour

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5	Ø8	Ø9
Lane Configurations	↔	↕	↕	↕	↕	↕					
Traffic Volume (vph)	55	633	375	169	208	65					
Future Volume (vph)	55	633	375	169	208	65					
Satd. Flow (prot)	1626	1664	1548	1401	1580	1401					
Fit Permitted	0.950				0.950						
Satd. Flow (perm)	1626	1664	1548	1368	1580	1401					
Satd. Flow (RTOR)				169		65					
Lane Group Flow (vph)	55	633	375	169	208	65					
Turn Type	Prot	NA	NA	custom	Perm	Perm					
Protected Phases	13	1 2 9	5 6				1	2	5	8	9
Permitted Phases				6	4	4					
Detector Phase	13	1 2 9	5 6	6	4	4					
Switch Phase											
Minimum Initial (s)	5.0			10.0	10.0	10.0	1.0	10.0	1.0	1.0	10.0
Minimum Split (s)	24.2			25.3	30.0	30.0	4.0	24.2	4.0	30.7	24.2
Total Split (s)	28.0			40.0	32.0	32.0	5.0	40.0	5.0	32.0	28.0
Total Split (%)	26.7%			38.1%	30.5%	30.5%	5%	38%	5%	30%	27%
Yellow Time (s)	4.6			4.6	3.3	3.3	2.0	4.6	2.0	3.3	4.6
All-Red Time (s)	1.6			1.6	2.7	2.7	0.0	1.6	0.0	2.7	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0					
Total Lost Time (s)	6.2			6.2	6.0	6.0					
Lead/Lag	Lead						Lag		Lag		Lead
Lead-Lag Optimize?	Yes						Yes		Yes		Yes
Recall Mode	None			Max	None	None	None	Max	None	None	None
Act Effct Green (s)	8.6	68.3	56.2	46.9	17.7	17.7					
Actuated g/C Ratio	0.09	0.73	0.60	0.50	0.19	0.19					
v/c Ratio	0.37	0.52	0.41	0.22	0.70	0.21					
Control Delay	49.1	8.4	14.4	3.8	49.2	9.9					
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0					
Total Delay	49.1	8.4	14.4	3.8	49.2	9.9					
LOS	D	A	B	A	D	A					
Approach Delay		11.6	11.1		39.8						
Approach LOS		B	B		D						
Queue Length 50th (m)	9.8	42.8	36.1	0.0	36.7	0.0					
Queue Length 95th (m)	22.4	88.1	73.8	12.2	59.9	10.3					
Internal Link Dist (m)		1197.5	448.1		313.2						
Turn Bay Length (m)	100.0			120.0	90.0						
Base Capacity (vph)	380	1202	923	766	440	437					
Starvation Cap Reductn	0	0	0	0	0	0					
Spillback Cap Reductn	0	0	0	0	0	0					
Storage Cap Reductn	0	0	0	0	0	0					
Reduced v/c Ratio	0.14	0.53	0.41	0.22	0.47	0.15					

Intersection Summary

Cycle Length: 105
Actuated Cycle Length: 94.1
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.70

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2030 Future Background
AM Peak Hour

Intersection Signal Delay: 16.6
Intersection Capacity Utilization 55.7%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service B

Splits and Phases: 9: Fernbank & Robert Grant



Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2030 Future Background
AM Peak Hour

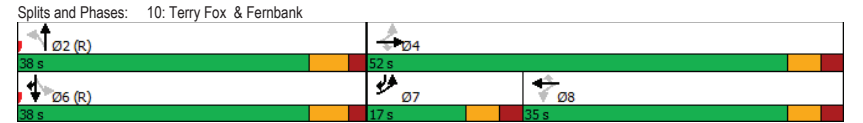
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	101	570	242	4	313	96	211	330	7	81	278	68
Future Volume (vph)	101	570	242	4	313	96	211	330	7	81	278	68
Satd. Flow (prot)	1626	1745	1441	1353	1728	1375	1595	1722	0	1537	1695	1351
Fit Permitted	0.305			0.369			0.546			0.484		
Satd. Flow (perm)	517	1745	1411	525	1728	1314	917	1722	0	773	1695	1351
Satd. Flow (RTOR)			242			114		1				68
Lane Group Flow (vph)	101	570	242	4	313	96	211	337	0	81	278	68
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	pt+ov	
Protected Phases	7	4			8		2			6		6.7
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	8	8	8	2	2		6	6	6.7
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	11.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2		24.2	24.2	
Total Split (s)	17.0	52.0	52.0	35.0	35.0	35.0	38.0	38.0		38.0	38.0	
Total Split (%)	18.9%	57.8%	57.8%	38.9%	38.9%	38.9%	42.2%	42.2%		42.2%	42.2%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.2	4.2		4.2	4.2	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2		6.2	6.2	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	36.4	36.4	36.4	23.8	23.8	23.8	41.2	41.2		41.2	41.2	56.3
Actuated g/C Ratio	0.40	0.40	0.40	0.26	0.26	0.26	0.46	0.46		0.46	0.46	0.63
v/c Ratio	0.32	0.81	0.34	0.03	0.68	0.22	0.50	0.43		0.23	0.36	0.08
Control Delay	17.8	32.6	3.2	23.5	38.1	4.8	25.2	20.5		20.1	19.5	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	17.8	32.6	3.2	23.5	38.1	4.8	25.2	20.5		20.1	19.5	2.7
LOS	B	C	A	C	D	A	C	C		C	B	A
Approach Delay		23.2			30.2			22.3			17.0	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	10.7	84.2	0.0	0.5	50.4	0.0	25.1	38.2		8.3	30.4	0.0
Queue Length 95th (m)	17.0	103.4	10.9	2.8	70.6	7.9	55.4	71.7		21.8	58.5	5.5
Internal Link Dist (m)		230.5			610.3			1085.2			428.2	
Turn Bay Length (m)	85.0		100.0	120.0		120.0	110.0			125.0		135.0
Base Capacity (vph)	342	888	836	168	552	498	419	789		353	776	897
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.30	0.64	0.29	0.02	0.57	0.19	0.50	0.43		0.23	0.36	0.08

Intersection Summary	
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	69 (77%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated

Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2030 Future Background
AM Peak Hour

Maximum v/c Ratio: 0.81	Intersection LOS: C
Intersection Signal Delay: 23.1	ICU Level of Service E
Intersection Capacity Utilization 88.5%	
Analysis Period (min) 15	



Lanes, Volumes, Timings
11: Eagleson & Terry Fox

2030 Future Background
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	7	359	195	65	266	101	215	326	92	141	256	3
Future Volume (vph)	7	359	195	65	266	101	215	326	92	141	256	3
Satd. Flow (prot)	1658	1625	0	1642	1665	0	1610	1688	0	1658	1742	0
Fit Permitted	0.402			0.201			0.427			0.518		
Satd. Flow (perm)	702	1625	0	347	1665	0	724	1688	0	904	1742	0
Satd. Flow (RTOR)		27			19			20			1	
Lane Group Flow (vph)	7	554	0	65	367	0	215	418	0	141	259	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	30.4	30.4		30.4	30.4		11.4	31.4		31.4	31.4	
Total Split (s)	45.0	45.0		45.0	45.0		15.0	65.0		50.0	50.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		13.6%	59.1%		45.5%	45.5%	
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.4		6.4	6.4	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		C-Min			C-Min	C-Min	
Act Effct Green (s)	42.3	42.3		42.3	42.3		54.9	54.9		36.5	36.5	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.50	0.50		0.33	0.33	
v/c Ratio	0.03	0.86		0.49	0.56		0.47	0.49		0.47	0.45	
Control Delay	19.0	43.9		38.3	28.1		21.4	20.8		37.5	33.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.0	43.9		38.3	28.1		21.4	20.8		37.5	33.3	
LOS	B	D		D	C		C	C		D	C	
Approach Delay		43.6			29.7			21.0			34.8	
Approach LOS		D			C			C			C	
Queue Length 50th (m)	0.9	102.0		10.3	56.9		26.3	55.7		24.9	45.2	
Queue Length 95th (m)	3.5	137.3		23.5	78.3		46.3	91.1		45.3	69.3	
Internal Link Dist (m)		1085.2			917.1			360.9			463.1	
Turn Bay Length (m)	120.0			120.0			100.0			107.0		
Base Capacity (vph)	275	653		135	664		457	920		364	703	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.03	0.85		0.48	0.55		0.47	0.45		0.39	0.37	

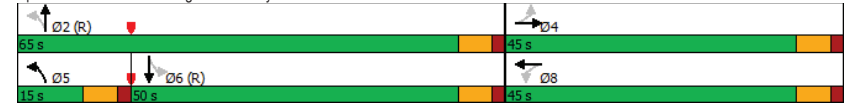
Intersection Summary	
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated

Lanes, Volumes, Timings
11: Eagleson & Terry Fox

2030 Future Background
AM Peak Hour

Maximum v/c Ratio: 0.86	Intersection Signal Delay: 31.8	Intersection LOS: C
Intersection Capacity Utilization 94.5%	ICU Level of Service F	
Analysis Period (min) 15		

Splits and Phases: 11: Eagleson & Terry Fox



Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	43	21	6	255	248	12
Future Vol, veh/h	43	21	6	255	248	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	5	3	2
Mvmt Flow	43	21	6	255	248	12

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	521	254	260
Stage 1	254	-	-
Stage 2	267	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	516	785	1304
Stage 1	788	-	-
Stage 2	778	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	513	785	1304
Mov Cap-2 Maneuver	513	-	-
Stage 1	784	-	-
Stage 2	778	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1304	-	579	-	-
HCM Lane V/C Ratio	0.005	-	0.111	-	-
HCM Control Delay (s)	7.8	0	12	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

MOVEMENT SUMMARY

Site: 101 [Fernbank at Shea FB2030 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows [Total HV]	Arrival Flows [Total HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			veh/h %	veh/h %	v/c	sec		[Veh. Dist]				km/h	
South: Shea													
1	L2	All MCs	18 6.0	18 6.0	0.579	18.5	LOS C	3.3 24.8	0.81	0.90	1.22	42.5	
2	T1	All MCs	195 5.0	195 5.0	0.579	18.3	LOS C	3.3 24.8	0.81	0.90	1.22	43.2	
3	R2	All MCs	92 13.0	92 13.0	0.579	19.9	LOS C	3.3 24.8	0.81	0.90	1.22	42.8	
Approach			305 7.5	305 7.5	0.579	18.8	LOS C	3.3 24.8	0.81	0.90	1.22	43.0	
East: Fernbank													
4	L2	All MCs	87 5.0	87 5.0	0.551	13.1	LOS B	4.2 30.5	0.75	0.75	1.10	45.3	
5	T1	All MCs	265 4.0	265 4.0	0.551	13.0	LOS B	4.2 30.5	0.75	0.75	1.10	46.0	
6	R2	All MCs	75 2.0	75 2.0	0.551	12.7	LOS B	4.2 30.5	0.75	0.75	1.10	45.8	
Approach			427 3.9	427 3.9	0.551	13.0	LOS B	4.2 30.5	0.75	0.75	1.10	45.8	
North: Shea													
7	L2	All MCs	131 4.0	131 4.0	0.578	12.1	LOS B	5.3 38.8	0.73	0.66	1.03	45.5	
8	T1	All MCs	166 7.0	166 7.0	0.578	12.4	LOS B	5.3 38.8	0.73	0.66	1.03	46.2	
9	R2	All MCs	222 5.0	222 5.0	0.578	12.2	LOS B	5.3 38.8	0.73	0.66	1.03	45.9	
Approach			519 5.4	519 5.4	0.578	12.2	LOS B	5.3 38.8	0.73	0.66	1.03	45.9	
West: Fernbank													
10	L2	All MCs	305 4.0	305 4.0	0.824	24.7	LOS C	17.2 124.1	1.00	1.23	2.17	39.3	
11	T1	All MCs	401 3.0	401 3.0	0.824	24.6	LOS C	17.2 124.1	1.00	1.23	2.17	39.9	
12	R2	All MCs	33 3.0	33 3.0	0.824	24.6	LOS C	17.2 124.1	1.00	1.23	2.17	39.7	
Approach			739 3.4	739 3.4	0.824	24.7	LOS C	17.2 124.1	1.00	1.23	2.17	39.6	
All Vehicles			1990 4.6	1990 4.6	0.824	18.0	LOS C	17.2 124.1	0.85	0.93	1.50	42.9	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Report\Sidra - W-4 Report\2021-128 Shea Road at Fernbank Road - 2024-12-13.sip9

MOVEMENT SUMMARY

Site: 101 [Eagleson at Flewellyn FB2030 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance													
Mov ID	Turn Class	Demand Flows [Total HV]	Arrival Flows [Total HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.]	Prop. Que. Dist [m]	Prop. Que.	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
		veh/h %	veh/h %	v/c	sec							km/h	
South: Eagleson													
1	L2 All MCs	10 2.0	10 2.0	0.431	7.4	LOS A	2.7	19.9	0.43	0.22	0.43	57.7	
2	T1 All MCs	489 4.0	489 4.0	0.431	7.5	LOS A	2.7	19.9	0.43	0.22	0.43	58.5	
Approach		499 4.0	499 4.0	0.431	7.5	LOS A	2.7	19.9	0.43	0.22	0.43	58.5	
North: Eagleson													
8	T1 All MCs	449 6.0	449 6.0	0.414	5.8	LOS A	2.9	21.0	0.10	0.02	0.10	59.8	
9	R2 All MCs	101 4.0	101 4.0	0.414	5.8	LOS A	2.9	21.0	0.10	0.02	0.10	59.7	
Approach		550 5.6	550 5.6	0.414	5.8	LOS A	2.9	21.0	0.10	0.02	0.10	59.8	
West: Flewellyn													
10	L2 All MCs	146 3.0	146 3.0	0.195	6.3	LOS A	0.8	6.1	0.55	0.43	0.55	55.1	
12	R2 All MCs	17 6.0	17 6.0	0.195	6.5	LOS A	0.8	6.1	0.55	0.43	0.55	55.1	
Approach		163 3.3	163 3.3	0.195	6.3	LOS A	0.8	6.1	0.55	0.43	0.55	55.1	
All Vehicles		1212 4.6	1212 4.6	0.431	6.6	LOS A	2.9	21.0	0.30	0.16	0.30	58.6	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2030 Future Background
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	39	54	32	69	68	134	25	595	83	120	687	45
Future Volume (vph)	39	54	32	69	68	134	25	595	83	120	687	45
Satd. Flow (prot)	1610	1574	0	1658	1532	0	1658	1712	1414	1658	1726	0
Fit Permitted	0.462			0.701			0.311			0.388		
Satd. Flow (perm)	779	1574	0	1177	1532	0	541	1712	1358	674	1726	0
Satd. Flow (RTOR)		32			114				43		6	
Lane Group Flow (vph)	39	86	0	69	202	0	25	595	83	120	732	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		6		6
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	28.3	28.3		28.3	28.3		30.2	30.2	30.2	30.2	30.2	
Total Split (s)	33.0	33.0		33.0	33.0		57.0	57.0	57.0	57.0	57.0	
Total Split (%)	36.7%	36.7%		36.7%	36.7%		63.3%	63.3%	63.3%	63.3%	63.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.9	1.9	1.9	1.9	1.9	
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)	5.3	5.3		5.3	5.3		5.2	5.2	5.2	5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	15.4	15.4		15.4	15.4		64.1	64.1	64.1	64.1	64.1	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.71	0.71	0.71	0.71	0.71	
v/c Ratio	0.29	0.29		0.34	0.57		0.06	0.49	0.08	0.25	0.59	
Control Delay	35.7	22.3		35.3	20.7		6.3	8.6	3.5	7.6	10.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	35.7	22.3		35.3	20.7		6.3	8.6	3.5	7.6	10.3	
LOS	D	C		D	C		A	A	A	A	B	
Approach Delay	26.5			24.4			7.9			9.9		
Approach LOS	C			C			A			A		
Queue Length 50th (m)	6.3	8.6		11.3	14.4		0.9	29.7	1.3	4.8	40.9	
Queue Length 95th (m)	13.8	18.6		20.5	30.8		4.6	80.1	7.4	17.8	111.5	
Internal Link Dist (m)		510.2			520.3			308.9			352.8	
Turn Bay Length (m)	25.0			23.0			15.0		17.0	23.5		
Base Capacity (vph)	239	506		362	550		385	1219	979	480	1231	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.16	0.17		0.19	0.37		0.06	0.49	0.08	0.25	0.59	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 9 (10%), Referenced to phase 2:NBL and 6:SBTL, Start of Green

Natural Cycle: 65

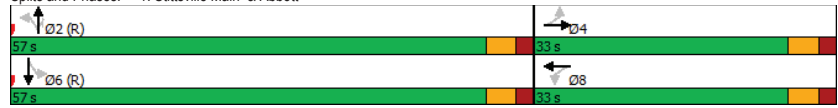
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2030 Future Background
PM Peak Hour

Maximum v/c Ratio: 0.59	Intersection LOS: B
Intersection Signal Delay: 12.3	ICU Level of Service E
Intersection Capacity Utilization 89.2%	
Analysis Period (min) 15	

Splits and Phases: 1: Stittsville Main & Abbott



Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2030 Future Background
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	20	165	10	40	134	78	4	344	51	43	376	32
Future Volume (vph)	20	165	10	40	134	78	4	344	51	43	376	32
Satd. Flow (prot)	1470	1704	0	1523	1664	1483	1353	1678	0	1551	1682	0
Fit Permitted	0.671			0.647			0.501			0.515		
Satd. Flow (perm)	1033	1704	0	1034	1664	1444	713	1678	0	839	1682	0
Satd. Flow (RTOR)		4			78			13			7	
Lane Group Flow (vph)	20	175	0	40	134	78	4	395	0	43	408	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.9	24.9		24.9	24.9	
Total Split (s)	34.6	34.6		34.6	34.6	34.6	46.9	46.9		46.9	46.9	
Total Split (%)	42.5%	42.5%		42.5%	42.5%	42.5%	57.5%	57.5%		57.5%	57.5%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	4.6	4.6		4.6	4.6	4.6	3.6	3.6		3.6	3.6	
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)	7.6	7.6		7.6	7.6	7.6	6.9	6.9		6.9	6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Ped	Ped		Ped	Ped	
Act Effct Green (s)	11.9	11.9		11.9	11.9	11.9	19.9	19.9		19.9	19.9	
Actuated g/C Ratio	0.26	0.26		0.26	0.26	0.26	0.43	0.43		0.43	0.43	
v/c Ratio	0.08	0.40		0.15	0.32	0.18	0.01	0.55		0.12	0.57	
Control Delay	13.8	16.7		14.7	15.9	5.4	9.0	13.7		10.1	14.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	13.8	16.7		14.7	15.9	5.4	9.0	13.7		10.1	14.2	
LOS	B	B		B	B	A	A	B		B	B	
Approach Delay		16.4			12.5			13.7			13.9	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	1.1	9.8		2.2	7.5	0.0	0.2	19.3		1.8	20.6	
Queue Length 95th (m)	5.4	26.7		8.7	21.4	7.2	1.6	50.9		7.7	53.6	
Internal Link Dist (m)		229.8			252.5			682.0			279.7	
Turn Bay Length (m)	40.0			75.0		55.0	70.0			110.0		
Base Capacity (vph)	611	1010		611	984	886	625	1472		735	1475	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.17		0.07	0.14	0.09	0.01	0.27		0.06	0.28	

Intersection Summary

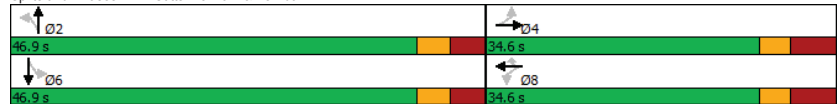
Cycle Length: 81.5
Actuated Cycle Length: 46.6
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.57

Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2030 Future Background
PM Peak Hour

Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 74.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Stittsville Main & Fernbank



Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2030 Future Background
PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	30	21	39	34	32	61	75	252	37	52	294	46
Future Volume (vph)	30	21	39	34	32	61	75	252	37	52	294	46
Satd. Flow (prot)	1580	1495	0	1470	1527	0	1658	1697	0	1658	1728	1441
Fit Permitted	0.697			0.718			0.580			0.583		
Satd. Flow (perm)	1139	1495	0	1103	1527	0	1008	1697	0	1017	1728	1404
Satd. Flow (RTOR)		39			61			13				46
Lane Group Flow (vph)	30	60	0	34	93	0	75	289	0	52	294	46
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	29.5	29.5		29.5	29.5		29.0	29.0		29.0	29.0	29.0
Total Split (s)	33.5	33.5		33.5	33.5		59.0	59.0		59.0	59.0	59.0
Total Split (%)	36.2%	36.2%		36.2%	36.2%		63.8%	63.8%		63.8%	63.8%	63.8%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	3.5	3.5		3.5	3.5		2.7	2.7		2.7	2.7	2.7
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)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Ped	Ped		Ped	Ped	Ped
Act Effct Green (s)	12.3	12.3		12.3	12.3		28.5	28.5		28.5	28.5	28.5
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.59	0.59		0.59	0.59	0.59
v/c Ratio	0.10	0.15		0.12	0.22		0.13	0.29		0.09	0.29	0.05
Control Delay	13.8	7.8		14.1	7.7		9.3	9.2		9.0	9.6	3.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	13.8	7.8		14.1	7.7		9.3	9.2		9.0	9.6	3.9
LOS	B	A		B	A		A	A		A	A	A
Approach Delay		9.8			9.4			9.2			8.8	
Approach LOS		A			A			A			A	
Queue Length 50th (m)	1.9	1.3		2.2	2.0		2.8	11.5		1.9	12.4	0.0
Queue Length 95th (m)	6.2	7.0		6.7	9.2		12.6	37.7		9.4	39.5	4.9
Internal Link Dist (m)		206.7			174.8			888.7			682.0	
Turn Bay Length (m)	30.0			20.0			135.0			120.0		110.0
Base Capacity (vph)	641	860		621	887		989	1665		998	1695	1378
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.05	0.07		0.05	0.10		0.08	0.17		0.05	0.17	0.03

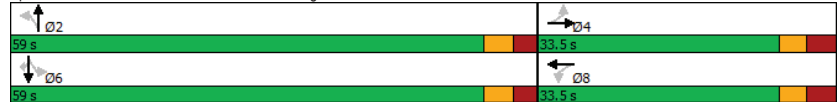
Intersection Summary
Cycle Length: 92.5
Actuated Cycle Length: 48.4
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.29

Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2030 Future Background
PM Peak Hour

Intersection Signal Delay: 9.2	Intersection LOS: A
Intersection Capacity Utilization 54.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Stittsville Main & West Ridge/Parade



HCM 2010 AWSC
4: Huntley/Stittsville Main & Flewellyn

2030 Future Background
PM Peak Hour

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	44	110	14	6	181	71	27	234	14	33	272	47
Future Vol, veh/h	44	110	14	6	181	71	27	234	14	33	272	47
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
Heavy Vehicles, %	2	2	7	2	2	2	4	2	7	2	2	2
Mvmt Flow	44	110	14	6	181	71	27	234	14	33	272	47
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.1	13.5	14	15.7
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	26%	2%	9%
Vol Thru, %	85%	65%	70%	77%
Vol Right, %	5%	8%	28%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	275	168	258	352
LT Vol	27	44	6	33
Through Vol	234	110	181	272
RT Vol	14	14	71	47
Lane Flow Rate	275	168	258	352
Geometry Grp	1	1	1	1
Degree of Util (X)	0.457	0.297	0.431	0.554
Departure Headway (Hd)	5.985	6.37	6.013	5.792
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	605	564	601	627
Service Time	4.002	4.398	4.028	3.792
HCM Lane V/C Ratio	0.455	0.298	0.429	0.561
HCM Control Delay	14	12.1	13.5	15.7
HCM Lane LOS	B	B	B	C
HCM 95th-tile Q	2.4	1.2	2.2	3.4

Intersection												
Int Delay, s/veh	11.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	22	474	50	128	482	71	26	2	80	70	1	35
Future Vol, veh/h	22	474	50	128	482	71	26	2	80	70	1	35
Conflicting Peds, #/hr	1	0	2	2	0	1	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	3	2	2	3	83	13	2	2	22	2	7
Mvmt Flow	22	474	50	128	482	71	26	2	80	70	1	35

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	554	0	526	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	2.218	-
Pot Cap-1 Maneuver	1016	-	1041	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1015	-	1039	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.7	28	121.1
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	262	1015	-	-	1039	-	-	120
HCM Lane V/C Ratio	0.412	0.022	-	-	0.123	-	-	0.883
HCM Control Delay (s)	28	8.6	-	-	9	-	-	121.1
HCM Lane LOS	D	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1.9	0.1	-	-	0.4	-	-	5.5

Intersection	
Intersection Delay, s/veh	56.2
Intersection LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	152	104	455	151	153	399
Future Vol, veh/h	152	104	455	151	153	399
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	3
Mvmt Flow	152	104	455	151	153	399
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	15.6	84.1	44.5
HCM LOS	C	F	E

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	28%	0%	75%
Vol Thru, %	0%	59%	25%
Vol Right, %	72%	41%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	552	256	606
LT Vol	153	0	455
Through Vol	0	152	151
RT Vol	399	104	0
Lane Flow Rate	552	256	606
Geometry Grp	1	1	1
Degree of Util (X)	0.917	0.465	1.073
Departure Headway (Hd)	6.21	6.805	6.373
Convergence, Y/N	Yes	Yes	Yes
Cap	591	532	564
Service Time	4.21	4.805	4.466
HCM Lane V/C Ratio	0.934	0.481	1.074
HCM Control Delay	44.5	15.6	84.1
HCM Lane LOS	E	C	F
HCM 95th-tile Q	11.4	2.4	17.7

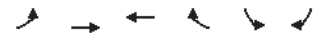
HCM 2010 TWSC
8: Shea & Flewellyn

2030 Future Background
PM Peak Hour

Intersection												
Int Delay, s/veh	14.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	59	107	11	2	166	33	16	213	17	14	255	71
Future Vol, veh/h	59	107	11	2	166	33	16	213	17	14	255	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	5	2	18	2	2	2	6	2	6	2	2	3
Mvmt Flow	59	107	11	2	166	33	16	213	17	14	255	71
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	199	0	0	118	0	0	581	434	113	533	423	183
Stage 1	-	-	-	-	-	-	231	231	-	187	187	-
Stage 2	-	-	-	-	-	-	350	203	-	346	236	-
Critical Hdwy	4.15	-	-	4.12	-	-	7.16	6.52	6.26	7.12	6.52	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.245	-	-	2.218	-	-	3.554	4.018	3.354	3.518	4.018	3.327
Pot Cap-1 Maneuver	1356	-	-	1470	-	-	419	515	929	458	522	857
Stage 1	-	-	-	-	-	-	763	713	-	745	745	-
Stage 2	-	-	-	-	-	-	658	733	-	670	710	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1356	-	-	1470	-	-	221	490	929	287	496	857
Mov Cap-2 Maneuver	-	-	-	-	-	-	221	490	-	287	496	-
Stage 1	-	-	-	-	-	-	727	679	-	777	744	-
Stage 2	-	-	-	-	-	-	396	732	-	430	677	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.6			0.1			20.9			23.4		
HCM LOS	C			C			C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	468	1356	-	-	1470	-	-	527				
HCM Lane V/C Ratio	0.526	0.044	-	-	0.001	-	-	0.645				
HCM Control Delay (s)	20.9	7.8	0	-	7.5	0	-	23.4				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	3	0.1	-	-	0	-	-	4.6				

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2030 Future Background
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5	Ø8	Ø9	
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Volume (vph)	66	623	756	201	218	88						
Future Volume (vph)	66	623	756	201	218	88						
Satd. Flow (prot)	1658	1712	1728	1469	1610	1388						
Fit Permitted	0.950											
Satd. Flow (perm)	1658	1712	1728	1469	1610	1388						
Satd. Flow (RTOR)	201						88					
Lane Group Flow (vph)	66	623	756	201	218	88						
Turn Type	Prot	NA	NA	custom	Perm	Perm						
Protected Phases	13	12	9	5	6	4	1	2	5	8	9	
Permitted Phases	6						4	4				
Detector Phase	13	12	9	5	6	4	4					
Switch Phase												
Minimum Initial (s)	5.0		10.0		10.0	10.0	1.0	10.0	1.0	1.0	10.0	
Minimum Split (s)	24.2		30.0		30.0	30.0	4.0	24.2	4.0	30.0	24.2	
Total Split (s)	28.0		40.0		32.0	32.0	5.0	40.0	5.0	32.0	28.0	
Total Split (%)	26.7%		38.1%		30.5%	30.5%	5%	38%	5%	30%	27%	
Yellow Time (s)	4.6		4.6		3.3	3.3	2.0	4.6	2.0	3.3	4.6	
All-Red Time (s)	1.6		1.6		2.7	2.7	0.0	1.6	0.0	2.7	1.6	
Lost Time Adjust (s)	0.0		0.0		0.0	0.0						
Total Lost Time (s)	6.2		6.2		6.0	6.0						
Lead/Lag	Lead						Lag	Lag	Lead			
Lead-Lag Optimize?	Yes						Yes	Yes	Yes			
Recall Mode	None		Max		None	None	None	Max	None	None	None	
Act Effct Green (s)	9.2	67.9	55.3	46.0	18.0	18.0						
Actuated g/C Ratio	0.10	0.72	0.59	0.49	0.19	0.19						
v/c Ratio	0.41	0.50	0.74	0.24	0.71	0.26						
Control Delay	49.4	8.2	23.4	3.6	49.0	9.2						
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0						
Total Delay	49.4	8.2	23.4	3.6	49.0	9.2						
LOS	D	A	C	A	D	A						
Approach Delay	12.1		19.3		37.5							
Approach LOS	B		B		D							
Queue Length 50th (m)	11.7	41.8	101.1	0.0	38.1	0.0						
Queue Length 95th (m)	25.6	84.2	#211.3	13.3	62.6	11.7						
Internal Link Dist (m)	1197.5		448.1		313.2							
Turn Bay Length (m)	100.0		120.0		90.0							
Base Capacity (vph)	388		1228		1016		821	449	450			
Starvation Cap Reductn	0		0		0		0	0	0			
Spillback Cap Reductn	0		0		0		0	0	0			
Storage Cap Reductn	0		0		0		0	0	0			
Reduced v/c Ratio	0.17	0.51	0.74	0.24	0.49	0.20						

Intersection Summary											
Cycle Length: 105											
Actuated Cycle Length: 94											
Natural Cycle: 95											
Control Type: Actuated-Uncoordinated											
Maximum v/c Ratio: 0.74											

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2030 Future Background
PM Peak Hour

Intersection Signal Delay: 19.6 Intersection LOS: B
 Intersection Capacity Utilization 72.4% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 9: Fernbank & Robert Grant



Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2030 Future Background
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↕	↔	↕	↔	↕
Traffic Volume (vph)	94	541	200	4	635	100	362	433	17	119	386	98
Future Volume (vph)	94	541	200	4	635	100	362	433	17	119	386	98
Satd. Flow (prot)	1658	1745	1483	1658	1745	1401	1658	1732	0	1610	1745	1483
Fit Permitted	0.113			0.341			0.197			0.503		
Satd. Flow (perm)	197	1745	1432	592	1745	1309	342	1732	0	842	1745	1483
Satd. Flow (RTOR)			200			155		3				
Lane Group Flow (vph)	94	541	200	4	635	100	362	450	0	119	386	98
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	NA	pt+ov	
Protected Phases	7	4			8		5	2			6	6
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	8	8	8	5	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0		10.0	10.0	
Minimum Split (s)	11.2	33.2	33.2	33.2	33.2	33.2	11.2	29.2		29.2	29.2	
Total Split (s)	15.0	50.0	50.0	35.0	35.0	35.0	25.0	60.0		35.0	35.0	
Total Split (%)	13.6%	45.5%	45.5%	31.8%	31.8%	31.8%	22.7%	54.5%		31.8%	31.8%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.2	4.2		4.2	4.2	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2		6.2	6.2	
Lead/Lag	Lead			Lag	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes			Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max		C-Max	C-Max	
Act Effct Green (s)	43.8	43.8	43.8	29.2	29.2	29.2	53.8	53.8		28.9	28.9	43.4
Actuated g/C Ratio	0.40	0.40	0.40	0.27	0.27	0.27	0.49	0.49		0.26	0.26	0.39
v/c Ratio	0.50	0.78	0.29	0.03	1.37	0.22	0.93	0.53		0.54	0.84	0.15
Control Delay	30.5	38.2	4.2	31.0	213.6	2.2	53.4	22.1		45.4	56.5	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	30.5	38.2	4.2	31.0	213.6	2.2	53.4	22.1		45.4	56.5	5.5
LOS	C	D	A	C	F	A	D	C		D	E	A
Approach Delay		29.2			184.0			36.1				46.0
Approach LOS		C			F			D				D
Queue Length 50th (m)	12.7	99.7	0.0	0.6	-182.0	0.0	51.0	63.9		22.0	78.7	0.7
Queue Length 95th (m)	23.6	143.0	13.7	3.5	#249.2	3.2	#105.8	93.2		41.7	#127.9	10.6
Internal Link Dist (m)		330.2			610.3			1085.2				359.0
Turn Bay Length (m)	85.0		100.0	120.0		120.0	110.0			125.0		135.0
Base Capacity (vph)	195	694	690	157	463	462	392	848		221	457	647
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.48	0.78	0.29	0.03	1.37	0.22	0.92	0.53		0.54	0.84	0.15

Intersection Summary

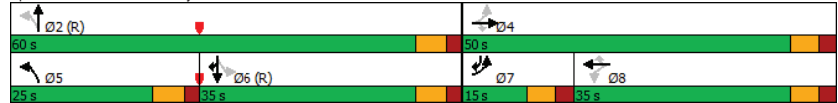
Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 125
 Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2030 Future Background
PM Peak Hour

Maximum v/c Ratio: 1.37	Intersection LOS: E
Intersection Signal Delay: 72.7	ICU Level of Service G
Intersection Capacity Utilization 104.1%	
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Terry Fox & Fernbank



Lanes, Volumes, Timings
11: Eagleson & Terry Fox

2030 Future Background
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	20	326	266	128	581	193	236	317	64	164	409	9
Future Volume (vph)	20	326	266	128	581	193	236	317	64	164	409	9
Satd. Flow (prot)	1658	1598	0	1658	1676	0	1658	1695	0	1658	1740	0
Fit Permitted	0.221			0.158			0.127			0.536		
Satd. Flow (perm)	386	1598	0	276	1676	0	222	1695	0	934	1740	0
Satd. Flow (RTOR)		37			22			9			1	
Lane Group Flow (vph)	20	592	0	128	774	0	236	381	0	164	418	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	30.4	30.4		11.4	30.4		11.4	31.4		31.4	31.4	
Total Split (s)	52.0	52.0		25.0	77.0		16.6	48.0		31.4	31.4	
Total Split (%)	41.6%	41.6%		20.0%	61.6%		13.3%	38.4%		25.1%	25.1%	
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.4		6.4	6.4	
Lead/Lag	Lag	Lag		Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min		C-Min	C-Min	
Act Effct Green (s)	50.5	50.5		67.2	67.2		45.0	45.0		25.0	25.0	
Actuated g/C Ratio	0.40	0.40		0.54	0.54		0.36	0.36		0.20	0.20	
v/c Ratio	0.13	0.89		0.49	0.85		1.00	0.62		0.88	1.20	
Control Delay	25.4	48.9		20.3	33.8		95.1	38.4		90.3	157.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.4	48.9		20.3	33.8		95.1	38.4		90.3	157.8	
LOS	C	D		C	C		F	D		F	F	
Approach Delay		48.2			31.9			60.1			138.8	
Approach LOS		D			C			E			F	
Queue Length 50th (m)	2.9	119.9		14.2	142.3		~57.5	78.3		39.5	~124.9	
Queue Length 95th (m)	8.9	#195.1		23.9	202.0		#108.9	113.0		#79.5	#187.2	
Internal Link Dist (m)		1085.2			917.1			390.2			463.1	
Turn Bay Length (m)	120.0			120.0			100.0			107.0		
Base Capacity (vph)	156	669		353	956		236	616		186	348	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.13	0.88		0.36	0.81		1.00	0.62		0.88	1.20	

Intersection Summary

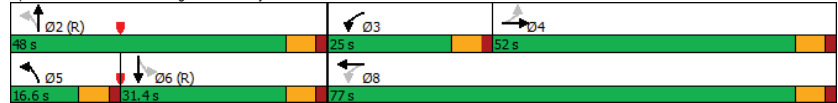
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
11: Eagleson & Terry Fox

2030 Future Background
PM Peak Hour

Maximum v/c Ratio: 1.20	Intersection LOS: E
Intersection Signal Delay: 64.9	ICU Level of Service H
Intersection Capacity Utilization 111.4%	
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 11: Eagleson & Terry Fox



HCM 2010 TWSC
18: Shea & Cosanti

2030 Future Background
PM Peak Hour

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	24	12	21	284	328	43
Future Vol, veh/h	24	12	21	284	328	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	24	12	21	284	328	43

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	676	350	371
Stage 1	350	-	-
Stage 2	326	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	419	693	1188
Stage 1	713	-	-
Stage 2	731	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	410	693	1188
Mov Cap-2 Maneuver	410	-	-
Stage 1	698	-	-
Stage 2	731	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.2	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1188	-	475	-	-
HCM Lane V/C Ratio	0.018	-	0.076	-	-
HCM Control Delay (s)	8.1	0	13.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

MOVEMENT SUMMARY

Site: 101 [Fernbank at Shea FB2030 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
		[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Shea														
1	L2	All MCs	30 3.0	30 3.0	0.535	14.3	LOS B	3.4	24.5	0.77	0.81	1.11	44.8	
2	T1	All MCs	217 3.0	217 3.0	0.535	14.3	LOS B	3.4	24.5	0.77	0.81	1.11	45.5	
3	R2	All MCs	99 6.0	99 6.0	0.535	14.8	LOS B	3.4	24.5	0.77	0.81	1.11	45.1	
Approach			346 3.9	346 3.9	0.535	14.5	LOS B	3.4	24.5	0.77	0.81	1.11	45.3	
East: Fernbank														
4	L2	All MCs	130 8.0	130 8.0	0.883	32.4	LOS D	24.3	175.5	1.00	1.50	2.66	36.8	
5	T1	All MCs	551 3.0	551 3.0	0.883	31.9	LOS D	24.3	175.5	1.00	1.50	2.66	37.4	
6	R2	All MCs	115 2.0	115 2.0	0.883	31.8	LOS D	24.3	175.5	1.00	1.50	2.66	37.2	
Approach			796 3.7	796 3.7	0.883	31.9	LOS D	24.3	175.5	1.00	1.50	2.66	37.3	
North: Shea														
7	L2	All MCs	60 2.0	60 2.0	0.725	23.1	LOS C	6.4	46.2	0.89	1.04	1.60	40.3	
8	T1	All MCs	251 2.0	251 2.0	0.725	23.1	LOS C	6.4	46.2	0.89	1.04	1.60	40.9	
9	R2	All MCs	144 9.0	144 9.0	0.725	24.3	LOS C	6.4	46.2	0.89	1.04	1.60	40.5	
Approach			455 4.2	455 4.2	0.725	23.5	LOS C	6.4	46.2	0.89	1.04	1.60	40.7	
West: Fernbank														
10	L2	All MCs	133 5.0	133 5.0	0.782	22.2	LOS C	12.6	90.5	0.94	1.11	1.91	40.8	
11	T1	All MCs	495 3.0	495 3.0	0.782	22.0	LOS C	12.6	90.5	0.94	1.11	1.91	41.4	
12	R2	All MCs	34 3.0	34 3.0	0.782	22.0	LOS C	12.6	90.5	0.94	1.11	1.91	41.2	
Approach			662 3.4	662 3.4	0.782	22.1	LOS C	12.6	90.5	0.94	1.11	1.91	41.3	
All Vehicles			2259 3.7	2259 3.7	0.883	24.7	LOS C	24.3	175.5	0.93	1.19	1.99	40.2	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Report\Sidra - W-4 Report\2021-128 Shea Road at Fernbank Road - 2024-12-13.sip9

MOVEMENT SUMMARY

Site: 101 [Eagleson at Flewellyn FB2030 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
		[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: Eagleson														
1	L2	All MCs	14 7.0	14 7.0	0.454	7.9	LOS A	3.1	21.9	0.42	0.20	0.42	56.4	
2	T1	All MCs	530 2.0	530 2.0	0.454	7.7	LOS A	3.1	21.9	0.42	0.20	0.42	58.9	
Approach			544 2.1	544 2.1	0.454	7.7	LOS A	3.1	21.9	0.42	0.20	0.42	58.8	
North: Eagleson														
8	T1	All MCs	619 2.0	619 2.0	0.599	8.0	LOS A	6.1	43.1	0.17	0.04	0.17	58.7	
9	R2	All MCs	187 2.0	187 2.0	0.599	8.0	LOS A	6.1	43.1	0.17	0.04	0.17	58.1	
Approach			806 2.0	806 2.0	0.599	8.0	LOS A	6.1	43.1	0.17	0.04	0.17	58.5	
West: Flewellyn														
10	L2	All MCs	125 2.0	125 2.0	0.196	7.2	LOS A	0.8	5.8	0.61	0.53	0.61	54.4	
12	R2	All MCs	13 15.0	13 15.0	0.196	8.7	LOS A	0.8	5.8	0.61	0.53	0.61	52.5	
Approach			138 3.2	138 3.2	0.196	7.3	LOS A	0.8	5.8	0.61	0.53	0.61	54.2	
All Vehicles			1488 2.2	1488 2.2	0.599	7.8	LOS A	6.1	43.1	0.30	0.14	0.30	58.2	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Report\Sidra - W-4 Report\2021-128 Shea Road at Fernbank Road - 2024-12-13.sip9

Intersection	
Intersection Delay, s/veh	23.3
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↕	↕	↕	↕
Traffic Vol, veh/h	134	118	425	150	122	394
Future Vol, veh/h	134	118	425	150	122	394
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	9	4	2	6	4
Mvmt Flow	134	118	425	150	122	394
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	15.1	30.4	19.4
HCM LOS	C	D	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	53%	0%	100%
Vol Right, %	0%	100%	47%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	122	394	252	425	150
LT Vol	122	0	0	425	0
Through Vol	0	0	134	0	150
RT Vol	0	394	118	0	0
Lane Flow Rate	122	394	252	425	150
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.254	0.683	0.458	0.838	0.273
Departure Headway (Hd)	7.497	6.241	6.546	7.102	6.558
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	477	575	547	510	545
Service Time	5.273	4.016	4.625	4.875	4.331
HCM Lane V/C Ratio	0.256	0.685	0.461	0.833	0.275
HCM Control Delay	12.8	21.5	15.1	36.9	11.8
HCM Lane LOS	B	C	C	E	B
HCM 95th-tile Q	1	5.2	2.4	8.5	1.1

Intersection	
Intersection Delay, s/veh	27.4
Intersection LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↕	↕	↕	↕
Traffic Vol, veh/h	152	104	455	151	153	399
Future Vol, veh/h	152	104	455	151	153	399
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	3
Mvmt Flow	152	104	455	151	153	399
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	15.7	38.7	20.3
HCM LOS	C	E	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	59%	0%	100%
Vol Right, %	0%	100%	41%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	153	399	256	455	151
LT Vol	153	0	0	455	0
Through Vol	0	0	152	0	151
RT Vol	0	399	104	0	0
Lane Flow Rate	153	399	256	455	151
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.32	0.702	0.475	0.908	0.28
Departure Headway (Hd)	7.541	6.336	6.686	7.186	6.676
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	474	567	535	501	536
Service Time	5.323	4.117	4.77	4.963	4.453
HCM Lane V/C Ratio	0.323	0.704	0.479	0.908	0.282
HCM Control Delay	13.9	22.8	15.7	47.5	12.1
HCM Lane LOS	B	C	C	E	B
HCM 95th-tile Q	1.4	5.6	2.5	10.5	1.1

MOVEMENT SUMMARY

Site: 101 [Terry Fox ar Eagleson Road FB2030 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
		[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh.]	[Dist]					
		veh/h	%	veh/h	%	v/c	sec			veh	m			km/h	
South: Eagleson															
1	L2	All MCs	215	5.0	215	5.0	0.370	8.9	LOS A	1.7	12.4	0.60	0.50	0.64	53.4
2	T1	All MCs	326	2.0	326	2.0	0.370	8.3	LOS A	1.7	12.4	0.59	0.48	0.61	58.0
3	R2	All MCs	92	2.0	92	2.0	0.370	8.2	LOS A	1.7	11.9	0.58	0.47	0.60	58.4
Approach			633	3.0	633	3.0	0.370	8.5	LOS A	1.7	12.4	0.59	0.48	0.62	56.4
East: Terry Fox															
4	L2	All MCs	65	4.0	65	4.0	0.262	7.6	LOS A	1.1	7.6	0.57	0.48	0.57	56.4
5	T1	All MCs	266	2.0	266	2.0	0.262	7.2	LOS A	1.1	7.6	0.56	0.46	0.56	59.1
6	R2	All MCs	101	3.0	101	3.0	0.262	7.0	LOS A	1.0	7.5	0.55	0.45	0.55	59.3
Approach			432	2.5	432	2.5	0.262	7.2	LOS A	1.1	7.6	0.56	0.46	0.56	58.7
North: Eagleson															
7	L2	All MCs	141	2.0	141	2.0	0.241	7.2	LOS A	1.0	6.9	0.56	0.47	0.56	55.3
8	T1	All MCs	256	2.0	256	2.0	0.241	6.8	LOS A	1.0	6.9	0.54	0.45	0.54	59.6
9	R2	All MCs	3	2.0	3	2.0	0.241	6.7	LOS A	1.0	6.8	0.54	0.44	0.54	59.8
Approach			400	2.0	400	2.0	0.241	6.9	LOS A	1.0	6.9	0.55	0.45	0.55	58.0
West: Terry Fox															
10	L2	All MCs	7	2.0	7	2.0	0.317	7.7	LOS A	1.4	9.8	0.56	0.44	0.56	58.0
11	T1	All MCs	359	2.0	359	2.0	0.317	7.5	LOS A	1.4	9.8	0.55	0.43	0.55	59.5
12	R2	All MCs	195	7.0	195	7.0	0.317	7.5	LOS A	1.3	9.7	0.54	0.42	0.54	58.0
Approach			561	3.7	561	3.7	0.317	7.5	LOS A	1.4	9.8	0.55	0.43	0.55	58.9
All Vehicles			2026	2.9	2026	2.9	0.370	7.6	LOS A	1.7	12.4	0.56	0.46	0.57	57.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Terry Fox ar Eagleson Road FB2030 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
		[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh.]	[Dist]					
		veh/h	%	veh/h	%	v/c	sec			veh	m			km/h	
South: Eagleson															
1	L2	All MCs	236	2.0	236	2.0	0.358	8.6	LOS A	1.6	11.5	0.60	0.49	0.61	53.9
2	T1	All MCs	317	2.0	317	2.0	0.358	8.1	LOS A	1.6	11.5	0.58	0.47	0.58	58.4
3	R2	All MCs	64	2.0	64	2.0	0.358	8.0	LOS A	1.6	11.2	0.58	0.46	0.58	58.5
Approach			617	2.0	617	2.0	0.358	8.3	LOS A	1.6	11.5	0.59	0.47	0.59	56.6
East: Terry Fox															
4	L2	All MCs	128	3.0	128	3.0	0.555	13.2	LOS B	4.0	28.7	0.72	0.72	1.11	52.3
5	T1	All MCs	581	2.0	581	2.0	0.555	12.6	LOS B	4.1	29.0	0.72	0.71	1.09	54.5
6	R2	All MCs	193	2.0	193	2.0	0.555	12.2	LOS B	4.1	29.0	0.71	0.70	1.08	54.9
Approach			902	2.1	902	2.1	0.555	12.6	LOS B	4.1	29.0	0.72	0.71	1.09	54.3
North: Eagleson															
7	L2	All MCs	164	2.0	164	2.0	0.501	15.6	LOS C	2.6	18.3	0.75	0.82	1.10	49.8
8	T1	All MCs	409	2.0	409	2.0	0.501	14.5	LOS B	2.6	18.6	0.74	0.81	1.09	53.1
9	R2	All MCs	9	2.0	9	2.0	0.501	14.1	LOS B	2.6	18.6	0.73	0.80	1.08	53.5
Approach			582	2.0	582	2.0	0.501	14.8	LOS B	2.6	18.6	0.74	0.81	1.09	52.1
West: Terry Fox															
10	L2	All MCs	20	2.0	20	2.0	0.426	11.2	LOS B	2.2	15.6	0.68	0.67	0.89	54.9
11	T1	All MCs	326	2.0	326	2.0	0.426	11.0	LOS B	2.2	15.6	0.68	0.67	0.88	56.2
12	R2	All MCs	266	4.0	266	4.0	0.426	10.5	LOS B	2.2	15.6	0.66	0.65	0.86	55.9
Approach			612	2.9	612	2.9	0.426	10.8	LOS B	2.2	15.6	0.67	0.66	0.88	56.0
All Vehicles			2713	2.2	2713	2.2	0.555	11.7	LOS B	4.1	29.0	0.68	0.67	0.93	54.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Appendix J

Synchro And Sidra Worksheets - 2035 Future Background Horizon

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2035 Future Background
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	38	147	13	54	59	210	7	593	72	85	350	19
Future Volume (vph)	38	147	13	54	59	210	7	593	72	85	350	19
Satd. Flow (prot)	1642	1718	0	1626	1471	0	1483	1712	1455	1510	1649	0
Fit Permitted	0.329			0.603			0.531			0.386		
Satd. Flow (perm)	565	1718	0	1016	1471	0	824	1712	1405	612	1649	0
Satd. Flow (RTOR)		6			210				39		5	
Lane Group Flow (vph)	38	160	0	54	269	0	7	593	72	85	369	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		2	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	28.3	28.3		28.3	28.3		30.2	30.2	30.2	30.2	30.2	
Total Split (s)	31.0	31.0		31.0	31.0		49.0	49.0	49.0	49.0	49.0	
Total Split (%)	38.8%	38.8%		38.8%	38.8%		61.3%	61.3%	61.3%	61.3%	61.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.9	1.9	1.9	1.9	1.9	
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)	5.3	5.3		5.3	5.3		5.2	5.2	5.2	5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	14.1	14.1		14.1	14.1		55.4	55.4	55.4	55.4	55.4	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.69	0.69	0.69	0.69	0.69	
v/c Ratio	0.38	0.52		0.30	0.62		0.01	0.50	0.07	0.20	0.32	
Control Delay	38.4	33.8		31.2	14.1		5.9	8.7	3.4	7.3	6.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	38.4	33.8		31.2	14.1		5.9	8.7	3.4	7.3	6.6	
LOS	D	C		C	B		A	A	A	A	A	
Approach Delay		34.7			17.0			8.1			6.8	
Approach LOS		C			B			A			A	
Queue Length 50th (m)	5.3	22.0		7.4	8.0		0.3	32.6	1.2	3.5	16.8	
Queue Length 95th (m)	12.3	33.6		14.9	25.4		1.9	82.5	6.9	13.5	44.0	
Internal Link Dist (m)		510.2			520.3			230.2			333.2	
Turn Bay Length (m)	25.0			23.0			15.0		17.0	23.5		
Base Capacity (vph)	181	555		326	615		570	1185	984	423	1143	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.21	0.29		0.17	0.44		0.01	0.50	0.07	0.20	0.32	

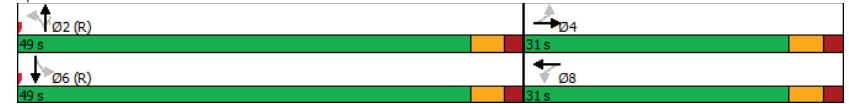
Intersection Summary	
Cycle Length:	80
Actuated Cycle Length:	80
Offset:	7 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2035 Future Background
AM Peak Hour

Maximum v/c Ratio: 0.62	Intersection LOS: B
Intersection Signal Delay: 12.7	ICU Level of Service E
Intersection Capacity Utilization 84.7%	
Analysis Period (min) 15	

Splits and Phases: 1: Stittsville Main & Abbott



Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2035 Future Background
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	17	99	6	25	230	65	0	357	43	24	234	26
Future Volume (vph)	17	99	6	25	230	65	0	357	43	24	234	26
Satd. Flow (prot)	1433	1699	0	1658	1664	1427	1745	1649	0	1496	1655	0
Fit Permitted	0.615			0.689						0.505		
Satd. Flow (perm)	928	1699	0	1202	1664	1427	1745	1649	0	793	1655	0
Satd. Flow (RTOR)		4				65		10			10	
Lane Group Flow (vph)	17	105	0	25	230	65	0	400	0	24	260	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8		2		2		6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.9	24.9		24.9	24.9	
Total Split (s)	34.6	34.6		34.6	34.6	34.6	46.9	46.9		46.9	46.9	
Total Split (%)	42.5%	42.5%		42.5%	42.5%	42.5%	57.5%	57.5%		57.5%	57.5%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	4.6	4.6		4.6	4.6	4.6	3.6	3.6		3.6	3.6	
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)	7.6	7.6		7.6	7.6	7.6	6.9	6.9		6.9	6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Ped	Ped		Ped	Ped	
Act Effct Green (s)	12.4	12.4		12.4	12.4	12.4	19.4	19.4		19.4	19.4	
Actuated g/C Ratio	0.27	0.27		0.27	0.27	0.27	0.42	0.42		0.42	0.42	
v/c Ratio	0.07	0.23		0.08	0.52	0.15	0.58	0.07		0.37	0.37	
Control Delay	13.9	14.4		13.8	19.3	5.6	14.7	9.8		11.4	11.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	13.9	14.4		13.8	19.3	5.6	14.7	9.8		11.4	11.4	
LOS	B	B		B	B	A	B	A		B	B	
Approach Delay		14.3			16.1		14.7			11.3		
Approach LOS		B			B		B			B		
Queue Length 50th (m)	0.9	5.6		1.3	13.8	0.0	21.4	1.1		12.3	12.3	
Queue Length 95th (m)	4.9	17.0		6.2	35.6	6.7	50.8	4.9		30.8	30.8	
Internal Link Dist (m)		229.8			252.5		682.0			280.4		
Turn Bay Length (m)	40.0			75.0		55.0		110.0				
Base Capacity (vph)	547	1002		708	980	867	1489	715		1494	1494	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.10		0.04	0.23	0.07	0.27	0.03		0.17	0.17	

Intersection Summary	
Cycle Length:	81.5
Actuated Cycle Length:	46.5
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.58

Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2035 Future Background
AM Peak Hour

Intersection Signal Delay: 14.2	Intersection LOS: B
Intersection Capacity Utilization 57.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Stittsville Main & Fernbank



Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2035 Future Background
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	45	14	108	63	6	34	38	252	32	22	195	16
Future Volume (vph)	45	14	108	63	6	34	38	252	32	22	195	16
Satd. Flow (prot)	1610	1479	0	1566	1454	0	1510	1626	0	1483	1633	1327
Fit Permitted	0.731			0.679			0.635			0.586		
Satd. Flow (perm)	1230	1479	0	1119	1454	0	1008	1626	0	914	1633	1298
Satd. Flow (RTOR)		108			34			12				41
Lane Group Flow (vph)	45	122	0	63	40	0	38	284	0	22	195	16
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	29.5	29.5		29.5	29.5		29.0	29.0		29.0	29.0	29.0
Total Split (s)	33.5	33.5		33.5	33.5		59.0	59.0		59.0	59.0	59.0
Total Split (%)	36.2%	36.2%		36.2%	36.2%		63.8%	63.8%		63.8%	63.8%	63.8%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	3.5	3.5		3.5	3.5		2.7	2.7		2.7	2.7	2.7
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)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Ped	Ped		Ped	Ped	Ped
Act Effct Green (s)	12.2	12.2		12.2	12.2		27.8	27.8		27.8	27.8	27.8
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.58	0.58		0.58	0.58	0.58
v/c Ratio	0.14	0.27		0.22	0.10		0.06	0.30		0.04	0.21	0.02
Control Delay	14.3	5.8		15.6	6.7		8.9	9.5		8.9	9.2	1.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	14.3	5.8		15.6	6.7		8.9	9.5		8.9	9.2	1.6
LOS	B	A		B	A		A	A		A	A	A
Approach Delay		8.1			12.1			9.4			8.6	
Approach LOS		A			B			A			A	
Queue Length 50th (m)	2.9	0.9		4.2	0.4		1.4	11.4		0.8	7.7	0.0
Queue Length 95th (m)	8.2	9.0		10.7	5.0		7.4	37.6		5.1	26.5	1.3
Internal Link Dist (m)		217.6			205.7			888.7			682.0	
Turn Bay Length (m)	30.0			20.0			135.0			120.0		110.0
Base Capacity (vph)	702	890		639	844		989	1596		897	1602	1274
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.06	0.14		0.10	0.05		0.04	0.18		0.02	0.12	0.01

Intersection Summary												
Cycle Length: 92.5												
Actuated Cycle Length: 47.8												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.30												

Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2035 Future Background
AM Peak Hour

Intersection Signal Delay: 9.2	Intersection LOS: A
Intersection Capacity Utilization 66.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Stittsville Main & West Ridge/Parade



HCM 2010 AWSC
4: Huntley/Stittsville Main & Flewellyn

2035 Future Background
AM Peak Hour

Intersection												
Intersection Delay, s/veh	13.7											
Intersection LOS	B											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↕			↔			↕		
Traffic Vol, veh/h	38	155	15	7	135	29	17	240	12	39	269	53
Future Vol, veh/h	38	155	15	7	135	29	17	240	12	39	269	53
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
Heavy Vehicles, %	2	4	2	2	2	3	18	10	2	3	5	2
Mvmt Flow	38	155	15	7	135	29	17	240	12	39	269	53
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	12.4			11.6			13.8			15.4		
HCM LOS	B			B			B			C		
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	6%	18%	4%	11%								
Vol Thru, %	89%	75%	79%	75%								
Vol Right, %	4%	7%	17%	15%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	269	208	171	361								
LT Vol	17	38	7	39								
Through Vol	240	155	135	269								
RT Vol	12	15	29	53								
Lane Flow Rate	269	208	171	361								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.446	0.35	0.288	0.555								
Departure Headway (Hd)	5.969	6.064	6.065	5.532								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	600	589	587	646								
Service Time	4.048	4.153	4.158	3.604								
HCM Lane V/C Ratio	0.448	0.353	0.291	0.559								
HCM Control Delay	13.8	12.4	11.6	15.4								
HCM Lane LOS	B	B	B	C								
HCM 95th-tile Q	2.3	1.6	1.2	3.4								

HCM 2010 TWSC
5: Edenwyld/Cope & Fernbank

2035 Future Background
AM Peak Hour

Intersection												
Int Delay, s/veh	19.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↕			↔			↕		
Traffic Vol, veh/h	26	520	13	43	390	67	23	5	125	87	9	34
Future Vol, veh/h	26	520	13	43	390	67	23	5	125	87	9	34
Conflicting Peds, #/hr	1	0	1	1	0	1	4	0	1	1	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	4	25	2	6	58	5	20	3	76	11	2
Mvmt Flow	26	520	13	43	390	67	23	5	125	87	9	34
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	458	0	0	534	0	0	1115	1124	529	1156	1097	429
Stage 1	-	-	-	-	-	-	580	580	-	511	511	-
Stage 2	-	-	-	-	-	-	535	544	-	645	586	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.15	6.7	6.23	7.86	6.61	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.7	-	6.86	5.61	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.7	-	6.86	5.61	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.545	4.18	3.327	4.184	4.099	3.318
Pot Cap-1 Maneuver	1103	-	-	1034	-	-	183	190	548	125	205	626
Stage 1	-	-	-	-	-	-	495	472	-	431	522	-
Stage 2	-	-	-	-	-	-	524	491	-	358	483	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1102	-	-	1033	-	-	158	177	547	90	191	624
Mov Cap-2 Maneuver	-	-	-	-	-	-	158	177	-	90	191	-
Stage 1	-	-	-	-	-	-	483	460	-	421	500	-
Stage 2	-	-	-	-	-	-	465	470	-	267	471	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.7			20.7			169.1		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	380	1102	-	-	1033	-	-	122				
HCM Lane V/C Ratio	0.403	0.024	-	-	0.042	-	-	1.066				
HCM Control Delay (s)	20.7	8.3	-	-	8.6	-	-	169.1				
HCM Lane LOS	C	A	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	1.9	0.1	-	-	0.1	-	-	7.5				

Intersection						
Intersection Delay, s/veh	68.1					
Intersection LOS	F					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	136	118	473	173	122	417
Future Vol, veh/h	136	118	473	173	122	417
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	9	4	2	6	4
Mvmt Flow	136	118	473	173	122	417
Number of Lanes	1	0	0	1	1	0
Approach	EB	WB	NB			
Opposing Approach	WB	EB				
Opposing Lanes	1	1	0			
Conflicting Approach Left			NB	EB		
Conflicting Lanes Left	0		1	1		
Conflicting Approach Right	NB			WB		
Conflicting Lanes Right	1	0		1		
HCM Control Delay	15.6		109.8		42.8	
HCM LOS	C		F		E	
Lane	NBLn1	EBLn1	WBLn1			
Vol Left, %	23%	0%	73%			
Vol Thru, %	0%	54%	27%			
Vol Right, %	77%	46%	0%			
Sign Control	Stop	Stop	Stop			
Traffic Vol by Lane	539	254	646			
LT Vol	122	0	473			
Through Vol	0	136	173			
RT Vol	417	118	0			
Lane Flow Rate	539	254	646			
Geometry Grp	1	1	1			
Degree of Util (X)	0.903	0.461	1.149			
Departure Headway (Hd)	6.357	6.863	6.401			
Convergence, Y/N	Yes	Yes	Yes			
Cap	577	528	568			
Service Time	4.357	4.863	4.462			
HCM Lane V/C Ratio	0.934	0.481	1.137			
HCM Control Delay	42.8	15.6	109.8			
HCM Lane LOS	E	C	F			
HCM 95th-tile Q	10.8	2.4	21.5			

Intersection												
Int Delay, s/veh	12.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	60	125	26	2	102	17	8	207	13	25	241	51
Future Vol, veh/h	60	125	26	2	102	17	8	207	13	25	241	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	2	4	2	2	12	13	5	2	2	3	8
Mvmt Flow	60	125	26	2	102	17	8	207	13	25	241	51
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	119	0	0	151	0	0	519	381	138	483	386	111
Stage 1	-	-	-	-	-	-	258	258	-	115	115	-
Stage 2	-	-	-	-	-	-	261	123	-	368	271	-
Critical Hdwy	4.17	-	-	4.12	-	-	7.23	6.55	6.22	7.12	6.53	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.55	-	6.12	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.55	-	6.12	5.53	-
Follow-up Hdwy	2.263	-	-	2.218	-	-	3.617	4.045	3.318	3.518	4.027	3.372
Pot Cap-1 Maneuver	1438	-	-	1430	-	-	450	547	910	494	547	926
Stage 1	-	-	-	-	-	-	723	689	-	890	798	-
Stage 2	-	-	-	-	-	-	720	788	-	652	683	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1438	-	-	1430	-	-	262	521	910	325	521	926
Mov Cap-2 Maneuver	-	-	-	-	-	-	262	521	-	325	521	-
Stage 1	-	-	-	-	-	-	690	657	-	849	796	-
Stage 2	-	-	-	-	-	-	473	786	-	420	652	-
Approach	EB	WB	NB				SB					
HCM Control Delay, s	2.2	0.1	17.4				21.2					
HCM LOS			C				C					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	516	1438	-	-	1430	-	-	533				
HCM Lane V/C Ratio	0.442	0.042	-	-	0.001	-	-	0.595				
HCM Control Delay (s)	17.4	7.6	0	-	7.5	0	-	21.2				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0	-	-	3.9				

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2035 Future Background
AM Peak Hour

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5	Ø8	Ø9
Lane Configurations	↔	↕	↕	↕	↕	↕					
Traffic Volume (vph)	55	633	395	169	208	65					
Future Volume (vph)	55	633	395	169	208	65					
Satd. Flow (prot)	1626	1664	1548	1401	1580	1401					
Fit Permitted	0.950				0.950						
Satd. Flow (perm)	1626	1664	1548	1368	1580	1401					
Satd. Flow (RTOR)				169		65					
Lane Group Flow (vph)	55	633	395	169	208	65					
Turn Type	Prot	NA	NA	custom	Perm	Perm					
Protected Phases	13	1 2 9	5 6				1	2	5	8	9
Permitted Phases				6	4	4					
Detector Phase	13	1 2 9	5 6	6	4	4					
Switch Phase											
Minimum Initial (s)	5.0			10.0	10.0	10.0	1.0	10.0	1.0	1.0	10.0
Minimum Split (s)	24.2			25.3	30.0	30.0	4.0	24.2	4.0	30.7	24.2
Total Split (s)	28.0			40.0	32.0	32.0	5.0	40.0	5.0	32.0	28.0
Total Split (%)	26.7%			38.1%	30.5%	30.5%	5%	38%	5%	30%	27%
Yellow Time (s)	4.6			4.6	3.3	3.3	2.0	4.6	2.0	3.3	4.6
All-Red Time (s)	1.6			1.6	2.7	2.7	0.0	1.6	0.0	2.7	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0					
Total Lost Time (s)	6.2			6.2	6.0	6.0					
Lead/Lag	Lead						Lag	Lag		Lead	
Lead-Lag Optimize?	Yes						Yes	Yes		Yes	
Recall Mode	None			Max	None	None	None	Max	None	None	None
Act Effct Green (s)	8.6	68.3	56.2	46.9	17.7	17.7					
Actuated g/C Ratio	0.09	0.73	0.60	0.50	0.19	0.19					
v/c Ratio	0.37	0.52	0.43	0.22	0.70	0.21					
Control Delay	49.1	8.4	14.7	3.8	49.2	9.9					
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0					
Total Delay	49.1	8.4	14.7	3.8	49.2	9.9					
LOS	D	A	B	A	D	A					
Approach Delay		11.6	11.4		39.8						
Approach LOS		B	B		D						
Queue Length 50th (m)	9.8	42.8	38.8	0.0	36.7	0.0					
Queue Length 95th (m)	22.4	88.1	78.7	12.2	59.9	10.3					
Internal Link Dist (m)		1197.5	448.1		313.2						
Turn Bay Length (m)	100.0			120.0	90.0						
Base Capacity (vph)	380	1202	923	766	440	437					
Starvation Cap Reductn	0	0	0	0	0	0					
Spillback Cap Reductn	0	0	0	0	0	0					
Storage Cap Reductn	0	0	0	0	0	0					
Reduced v/c Ratio	0.14	0.53	0.43	0.22	0.47	0.15					

Intersection Summary

Cycle Length: 105
Actuated Cycle Length: 94.1
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.70

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2035 Future Background
AM Peak Hour

Intersection Signal Delay: 16.6	Intersection LOS: B
Intersection Capacity Utilization 55.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 9: Fernbank & Robert Grant



Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2035 Future Background
AM Peak Hour

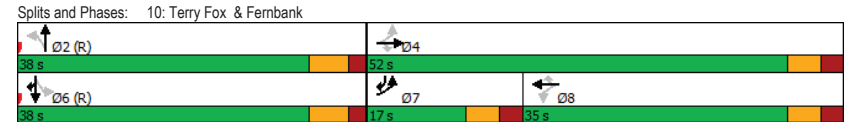
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	101	570	242	4	333	96	211	338	7	81	315	68
Future Volume (vph)	101	570	242	4	333	96	211	338	7	81	315	68
Satd. Flow (prot)	1626	1745	1441	1353	1728	1375	1595	1722	0	1537	1695	1351
Fit Permitted	0.289			0.377			0.503			0.472		
Satd. Flow (perm)	490	1745	1411	537	1728	1314	845	1722	0	754	1695	1351
Satd. Flow (RTOR)			242			114		1				68
Lane Group Flow (vph)	101	570	242	4	333	96	211	345	0	81	315	68
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	pt+ov	
Protected Phases	7	4			8			2			6	6.7
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	8	8	8	2	2		6	6	6.7
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	11.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2		24.2	24.2	
Total Split (s)	17.0	52.0	52.0	35.0	35.0	35.0	38.0	38.0		38.0	38.0	
Total Split (%)	18.9%	57.8%	57.8%	38.9%	38.9%	38.9%	42.2%	42.2%		42.2%	42.2%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.2	4.2		4.2	4.2	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2		6.2	6.2	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	37.1	37.1	37.1	24.5	24.5	24.5	40.5	40.5		40.5	40.5	55.6
Actuated g/C Ratio	0.41	0.41	0.41	0.27	0.27	0.27	0.45	0.45		0.45	0.45	0.62
v/c Ratio	0.32	0.79	0.33	0.03	0.71	0.22	0.56	0.44		0.24	0.41	0.08
Control Delay	17.4	31.1	3.1	23.0	38.6	4.6	28.3	21.3		20.8	20.9	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	17.4	31.1	3.1	23.0	38.6	4.6	28.3	21.3		20.8	20.9	2.8
LOS	B	C	A	C	D	A	C	C		C	C	A
Approach Delay		22.2			31.0			24.0			18.2	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	10.5	82.4	0.0	0.5	53.5	0.0	26.3	40.2		8.5	36.2	0.0
Queue Length 95th (m)	16.8	102.6	10.8	2.8	75.5	7.9	#64.2	74.1		22.0	67.5	5.6
Internal Link Dist (m)		230.5			610.3			1085.2			428.2	
Turn Bay Length (m)	85.0		100.0	120.0		120.0	110.0			125.0		135.0
Base Capacity (vph)	337	888	836	171	552	498	380	776		339	763	888
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.30	0.64	0.29	0.02	0.60	0.19	0.56	0.44		0.24	0.41	0.08

Intersection Summary
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 69 (77%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2035 Future Background
AM Peak Hour

Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 23.4
 Intersection Capacity Utilization 90.5%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.



Lanes, Volumes, Timings
11: Eagleson & Terry Fox

2035 Future Background
AM Peak Hour

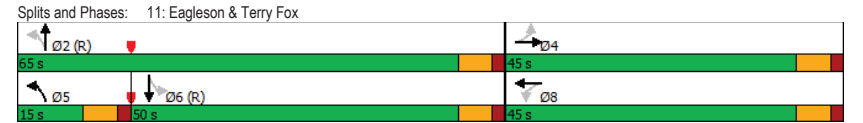
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	7	359	195	65	274	101	215	330	92	141	286	3
Future Volume (vph)	7	359	195	65	274	101	215	330	92	141	286	3
Satd. Flow (prot)	1658	1625	0	1642	1666	0	1610	1688	0	1658	1742	0
Fit Permitted	0.393			0.201			0.392			0.516		
Satd. Flow (perm)	686	1625	0	347	1666	0	665	1688	0	900	1742	0
Satd. Flow (RTOR)		27			19			20			1	
Lane Group Flow (vph)	7	554	0	65	375	0	215	422	0	141	289	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	30.4	30.4		30.4	30.4		11.4	31.4		31.4	31.4	
Total Split (s)	45.0	45.0		45.0	45.0		15.0	65.0		50.0	50.0	
Total Split (%)	40.9%	40.9%		40.9%	40.9%		13.6%	59.1%		45.5%	45.5%	
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6	
All-Red Time (s)	1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.4		6.4	6.4	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		C-Min			C-Min	C-Min	
Act Effct Green (s)	42.3	42.3		42.3	42.3		54.9	54.9		36.6	36.6	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.50	0.50		0.33	0.33	
v/c Ratio	0.03	0.86		0.49	0.58		0.50	0.50		0.47	0.50	
Control Delay	19.1	44.0		38.3	28.5		22.1	20.9		37.5	34.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.1	44.0		38.3	28.5		22.1	20.9		37.5	34.5	
LOS	B	D		D	C		C	C		D	C	
Approach Delay		43.7			30.0			21.3			35.5	
Approach LOS		D			C			C			D	
Queue Length 50th (m)	0.9	102.0		10.3	58.6		26.3	56.4		24.9	51.4	
Queue Length 95th (m)	3.6	137.4		23.5	80.6		46.2	92.3		45.3	77.8	
Internal Link Dist (m)		1085.2			917.1			360.9			463.1	
Turn Bay Length (m)	120.0			120.0			100.0			107.0		
Base Capacity (vph)	268	653		135	664		434	920		362	703	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.03	0.85		0.48	0.56		0.50	0.46		0.39	0.41	

Intersection Summary	
Cycle Length:	110
Actuated Cycle Length:	110
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated

Lanes, Volumes, Timings
11: Eagleson & Terry Fox

2035 Future Background
AM Peak Hour

Maximum v/c Ratio: 0.86	Intersection LOS: C
Intersection Signal Delay: 32.2	ICU Level of Service F
Intersection Capacity Utilization 94.7%	
Analysis Period (min) 15	



Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	43	21	6	278	296	12
Future Vol, veh/h	43	21	6	278	296	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	5	3	2
Mvmt Flow	43	21	6	278	296	12

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	592	302	308
Stage 1	302	-	-
Stage 2	290	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	469	738	1253
Stage 1	750	-	-
Stage 2	759	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	466	738	1253
Mov Cap-2 Maneuver	466	-	-
Stage 1	746	-	-
Stage 2	759	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1253	-	530	-	-
HCM Lane V/C Ratio	0.005	-	0.121	-	-
HCM Control Delay (s)	7.9	0	12.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

MOVEMENT SUMMARY

Site: 101 [Fernbank at Shea FB2035 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]	v/c	sec		[Veh. veh	[Dist] m				km/h
South: Shea															
1	L2	All MCs	18	6.0	18	6.0	0.621	20.4	LOS C	3.8	28.3	0.83	0.94	1.31	41.7
2	T1	All MCs	218	5.0	218	5.0	0.621	20.2	LOS C	3.8	28.3	0.83	0.94	1.31	42.3
3	R2	All MCs	92	13.0	92	13.0	0.621	21.8	LOS C	3.8	28.3	0.83	0.94	1.31	41.9
Approach			328	7.3	328	7.3	0.621	20.7	LOS C	3.8	28.3	0.83	0.94	1.31	42.2
East: Fernbank															
4	L2	All MCs	87	5.0	87	5.0	0.592	14.5	LOS B	4.9	35.2	0.79	0.81	1.22	44.5
5	T1	All MCs	285	4.0	285	4.0	0.592	14.4	LOS B	4.9	35.2	0.79	0.81	1.22	45.2
6	R2	All MCs	75	2.0	75	2.0	0.592	14.2	LOS B	4.9	35.2	0.79	0.81	1.22	45.0
Approach			447	3.9	447	3.9	0.592	14.4	LOS B	4.9	35.2	0.79	0.81	1.22	45.0
North: Shea															
7	L2	All MCs	131	4.0	131	4.0	0.646	14.4	LOS B	7.1	52.1	0.79	0.78	1.26	44.3
8	T1	All MCs	214	7.0	214	7.0	0.646	14.6	LOS B	7.1	52.1	0.79	0.78	1.26	45.0
9	R2	All MCs	222	5.0	222	5.0	0.646	14.5	LOS B	7.1	52.1	0.79	0.78	1.26	44.7
Approach			567	5.5	567	5.5	0.646	14.5	LOS B	7.1	52.1	0.79	0.78	1.26	44.7
West: Fernbank															
10	L2	All MCs	305	4.0	305	4.0	0.868	31.3	LOS D	19.9	143.2	1.00	1.44	2.56	36.8
11	T1	All MCs	401	3.0	401	3.0	0.868	31.2	LOS D	19.9	143.2	1.00	1.44	2.56	37.3
12	R2	All MCs	33	3.0	33	3.0	0.868	31.2	LOS D	19.9	143.2	1.00	1.44	2.56	37.1
Approach			739	3.4	739	3.4	0.868	31.2	LOS D	19.9	143.2	1.00	1.44	2.56	37.1
All Vehicles			2081	4.7	2081	4.7	0.868	21.4	LOS C	19.9	143.2	0.87	1.05	1.72	41.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Report\Sidra - W-4 Report\2021-128 Shea Road at Fernbank Road - 2024-12-13.sip9

MOVEMENT SUMMARY

Site: 101 [Eagleson at Flewellyn FB2035 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance													
Mov ID	Turn Class	Demand Flows [Total HV]	Arrival Flows [Total HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.]	Prop. Que. Dist [m]	Prop. Que.	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
		veh/h %	veh/h %	v/c	sec							km/h	
South: Eagleson													
1	L2 All MCs	10 2.0	10 2.0	0.433	7.5	LOS A	2.8	20.0	0.43	0.22	0.43	57.7	
2	T1 All MCs	491 4.0	491 4.0	0.433	7.6	LOS A	2.8	20.0	0.43	0.22	0.43	58.5	
Approach		501 4.0	501 4.0	0.433	7.6	LOS A	2.8	20.0	0.43	0.22	0.43	58.5	
North: Eagleson													
8	T1 All MCs	455 6.0	455 6.0	0.426	5.9	LOS A	3.0	22.0	0.10	0.02	0.10	59.7	
9	R2 All MCs	111 4.0	111 4.0	0.426	5.9	LOS A	3.0	22.0	0.10	0.02	0.10	59.6	
Approach		566 5.6	566 5.6	0.426	5.9	LOS A	3.0	22.0	0.10	0.02	0.10	59.7	
West: Flewellyn													
10	L2 All MCs	146 3.0	146 3.0	0.196	6.3	LOS A	0.8	6.1	0.55	0.43	0.55	55.0	
12	R2 All MCs	17 6.0	17 6.0	0.196	6.6	LOS A	0.8	6.1	0.55	0.43	0.55	55.1	
Approach		163 3.3	163 3.3	0.196	6.4	LOS A	0.8	6.1	0.55	0.43	0.55	55.0	
All Vehicles		1230 4.6	1230 4.6	0.433	6.6	LOS A	3.0	22.0	0.30	0.16	0.30	58.6	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2035 Future Background
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	39	54	32	69	68	137	25	604	83	135	696	45
Future Volume (vph)	39	54	32	69	68	137	25	604	83	135	696	45
Satd. Flow (prot)	1610	1574	0	1658	1532	0	1658	1712	1414	1658	1726	0
Fit Permitted	0.454			0.701			0.307			0.383		
Satd. Flow (perm)	765	1574	0	1177	1532	0	535	1712	1358	665	1726	0
Satd. Flow (RTOR)		32			116				42		6	
Lane Group Flow (vph)	39	86	0	69	205	0	25	604	83	135	741	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		6		6
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	28.3	28.3		28.3	28.3		30.2	30.2	30.2	30.2	30.2	
Total Split (s)	33.0	33.0		33.0	33.0		57.0	57.0	57.0	57.0	57.0	
Total Split (%)	36.7%	36.7%		36.7%	36.7%		63.3%	63.3%	63.3%	63.3%	63.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.9	1.9	1.9	1.9	1.9	
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)	5.3	5.3		5.3	5.3		5.2	5.2	5.2	5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	15.4	15.4		15.4	15.4		64.1	64.1	64.1	64.1	64.1	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.71	0.71	0.71	0.71	0.71	
v/c Ratio	0.30	0.29		0.34	0.57		0.07	0.50	0.08	0.29	0.60	
Control Delay	35.9	22.3		35.3	20.7		6.3	8.7	3.5	8.1	10.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	35.9	22.3		35.3	20.7		6.3	8.7	3.5	8.1	10.5	
LOS	D	C		D	C		A	A	A	A	B	
Approach Delay	26.6			24.4			8.0			10.1		
Approach LOS	C			C			A			B		
Queue Length 50th (m)	6.3	8.6		11.3	14.6		0.9	30.7	1.4	5.6	42.0	
Queue Length 95th (m)	13.8	18.6		20.5	31.2		4.6	82.1	7.5	20.4	114.1	
Internal Link Dist (m)		510.2			520.3			308.9			352.8	
Turn Bay Length (m)	25.0			23.0			15.0		17.0	23.5		
Base Capacity (vph)	235	506		362	551		381	1219	979	473	1231	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.17	0.17		0.19	0.37		0.07	0.50	0.08	0.29	0.60	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 9 (10%), Referenced to phase 2:NBL and 6:SBTL, Start of Green

Natural Cycle: 65

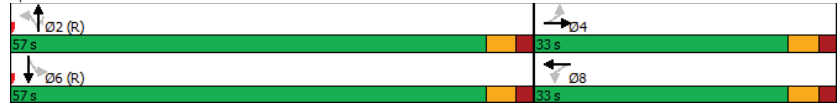
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2035 Future Background
PM Peak Hour

Maximum v/c Ratio: 0.60	Intersection LOS: B
Intersection Signal Delay: 12.4	ICU Level of Service E
Intersection Capacity Utilization 89.7%	
Analysis Period (min) 15	

Splits and Phases: 1: Stittsville Main & Abbott



Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2035 Future Background
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	[Diagrammatic arrows showing lane directions]											
Traffic Volume (vph)	20	204	10	40	150	78	4	353	51	43	385	32
Future Volume (vph)	20	204	10	40	150	78	4	353	51	43	385	32
Satd. Flow (prot)	1470	1709	0	1523	1664	1483	1353	1678	0	1551	1682	0
Fit Permitted	0.662			0.624			0.486			0.501		
Satd. Flow (perm)	1019	1709	0	997	1664	1444	691	1678	0	816	1682	0
Satd. Flow (RTOR)		3				78		13			7	
Lane Group Flow (vph)	20	214	0	40	150	78	4	404	0	43	417	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8		2			6		6
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.9	24.9		24.9	24.9	
Total Split (s)	34.6	34.6		34.6	34.6	34.6	46.9	46.9		46.9	46.9	
Total Split (%)	42.5%	42.5%		42.5%	42.5%	42.5%	57.5%	57.5%		57.5%	57.5%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	4.6	4.6		4.6	4.6	4.6	3.6	3.6		3.6	3.6	
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)	7.6	7.6		7.6	7.6	7.6	6.9	6.9		6.9	6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Ped	Ped		Ped	Ped	
Act Effct Green (s)	12.3	12.3		12.3	12.3	12.3	18.9	18.9		18.9	18.9	
Actuated g/C Ratio	0.27	0.27		0.27	0.27	0.27	0.41	0.41		0.41	0.41	
v/c Ratio	0.07	0.47		0.15	0.34	0.18	0.01	0.58		0.13	0.60	
Control Delay	14.0	18.0		14.9	16.3	5.4	9.2	14.5		10.4	15.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	14.0	18.0		14.9	16.3	5.4	9.2	14.5		10.4	15.2	
LOS	B	B		B	B	A	A	B		B	B	
Approach Delay		17.6			12.9			14.5			14.7	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	1.1	12.5		2.2	8.5	0.0	0.2	20.6		1.8	21.9	
Queue Length 95th (m)	5.4	32.9		8.9	24.0	7.3	1.6	52.3		7.7	54.9	
Internal Link Dist (m)		229.8			252.5			682.0			279.7	
Turn Bay Length (m)	40.0			75.0		55.0	70.0			110.0		
Base Capacity (vph)	610	1024		597	996	895	613	1490		724	1493	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.21		0.07	0.15	0.09	0.01	0.27		0.06	0.28	

Intersection Summary

Cycle Length: 81.5
Actuated Cycle Length: 46
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.60

Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2035 Future Background
PM Peak Hour

Intersection Signal Delay: 14.8 Intersection LOS: B
Intersection Capacity Utilization 76.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Stittsville Main & Fernbank



Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2035 Future Background
PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	32	21	41	34	32	61	79	259	37	52	301	48
Future Volume (vph)	32	21	41	34	32	61	79	259	37	52	301	48
Satd. Flow (prot)	1580	1494	0	1470	1527	0	1658	1697	0	1658	1728	1441
Fit Permitted	0.697			0.717			0.577			0.579		
Satd. Flow (perm)	1139	1494	0	1102	1527	0	1003	1697	0	1010	1728	1404
Satd. Flow (RTOR)		41			61			13				48
Lane Group Flow (vph)	32	62	0	34	93	0	79	296	0	52	301	48
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	29.5	29.5		29.5	29.5		29.0	29.0		29.0	29.0	29.0
Total Split (s)	33.5	33.5		33.5	33.5		59.0	59.0		59.0	59.0	59.0
Total Split (%)	36.2%	36.2%		36.2%	36.2%		63.8%	63.8%		63.8%	63.8%	63.8%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	3.5	3.5		3.5	3.5		2.7	2.7		2.7	2.7	2.7
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)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Ped	Ped		Ped	Ped	Ped
Act Effct Green (s)	12.2	12.2		12.2	12.2		28.4	28.4		28.4	28.4	28.4
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.59	0.59		0.59	0.59	0.59
v/c Ratio	0.11	0.15		0.12	0.22		0.13	0.30		0.09	0.30	0.06
Control Delay	13.9	7.8		14.1	7.7		9.4	9.3		9.0	9.6	3.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	13.9	7.8		14.1	7.7		9.4	9.3		9.0	9.6	3.8
LOS	B	A		B	A		A	A		A	A	A
Approach Delay		9.9			9.4			9.3			8.9	
Approach LOS		A			A			A			A	
Queue Length 50th (m)	2.1	1.3		2.2	2.0		3.0	11.9		1.9	12.7	0.0
Queue Length 95th (m)	6.5	7.2		6.7	9.2		13.2	38.7		9.4	40.6	4.9
Internal Link Dist (m)		206.7			174.8			888.7			682.0	
Turn Bay Length (m)	30.0			20.0			135.0			120.0		110.0
Base Capacity (vph)	642	861		622	888		984	1665		991	1695	1378
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.05	0.07		0.05	0.10		0.08	0.18		0.05	0.18	0.03

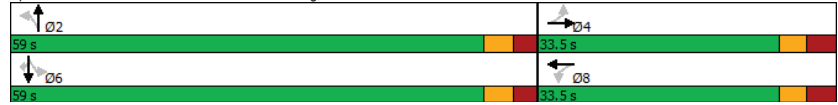
Intersection Summary
Cycle Length: 92.5
Actuated Cycle Length: 48.3
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.30

Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2035 Future Background
PM Peak Hour

Intersection Signal Delay: 9.2	Intersection LOS: A
Intersection Capacity Utilization 54.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Stittsville Main & West Ridge/Parade



HCM 2010 AWSC
4: Huntley/Stittsville Main & Flewellyn

2035 Future Background
PM Peak Hour

Intersection												
Intersection Delay, s/veh	15											
Intersection LOS	B											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	44	121	14	6	181	71	27	245	14	33	281	47
Future Vol, veh/h	44	121	14	6	181	71	27	245	14	33	281	47
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
Heavy Vehicles, %	2	2	7	2	2	2	4	2	7	2	2	2
Mvmt Flow	44	121	14	6	181	71	27	245	14	33	281	47
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.6	14	14.7	17.1
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	25%	2%	9%
Vol Thru, %	86%	68%	70%	78%
Vol Right, %	5%	8%	28%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	286	179	258	361
LT Vol	27	44	6	33
Through Vol	245	121	181	281
RT Vol	14	14	71	47
Lane Flow Rate	286	179	258	361
Geometry Grp	1	1	1	1
Degree of Util (X)	0.483	0.322	0.44	0.591
Departure Headway (Hd)	6.075	6.479	6.133	5.898
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	592	553	586	617
Service Time	4.123	4.538	4.186	3.898
HCM Lane V/C Ratio	0.483	0.324	0.44	0.585
HCM Control Delay	14.7	12.6	14	17.1
HCM Lane LOS	B	B	B	C
HCM 95th-tile Q	2.6	1.4	2.2	3.9

Intersection												
Int Delay, s/veh	13.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	22	513	50	128	482	71	26	2	80	70	1	35
Future Vol, veh/h	22	513	50	128	482	71	26	2	80	70	1	35
Conflicting Peds, #/hr	1	0	2	2	0	1	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	3	2	2	3	83	13	2	2	22	2	7
Mvmt Flow	22	513	50	128	482	71	26	2	80	70	1	35

Major/Minor	Major1		Major2		Minor1		Minor2	
Conflicting Flow All	554	0	0	565	0	0	1376	1394
Stage 1	-	-	-	-	-	-	584	584
Stage 2	-	-	-	-	-	-	792	810
Critical Hdwy	4.12	-	-	4.12	-	-	7.23	6.52
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.52
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.52
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.617	4.018
Pot Cap-1 Maneuver	1016	-	-	1007	-	-	116	141
Stage 1	-	-	-	-	-	-	479	498
Stage 2	-	-	-	-	-	-	367	393
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1015	-	-	1005	-	-	96	120
Mov Cap-2 Maneuver	-	-	-	-	-	-	96	120
Stage 1	-	-	-	-	-	-	468	486
Stage 2	-	-	-	-	-	-	299	343

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.7	30.3	142.7
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	248	1015	-	-	1005	-	-	112
HCM Lane V/C Ratio	0.435	0.022	-	-	0.127	-	-	0.946
HCM Control Delay (s)	30.3	8.6	-	-	9.1	-	-	142.7
HCM Lane LOS	D	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	2.1	0.1	-	-	0.4	-	-	5.9

Intersection	
Intersection Delay, s/veh	80.6
Intersection LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	167	104	485	154	153	446
Future Vol, veh/h	167	104	485	154	153	446
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	3
Mvmt Flow	167	104	485	154	153	446
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	17.4	122.4	64.7
HCM LOS	C	F	F

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	26%	0%	76%
Vol Thru, %	0%	62%	24%
Vol Right, %	74%	38%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	599	271	639
LT Vol	153	0	485
Through Vol	0	167	154
RT Vol	446	104	0
Lane Flow Rate	599	271	639
Geometry Grp	1	1	1
Degree of Util (X)	1.006	0.51	1.18
Departure Headway (Hd)	6.418	7.17	6.647
Convergence, Y/N	Yes	Yes	Yes
Cap	569	507	543
Service Time	4.418	5.17	4.718
HCM Lane V/C Ratio	1.053	0.535	1.177
HCM Control Delay	64.7	17.4	122.4
HCM Lane LOS	F	C	F
HCM 95th-tile Q	14.8	2.9	22.6


HCM 2010 TWSC
8: Shea & Flewellyn

2035 Future Background
PM Peak Hour

Intersection												
Int Delay, s/veh	17.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Vol, veh/h	59	118	11	2	166	33	16	260	17	14	285	71
Future Vol, veh/h	59	118	11	2	166	33	16	260	17	14	285	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	5	2	18	2	2	2	6	2	6	2	2	3
Mvmt Flow	59	118	11	2	166	33	16	260	17	14	285	71
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	199	0	0	129	0	0	607	445	124	567	434	183
Stage 1	-	-	-	-	-	-	242	242	-	187	187	-
Stage 2	-	-	-	-	-	-	365	203	-	380	247	-
Critical Hdwy	4.15	-	-	4.12	-	-	7.16	6.52	6.26	7.12	6.52	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.245	-	-	2.218	-	-	3.554	4.018	3.354	3.518	4.018	3.327
Pot Cap-1 Maneuver	1356	-	-	1457	-	-	403	508	916	434	515	857
Stage 1	-	-	-	-	-	-	753	705	-	815	745	-
Stage 2	-	-	-	-	-	-	646	733	-	642	702	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1356	-	-	1457	-	-	192	483	916	237	490	857
Mov Cap-2 Maneuver	-	-	-	-	-	-	192	483	-	237	490	-
Stage 1	-	-	-	-	-	-	718	672	-	777	744	-
Stage 2	-	-	-	-	-	-	365	732	-	368	669	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.4			0.1			25.8			28.4		
HCM LOS	D			D			D			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	458	1356	-	-	1457	-	-	511				
HCM Lane V/C Ratio	0.64	0.044	-	-	0.001	-	-	0.724				
HCM Control Delay (s)	25.8	7.8	0	-	7.5	0	-	28.4				
HCM Lane LOS	D	A	A	-	A	A	-	D				
HCM 95th %tile Q(veh)	4.4	0.1	-	-	0	-	-	5.9				

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2035 Future Background
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5	Ø8	Ø9
Lane Configurations	↕	↕	↕	↕	↕	↕					
Traffic Volume (vph)	66	662	756	201	218	88					
Future Volume (vph)	66	662	756	201	218	88					
Satd. Flow (prot)	1658	1712	1728	1469	1610	1388					
Fit Permitted	0.950										
Satd. Flow (perm)	1658	1712	1728	1469	1610	1388					
Satd. Flow (RTOR)	201						88				
Lane Group Flow (vph)	66	662	756	201	218	88					
Turn Type	Prot	NA	NA	custom	Perm	Perm					
Protected Phases	13	12	9	5	6	4	1	2	5	8	9
Permitted Phases	6						4	4			
Detector Phase	13	12	9	5	6	4	4				
Switch Phase											
Minimum Initial (s)	5.0		10.0		10.0	10.0	1.0	10.0	1.0	1.0	10.0
Minimum Split (s)	24.2		30.0		30.0	30.0	4.0	24.2	4.0	30.0	24.2
Total Split (s)	28.0		40.0		32.0	32.0	5.0	40.0	5.0	32.0	28.0
Total Split (%)	26.7%		38.1%		30.5%	30.5%	5%	38%	5%	30%	27%
Yellow Time (s)	4.6		4.6		3.3	3.3	2.0	4.6	2.0	3.3	4.6
All-Red Time (s)	1.6		1.6		2.7	2.7	0.0	1.6	0.0	2.7	1.6
Lost Time Adjust (s)	0.0		0.0		0.0	0.0					
Total Lost Time (s)	6.2		6.2		6.0	6.0					
Lead/Lag	Lead						Lag	Lag	Lead		
Lead-Lag Optimize?	Yes						Yes	Yes	Yes		
Recall Mode	None		Max		None	None	None	Max	None	None	None
Act Effct Green (s)	9.2	68.6	55.9	46.6	18.1	18.1					
Actuated g/C Ratio	0.10	0.72	0.59	0.49	0.19	0.19					
v/c Ratio	0.41	0.53	0.74	0.24	0.71	0.26					
Control Delay	49.7	8.6	23.3	3.6	49.5	9.2					
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0					
Total Delay	49.7	8.6	23.3	3.6	49.5	9.2					
LOS	D	A	C	A	D	A					
Approach Delay	12.3		19.2		37.9						
Approach LOS	B		B		D						
Queue Length 50th (m)	11.9	46.2	101.1	0.0	38.9	0.0					
Queue Length 95th (m)	25.6	92.9	#211.3	13.3	62.6	11.7					
Internal Link Dist (m)	1197.5		448.1		313.2						
Turn Bay Length (m)	100.0		120.0		90.0						
Base Capacity (vph)	384	1239	1020	825	445	447					
Starvation Cap Reductn	0	0	0	0	0	0					
Spillback Cap Reductn	0	0	0	0	0	0					
Storage Cap Reductn	0	0	0	0	0	0					
Reduced v/c Ratio	0.17	0.53	0.74	0.24	0.49	0.20					
Intersection Summary											
Cycle Length: 105											
Actuated Cycle Length: 94.7											
Natural Cycle: 95											
Control Type: Actuated-Uncoordinated											
Maximum v/c Ratio: 0.74											

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2035 Future Background
PM Peak Hour

Intersection Signal Delay: 19.5 Intersection LOS: B
 Intersection Capacity Utilization 72.4% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 9: Fernbank & Robert Grant



Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2035 Future Background
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	94	580	200	4	635	100	362	489	17	119	396	98
Future Volume (vph)	94	580	200	4	635	100	362	489	17	119	396	98
Satd. Flow (prot)	1658	1745	1483	1658	1745	1401	1658	1734	0	1610	1745	1483
Fit Permitted	0.113			0.282			0.183			0.478		
Satd. Flow (perm)	197	1745	1432	490	1745	1309	318	1734	0	801	1745	1483
Satd. Flow (RTOR)			200			155		2				93
Lane Group Flow (vph)	94	580	200	4	635	100	362	506	0	119	396	98
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	NA	pt+ov	
Protected Phases	7	4			8		5	2			6	6.7
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	8	8	8	5	2		6	6	6.7
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0		10.0	10.0	
Minimum Split (s)	11.2	33.2	33.2	33.2	33.2	33.2	11.2	29.2		29.2	29.2	
Total Split (s)	15.0	50.0	50.0	35.0	35.0	35.0	25.0	60.0		35.0	35.0	
Total Split (%)	13.6%	45.5%	45.5%	31.8%	31.8%	31.8%	22.7%	54.5%		31.8%	31.8%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.2	4.2		4.2	4.2	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2		6.2	6.2	
Lead/Lag	Lead			Lag	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes			Yes	Yes	
Recall Mode	None	None	None	None	None	None	C-Max			C-Max	C-Max	
Act Effct Green (s)	43.8	43.8	43.8	29.3	29.3	29.3	53.8	53.8		28.8	28.8	43.3
Actuated g/C Ratio	0.40	0.40	0.40	0.27	0.27	0.27	0.49	0.49		0.26	0.26	0.39
v/c Ratio	0.50	0.84	0.29	0.03	1.37	0.22	0.94	0.60		0.57	0.87	0.15
Control Delay	30.6	42.3	4.2	31.2	212.6	2.2	58.0	23.8		47.5	59.3	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	30.6	42.3	4.2	31.2	212.6	2.2	58.0	23.8		47.5	59.3	5.5
LOS	C	D	A	C	F	A	E	C		D	E	A
Approach Delay		32.3			183.1			38.1				48.4
Approach LOS		C			F			D				D
Queue Length 50th (m)	12.7	110.5	0.0	0.6	-182.0	0.0	53.2	75.5		22.2	81.4	0.7
Queue Length 95th (m)	23.6	#169.5	13.7	3.5	#249.2	3.2	#109.3	108.8		42.3	#132.8	10.6
Internal Link Dist (m)		330.2			610.3			1085.2				359.0
Turn Bay Length (m)	85.0		100.0	120.0		120.0	110.0			125.0		135.0
Base Capacity (vph)	195	694	690	130	464	462	384	849		209	456	646
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.48	0.84	0.29	0.03	1.37	0.22	0.94	0.60		0.57	0.87	0.15

Intersection Summary

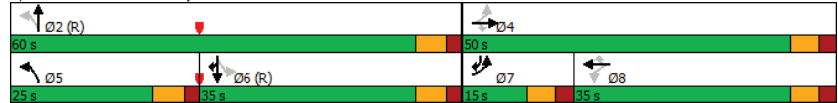
Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 135
 Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2035 Future Background
PM Peak Hour

Maximum v/c Ratio: 1.37	Intersection LOS: E
Intersection Signal Delay: 73.1	ICU Level of Service G
Intersection Capacity Utilization 104.6%	
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Terry Fox & Fernbank



Lanes, Volumes, Timings
11: Eagleson & Terry Fox

2035 Future Background
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	[Diagrammatic arrows for lane configurations]											
Traffic Volume (vph)	20	365	266	128	637	193	236	354	64	164	414	9
Future Volume (vph)	20	365	266	128	637	193	236	354	64	164	414	9
Satd. Flow (prot)	1658	1606	0	1658	1680	0	1658	1699	0	1658	1740	0
Fit Permitted	0.201			0.150			0.127			0.472		
Satd. Flow (perm)	351	1606	0	262	1680	0	222	1699	0	823	1740	0
Satd. Flow (RTOR)		33			20			8			1	
Lane Group Flow (vph)	20	631	0	128	830	0	236	418	0	164	423	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2		6		6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		3	8		5	2		6		6
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		5.0	10.0		10.0		10.0
Minimum Split (s)	30.4	30.4		11.4	30.4		11.4	31.4		31.4		31.4
Total Split (s)	52.0	52.0		25.0	77.0		16.6	48.0		31.4		31.4
Total Split (%)	41.6%	41.6%		20.0%	61.6%		13.3%	38.4%		25.1%		25.1%
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6		4.6		4.6
All-Red Time (s)	1.8	1.8		1.8	1.8		1.8	1.8		1.8		1.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.4		6.4		6.4
Lead/Lag	Lag	Lag		Lead			Lead			Lag		Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes			Yes		Yes
Recall Mode	None	None		None	None		None	C-Min		C-Min		C-Min
Act Effct Green (s)	53.4	53.4		70.6	70.6		41.6	41.6		25.0		25.0
Actuated g/C Ratio	0.43	0.43		0.56	0.56		0.33	0.33		0.20		0.20
v/c Ratio	0.13	0.90		0.48	0.87		1.24	0.73		1.00		1.22
Control Delay	26.6	49.1		19.0	34.1		174.0	45.0		120.8		162.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0		0.0
Total Delay	26.6	49.1		19.0	34.1		174.0	45.0		120.8		162.9
LOS	C	D		B	C		F	D		F		F
Approach Delay		48.4			32.1			91.5				151.2
Approach LOS		D			C			F				F
Queue Length 50th (m)	2.9	134.1		14.2	163.2		~57.5	88.7		40.6		~127.5
Queue Length 95th (m)	9.3	#224.8		23.9	#252.0		#108.9	126.6		#85.2		#190.8
Internal Link Dist (m)		1085.2			917.1			390.2				463.1
Turn Bay Length (m)	120.0			120.0			100.0			107.0		
Base Capacity (vph)	149	704		355	957		191	570		164		348
Starvation Cap Reductn	0	0		0	0		0	0		0		0
Spillback Cap Reductn	0	0		0	0		0	0		0		0
Storage Cap Reductn	0	0		0	0		0	0		0		0
Reduced v/c Ratio	0.13	0.90		0.36	0.87		1.24	0.73		1.00		1.22

Intersection Summary

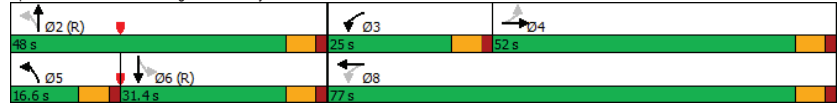
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
11: Eagleson & Terry Fox

2035 Future Background
PM Peak Hour

Maximum v/c Ratio: 1.24	Intersection LOS: E
Intersection Signal Delay: 74.0	ICU Level of Service H
Intersection Capacity Utilization 114.8%	
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 11: Eagleson & Terry Fox



HCM 2010 TWSC
18: Shea & Cosanti

2035 Future Background
PM Peak Hour

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	24	12	21	331	358	43
Future Vol, veh/h	24	12	21	331	358	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	24	12	21	331	358	43

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	753	380	401
Stage 1	380	-	-
Stage 2	373	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	377	667	1158
Stage 1	691	-	-
Stage 2	696	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	369	667	1158
Mov Cap-2 Maneuver	369	-	-
Stage 1	676	-	-
Stage 2	696	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1158	-	434	-
HCM Lane V/C Ratio	0.018	-	0.083	-
HCM Control Delay (s)	8.2	0	14	-
HCM Lane LOS	A	A	B	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-

MOVEMENT SUMMARY

Site: 101 [Fernbank at Shea FB2035 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
		[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
		veh/h	%	veh/h	%	v/c	sec			veh	m			km/h
South: Shea														
1	L2	All MCs	30 3.0	30 3.0	0.633	18.4	LOS C	4.6	33.0	0.83	0.92	1.33	42.7	
2	T1	All MCs	264 3.0	264 3.0	0.633	18.4	LOS C	4.6	33.0	0.83	0.92	1.33	43.3	
3	R2	All MCs	99 6.0	99 6.0	0.633	18.9	LOS C	4.6	33.0	0.83	0.92	1.33	43.0	
Approach			393 3.8	393 3.8	0.633	18.5	LOS C	4.6	33.0	0.83	0.92	1.33	43.2	
East: Fernbank														
4	L2	All MCs	130 8.0	130 8.0	0.928	43.2	LOS E	29.2	210.6	1.00	1.82	3.30	33.3	
5	T1	All MCs	551 3.0	551 3.0	0.928	42.6	LOS E	29.2	210.6	1.00	1.82	3.30	33.8	
6	R2	All MCs	115 2.0	115 2.0	0.928	42.5	LOS E	29.2	210.6	1.00	1.82	3.30	33.6	
Approach			796 3.7	796 3.7	0.928	42.7	LOS E	29.2	210.6	1.00	1.82	3.30	33.7	
North: Shea														
7	L2	All MCs	60 2.0	60 2.0	0.772	26.8	LOS D	7.6	55.2	0.92	1.13	1.80	38.8	
8	T1	All MCs	281 2.0	281 2.0	0.772	26.8	LOS D	7.6	55.2	0.92	1.13	1.80	39.3	
9	R2	All MCs	144 9.0	144 9.0	0.772	28.0	LOS D	7.6	55.2	0.92	1.13	1.80	39.0	
Approach			485 4.1	485 4.1	0.772	27.1	LOS D	7.6	55.2	0.92	1.13	1.80	39.1	
West: Fernbank														
10	L2	All MCs	133 5.0	133 5.0	0.855	30.3	LOS D	17.2	124.0	1.00	1.38	2.45	37.5	
11	T1	All MCs	534 3.0	534 3.0	0.855	30.1	LOS D	17.2	124.0	1.00	1.38	2.45	38.0	
12	R2	All MCs	34 3.0	34 3.0	0.855	30.1	LOS D	17.2	124.0	1.00	1.38	2.45	37.8	
Approach			701 3.4	701 3.4	0.855	30.2	LOS D	17.2	124.0	1.00	1.38	2.45	37.9	
All Vehicles			2375 3.7	2375 3.7	0.928	31.8	LOS D	29.2	210.6	0.95	1.40	2.42	37.3	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Report\Sidra - W-4 Report\2021-128 Shea Road at Fernbank Road - 2024-12-13.sip9

MOVEMENT SUMMARY

Site: 101 [Eagleson at Flewellyn FB2035 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
		[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
		veh/h	%	veh/h	%	v/c	sec			veh	m			km/h
South: Eagleson														
1	L2	All MCs	14 7.0	14 7.0	0.469	8.2	LOS A	3.2	22.9	0.44	0.22	0.44	56.1	
2	T1	All MCs	541 2.0	541 2.0	0.469	7.9	LOS A	3.2	22.9	0.44	0.22	0.44	58.6	
Approach			555 2.1	555 2.1	0.469	8.0	LOS A	3.2	22.9	0.44	0.22	0.44	58.5	
North: Eagleson														
8	T1	All MCs	621 2.0	621 2.0	0.600	8.1	LOS A	6.1	43.4	0.17	0.04	0.17	58.6	
9	R2	All MCs	187 2.0	187 2.0	0.600	8.1	LOS A	6.1	43.4	0.17	0.04	0.17	58.1	
Approach			808 2.0	808 2.0	0.600	8.1	LOS A	6.1	43.4	0.17	0.04	0.17	58.5	
West: Flewellyn														
10	L2	All MCs	136 2.0	136 2.0	0.212	7.4	LOS A	0.9	6.3	0.62	0.53	0.62	54.2	
12	R2	All MCs	13 15.0	13 15.0	0.212	9.0	LOS A	0.9	6.3	0.62	0.53	0.62	52.4	
Approach			149 3.1	149 3.1	0.212	7.5	LOS A	0.9	6.3	0.62	0.53	0.62	54.1	
All Vehicles			1512 2.2	1512 2.2	0.600	8.0	LOS A	6.1	43.4	0.32	0.15	0.32	58.0	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Report\Sidra - W-4 Report\2021-128 Shea Road at Fernbank Road - 2024-12-13.sip9

Intersection	
Intersection Delay, s/veh	31.2
Intersection LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↔	↔	↔
Traffic Vol, veh/h	136	118	473	173	122	417
Future Vol, veh/h	136	118	473	173	122	417
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	9	4	2	6	4
Mvmt Flow	136	118	473	173	122	417
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	15.9	44.2	22.9
HCM LOS	C	E	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	54%	0%	100%
Vol Right, %	0%	100%	46%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	122	417	254	473	173
LT Vol	122	0	0	473	0
Through Vol	0	0	136	0	173
RT Vol	0	417	118	0	0
Lane Flow Rate	122	417	254	473	173
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.261	0.745	0.476	0.95	0.321
Departure Headway (Hd)	7.687	6.429	6.75	7.23	6.686
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	465	559	531	501	535
Service Time	5.473	4.214	4.841	5.016	4.471
HCM Lane V/C Ratio	0.262	0.746	0.478	0.944	0.323
HCM Control Delay	13.2	25.8	15.9	55.8	12.6
HCM Lane LOS	B	D	C	F	B
HCM 95th-tile Q	1	6.4	2.5	11.8	1.4

Intersection	
Intersection Delay, s/veh	36.8
Intersection LOS	E

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↔	↔	↔
Traffic Vol, veh/h	167	104	485	154	153	446
Future Vol, veh/h	167	104	485	154	153	446
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	3
Mvmt Flow	167	104	485	154	153	446
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	17.5	54.3	26.8
HCM LOS	C	F	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	62%	0%	100%
Vol Right, %	0%	100%	38%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	153	446	271	485	154
LT Vol	153	0	0	485	0
Through Vol	0	0	167	0	154
RT Vol	0	446	104	0	0
Lane Flow Rate	153	446	271	485	154
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.328	0.805	0.522	0.997	0.295
Departure Headway (Hd)	7.708	6.5	6.934	7.404	6.894
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	464	553	515	485	517
Service Time	5.503	4.294	5.034	5.199	4.688
HCM Lane V/C Ratio	0.33	0.807	0.526	1	0.298
HCM Control Delay	14.3	31.1	17.5	67.5	12.6
HCM Lane LOS	B	D	C	F	B
HCM 95th-tile Q	1.4	7.8	3	13.3	1.2

Lanes, Volumes, Timings
6: Shea & Abbott

2035 Future Background-Mitigation
AM Peak Hour

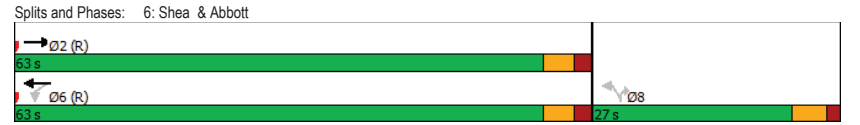
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	136	118	473	173	122	417
Future Volume (vph)	136	118	473	173	122	417
Satd. Flow (prot)	1545	0	1626	1745	1595	1455
Fit Permitted			0.602		0.950	
Satd. Flow (perm)	1545	0	1021	1745	1473	1416
Satd. Flow (RTOR)	96					417
Lane Group Flow (vph)	254	0	473	173	122	417
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		8	8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.4		23.4	23.4	25.3	25.3
Total Split (s)	63.0		63.0	63.0	27.0	27.0
Total Split (%)	70.0%		70.0%	70.0%	30.0%	30.0%
Yellow Time (s)	3.3		3.3	3.3	3.7	3.7
All-Red Time (s)	2.1		2.1	2.1	1.6	1.6
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4		5.4	5.4	5.3	5.3
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	65.7		65.7	65.7	13.6	13.6
Actuated g/C Ratio	0.73		0.73	0.73	0.15	0.15
v/c Ratio	0.22		0.63	0.14	0.55	0.73
Control Delay	3.3		12.1	4.5	43.9	11.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	3.3		12.1	4.5	43.9	11.9
LOS	A		B	A	D	B
Approach Delay	3.3			10.1	19.2	
Approach LOS	A			B	B	
Queue Length 50th (m)	6.5		32.4	7.1	20.0	0.0
Queue Length 95th (m)	18.0		85.6	17.4	33.7	24.8
Internal Link Dist (m)	261.3			151.6	1348.0	
Turn Bay Length (m)			115.0		40.0	
Base Capacity (vph)	1153		745	1273	355	657
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.22		0.63	0.14	0.34	0.63

Intersection Summary	
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated

Lanes, Volumes, Timings
6: Shea & Abbott

2035 Future Background-Mitigation
AM Peak Hour

Maximum v/c Ratio: 0.73	Intersection LOS: B
Intersection Signal Delay: 12.3	ICU Level of Service C
Intersection Capacity Utilization 68.5%	
Analysis Period (min) 15	



Lanes, Volumes, Timings
6: Shea & Abbott

2035 Future Background-Mitigation
PM Peak Hour

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	167	104	485	154	153	446
Future Volume (vph)	167	104	485	154	153	446
Satd. Flow (prot)	1654	0	1658	1745	1658	1469
Fit Permitted			0.593		0.950	
Satd. Flow (perm)	1654	0	1035	1745	1639	1469
Satd. Flow (RTOR)	72					446
Lane Group Flow (vph)	271	0	485	154	153	446
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		8	8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.4		23.4	23.4	25.3	25.3
Total Split (s)	64.4		64.4	64.4	25.6	25.6
Total Split (%)	71.6%		71.6%	71.6%	28.4%	28.4%
Yellow Time (s)	3.3		3.3	3.3	3.7	3.7
All-Red Time (s)	2.1		2.1	2.1	1.6	1.6
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4		5.4	5.4	5.3	5.3
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	65.1		65.1	65.1	14.2	14.2
Actuated g/C Ratio	0.72		0.72	0.72	0.16	0.16
v/c Ratio	0.22		0.65	0.12	0.59	0.73
Control Delay	3.9		12.8	4.7	44.0	11.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	3.9		12.8	4.7	44.0	11.2
LOS	A		B	A	D	B
Approach Delay	3.9			10.8	19.6	
Approach LOS	A			B	B	
Queue Length 50th (m)	8.7		35.3	6.5	25.1	0.0
Queue Length 95th (m)	21.5		89.7	15.8	40.4	25.3
Internal Link Dist (m)	261.3			151.6	1348.0	
Turn Bay Length (m)			115.0		40.0	
Base Capacity (vph)	1216		748	1261	369	676
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.22		0.65	0.12	0.41	0.66

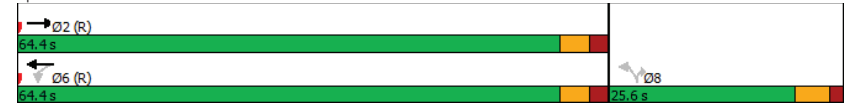
Intersection Summary	
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated

Lanes, Volumes, Timings
6: Shea & Abbott

2035 Future Background-Mitigation
PM Peak Hour

Maximum v/c Ratio: 0.73	Intersection LOS: B
Intersection Signal Delay: 13.1	ICU Level of Service C
Intersection Capacity Utilization 66.7%	
Analysis Period (min) 15	

Splits and Phases: 6: Shea & Abbott



MOVEMENT SUMMARY

Site: 101 [Terry Fox ar Eagleson Road FB2035 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
		[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh.]	[Dist]				
		veh/h	%	veh/h	%	v/c	sec			veh	m			km/h
South: Eagleson														
1	L2	All MCs	215 5.0	215 5.0	0.372	9.0	LOS A	1.7	12.5	0.60	0.50	0.65	53.4	
2	T1	All MCs	330 2.0	330 2.0	0.372	8.3	LOS A	1.7	12.5	0.59	0.48	0.61	57.9	
3	R2	All MCs	92 2.0	92 2.0	0.372	8.2	LOS A	1.7	12.1	0.58	0.47	0.60	58.4	
Approach			637 3.0	637 3.0	0.372	8.5	LOS A	1.7	12.5	0.59	0.49	0.62	56.4	
East: Terry Fox														
4	L2	All MCs	65 4.0	65 4.0	0.268	7.7	LOS A	1.1	7.8	0.57	0.48	0.57	56.3	
5	T1	All MCs	274 2.0	274 2.0	0.268	7.3	LOS A	1.1	7.8	0.56	0.47	0.56	59.0	
6	R2	All MCs	101 3.0	101 3.0	0.268	7.1	LOS A	1.1	7.7	0.55	0.45	0.55	59.2	
Approach			440 2.5	440 2.5	0.268	7.3	LOS A	1.1	7.8	0.56	0.47	0.56	58.6	
North: Eagleson														
7	L2	All MCs	141 2.0	141 2.0	0.261	7.5	LOS A	1.1	7.5	0.57	0.48	0.57	55.2	
8	T1	All MCs	286 2.0	286 2.0	0.261	7.1	LOS A	1.1	7.5	0.56	0.46	0.56	59.3	
9	R2	All MCs	3 2.0	3 2.0	0.261	6.9	LOS A	1.0	7.4	0.55	0.45	0.55	59.5	
Approach			430 2.0	430 2.0	0.261	7.2	LOS A	1.1	7.5	0.56	0.47	0.56	57.9	
West: Terry Fox														
10	L2	All MCs	7 2.0	7 2.0	0.326	8.0	LOS A	1.4	10.1	0.58	0.46	0.58	57.8	
11	T1	All MCs	359 2.0	359 2.0	0.326	7.8	LOS A	1.4	10.1	0.57	0.46	0.57	59.2	
12	R2	All MCs	195 7.0	195 7.0	0.326	7.8	LOS A	1.4	10.0	0.55	0.44	0.55	57.7	
Approach			561 3.7	561 3.7	0.326	7.8	LOS A	1.4	10.1	0.56	0.45	0.56	58.7	
All Vehicles			2068 2.9	2068 2.9	0.372	7.8	LOS A	1.7	12.5	0.57	0.47	0.58	57.8	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Terry Fox ar Eagleson Road FB2035 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
		[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh.]	[Dist]				
		veh/h	%	veh/h	%	v/c	sec			veh	m			km/h
South: Eagleson														
1	L2	All MCs	236 2.0	236 2.0	0.394	9.4	LOS A	2.0	14.0	0.63	0.55	0.73	53.5	
2	T1	All MCs	354 2.0	354 2.0	0.394	8.9	LOS A	2.0	14.0	0.61	0.53	0.70	57.6	
3	R2	All MCs	64 2.0	64 2.0	0.394	8.8	LOS A	1.9	13.8	0.61	0.52	0.69	57.9	
Approach			654 2.0	654 2.0	0.394	9.1	LOS A	2.0	14.0	0.62	0.54	0.71	56.0	
East: Terry Fox														
4	L2	All MCs	128 3.0	128 3.0	0.610	15.2	LOS C	4.8	34.4	0.77	0.80	1.27	50.9	
5	T1	All MCs	637 2.0	637 2.0	0.610	14.6	LOS B	4.9	35.2	0.76	0.79	1.25	53.0	
6	R2	All MCs	193 2.0	193 2.0	0.610	14.0	LOS B	4.9	35.2	0.75	0.78	1.24	53.5	
Approach			958 2.1	958 2.1	0.610	14.6	LOS B	4.9	35.2	0.76	0.79	1.25	52.8	
North: Eagleson														
7	L2	All MCs	164 2.0	164 2.0	0.532	17.3	LOS C	2.8	19.6	0.77	0.86	1.16	48.7	
8	T1	All MCs	414 2.0	414 2.0	0.532	16.1	LOS C	2.8	20.0	0.76	0.84	1.15	51.9	
9	R2	All MCs	9 2.0	9 2.0	0.532	15.6	LOS C	2.8	20.0	0.75	0.84	1.14	52.4	
Approach			587 2.0	587 2.0	0.532	16.4	LOS C	2.8	20.0	0.76	0.85	1.15	51.0	
West: Terry Fox														
10	L2	All MCs	20 2.0	20 2.0	0.455	11.9	LOS B	2.5	17.5	0.70	0.70	0.95	54.4	
11	T1	All MCs	365 2.0	365 2.0	0.455	11.7	LOS B	2.5	17.5	0.69	0.69	0.94	55.7	
12	R2	All MCs	266 4.0	266 4.0	0.455	11.1	LOS B	2.4	17.6	0.68	0.67	0.92	55.4	
Approach			651 2.8	651 2.8	0.455	11.5	LOS B	2.5	17.6	0.69	0.68	0.94	55.5	
All Vehicles			2850 2.2	2850 2.2	0.610	13.0	LOS B	4.9	35.2	0.71	0.72	1.03	53.7	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Appendix K

Synchro And Sidra Worksheets - 2030 Future Total Horizon

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2030 Future Total
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	38	147	13	54	59	187	7	788	72	83	432	19
Future Volume (vph)	38	147	13	54	59	187	7	788	72	83	432	19
Satd. Flow (prot)	1642	1718	0	1626	1478	0	1483	1712	1455	1510	1653	0
Fit Permitted	0.386			0.603			0.475			0.275		
Satd. Flow (perm)	663	1718	0	1016	1478	0	738	1712	1405	436	1653	0
Satd. Flow (RTOR)		6			161				31			4
Lane Group Flow (vph)	38	160	0	54	246	0	7	788	72	83	451	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		2	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	28.3	28.3		28.3	28.3		30.2	30.2	30.2	30.2	30.2	
Total Split (s)	31.0	31.0		31.0	31.0		49.0	49.0	49.0	49.0	49.0	
Total Split (%)	38.8%	38.8%		38.8%	38.8%		61.3%	61.3%	61.3%	61.3%	61.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.9	1.9	1.9	1.9	1.9	
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)	5.3	5.3		5.3	5.3		5.2	5.2	5.2	5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	14.1	14.1		14.1	14.1		55.4	55.4	55.4	55.4	55.4	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.69	0.69	0.69	0.69	0.69	
v/c Ratio	0.33	0.52		0.30	0.63		0.01	0.66	0.07	0.27	0.39	
Control Delay	34.4	33.8		31.2	18.0		5.9	12.1	3.8	9.3	7.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	34.4	33.8		31.2	18.0		5.9	12.1	3.8	9.3	7.4	
LOS	C	C		C	B		A	B	A	A	A	
Approach Delay		33.9			20.4			11.4			7.7	
Approach LOS		C			C			B			A	
Queue Length 50th (m)	5.2	22.0		7.4	11.7		0.3	52.5	1.5	3.7	22.0	
Queue Length 95th (m)	11.9	33.6		14.9	28.5		1.9	135.9	7.5	15.5	56.8	
Internal Link Dist (m)		510.2			520.3			230.2			333.2	
Turn Bay Length (m)	25.0			23.0			15.0		17.0	23.5		
Base Capacity (vph)	212	555		326	584		510	1185	982	302	1145	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.18	0.29		0.17	0.42		0.01	0.66	0.07	0.27	0.39	

Intersection Summary

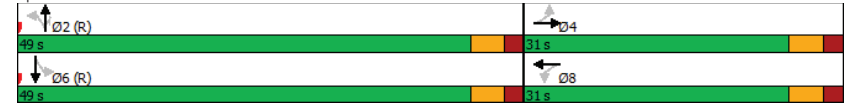
Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2030 Future Total
AM Peak Hour

Maximum v/c Ratio: 0.66	Intersection LOS: B
Intersection Signal Delay: 14.1	ICU Level of Service F
Intersection Capacity Utilization 94.3%	
Analysis Period (min) 15	

Splits and Phases: 1: Stittsville Main & Abbott



Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2030 Future Total
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	17	99	6	25	186	65	0	552	43	24	316	26
Future Volume (vph)	17	99	6	25	186	65	0	552	43	24	316	26
Satd. Flow (prot)	1433	1699	0	1658	1664	1427	1745	1659	0	1496	1665	0
Fit Permitted	0.640			0.689					0.332			
Satd. Flow (perm)	965	1699	0	1202	1664	1427	1745	1659	0	522	1665	0
Satd. Flow (RTOR)		4				65		7				7
Lane Group Flow (vph)	17	105	0	25	186	65	0	595	0	24	342	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8		2		2		6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.9	24.9		24.9	24.9	
Total Split (s)	34.6	34.6		34.6	34.6	34.6	46.9	46.9		46.9	46.9	
Total Split (%)	42.5%	42.5%		42.5%	42.5%	42.5%	57.5%	57.5%		57.5%	57.5%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	4.6	4.6		4.6	4.6	4.6	3.6	3.6		3.6	3.6	
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)	7.6	7.6		7.6	7.6	7.6	6.9	6.9		6.9	6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Ped	Ped		Ped	Ped	
Act Effct Green (s)	12.7	12.7		12.7	12.7	12.7	26.7	26.7		26.7	26.7	
Actuated g/C Ratio	0.23	0.23		0.23	0.23	0.23	0.49	0.49		0.49	0.49	
v/c Ratio	0.08	0.26		0.09	0.48	0.17	0.73	0.09		0.09	0.42	
Control Delay	19.2	19.5		19.1	23.5	7.4	17.1	8.8		8.8	10.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	19.2	19.5		19.1	23.5	7.4	17.1	8.8		8.8	10.6	
LOS	B	B		B	C	A	B	A		A	B	
Approach Delay		19.4			19.3		17.1			10.5		
Approach LOS		B			B		B			B		
Queue Length 50th (m)	1.1	6.9		1.6	13.4	0.0	38.3	1.1		17.6		
Queue Length 95th (m)	6.3	22.5		8.0	38.5	8.3	84.1	4.8		39.7		
Internal Link Dist (m)		229.8			252.5		682.0			280.4		
Turn Bay Length (m)	40.0			75.0		55.0		110.0				
Base Capacity (vph)	495	874		617	854	764	1264	397		1268		
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.12		0.04	0.22	0.09	0.47	0.06		0.27		

Intersection Summary

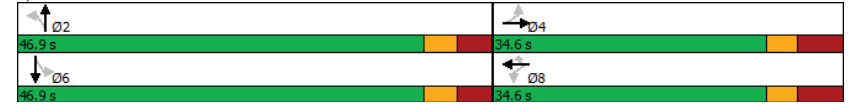
Cycle Length: 81.5
 Actuated Cycle Length: 54.3
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73

Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2030 Future Total
AM Peak Hour

Intersection Signal Delay: 16.0
 Intersection Capacity Utilization 68.5%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 2: Stittsville Main & Fernbank



Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2030 Future Total
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	42	14	103	63	6	34	36	450	32	22	278	15
Future Volume (vph)	42	14	103	63	6	34	36	450	32	22	278	15
Satd. Flow (prot)	1610	1481	0	1566	1454	0	1510	1635	0	1483	1633	1327
Fit Permitted	0.731			0.682			0.589			0.450		
Satd. Flow (perm)	1230	1481	0	1124	1454	0	935	1635	0	702	1633	1298
Satd. Flow (RTOR)		103			34			6				41
Lane Group Flow (vph)	42	117	0	63	40	0	36	482	0	22	278	15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	29.5	29.5		29.5	29.5		29.0	29.0		29.0	29.0	29.0
Total Split (s)	33.5	33.5		33.5	33.5		59.0	59.0		59.0	59.0	59.0
Total Split (%)	36.2%	36.2%		36.2%	36.2%		63.8%	63.8%		63.8%	63.8%	63.8%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	3.5	3.5		3.5	3.5		2.7	2.7		2.7	2.7	2.7
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)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Ped	Ped		Ped	Ped	Ped
Act Effct Green (s)	12.2	12.2		12.2	12.2		29.7	29.7		29.7	29.7	29.7
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.60	0.60		0.60	0.60	0.60
v/c Ratio	0.14	0.27		0.23	0.10		0.06	0.49		0.05	0.28	0.02
Control Delay	16.1	6.7		17.5	7.8		8.2	11.2		8.3	9.0	1.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	16.1	6.7		17.5	7.8		8.2	11.2		8.3	9.0	1.0
LOS	B	A		B	A		A	B		A	A	A
Approach Delay		9.2			13.7			11.0			8.6	
Approach LOS		A			B			B			A	
Queue Length 50th (m)	2.7	0.9		4.2	0.4		1.3	23.4		0.8	11.7	0.0
Queue Length 95th (m)	9.6	10.5		13.1	6.0		6.8	70.0		4.9	36.5	1.0
Internal Link Dist (m)		217.6			205.7			888.7			682.0	
Turn Bay Length (m)	30.0			20.0			135.0			120.0		110.0
Base Capacity (vph)	687	873		627	827		895	1566		672	1564	1244
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.06	0.13		0.10	0.05		0.04	0.31		0.03	0.18	0.01

Intersection Summary												
Cycle Length: 92.5												
Actuated Cycle Length: 49.6												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.49												

Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2030 Future Total
AM Peak Hour

Intersection Signal Delay: 10.3	Intersection LOS: B
Intersection Capacity Utilization 53.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Stittsville Main & West Ridge/Parade



HCM 2010 AWSC
4: Huntley/Stittville Main & Flewellyn

2030 Future Total
AM Peak Hour

Intersection												
Intersection Delay, s/veh	31.9											
Intersection LOS	D											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↕			↕			↔		
Traffic Vol, veh/h	38	168	15	24	154	233	17	232	19	127	259	53
Future Vol, veh/h	38	168	15	24	154	233	17	232	19	127	259	53
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
Heavy Vehicles, %	2	4	2	2	2	3	18	10	2	3	5	2
Mvmt Flow	38	168	15	24	154	233	17	232	19	127	259	53
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	18.5			33.3			22			43.4		
HCM LOS	C			D			C			E		
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	6%	17%	6%	29%								
Vol Thru, %	87%	76%	37%	59%								
Vol Right, %	7%	7%	57%	12%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	268	221	411	439								
LT Vol	17	38	24	127								
Through Vol	232	168	154	259								
RT Vol	19	15	233	53								
Lane Flow Rate	268	221	411	439								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.592	0.489	0.806	0.881								
Departure Headway (Hd)	7.947	7.972	7.062	7.227								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	453	451	514	505								
Service Time	6.016	6.047	5.089	5.255								
HCM Lane V/C Ratio	0.592	0.49	0.8	0.869								
HCM Control Delay	22	18.5	33.3	43.4								
HCM Lane LOS	C	C	D	E								
HCM 95th-tile Q	3.7	2.6	7.7	9.6								

HCM 2010 TWSC
5: Edenwyld/Cope & Fernbank

2030 Future Total
AM Peak Hour

Intersection												
Int Delay, s/veh	18.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↕			↕			↔		
Traffic Vol, veh/h	26	520	13	43	370	67	23	5	125	87	9	34
Future Vol, veh/h	26	520	13	43	370	67	23	5	125	87	9	34
Conflicting Peds, #/hr	1	0	1	1	0	1	4	0	1	1	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	4	25	2	6	58	5	20	3	76	11	2
Mvmt Flow	26	520	13	43	370	67	23	5	125	87	9	34
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	438	0	0	534	0	0	1095	1104	529	1136	1077	409
Stage 1	-	-	-	-	-	-	580	580	-	491	491	-
Stage 2	-	-	-	-	-	-	515	524	-	645	586	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.15	6.7	6.23	7.86	6.61	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.7	-	6.86	5.61	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.7	-	6.86	5.61	-
Follow-up Hdwy	2,218	-	-	2,218	-	-	3,545	4,18	3,327	4,184	4,099	3,318
Pot Cap-1 Maneuver	1122	-	-	1034	-	-	189	196	548	130	211	642
Stage 1	-	-	-	-	-	-	495	472	-	443	533	-
Stage 2	-	-	-	-	-	-	537	501	-	358	483	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1121	-	-	1033	-	-	164	183	547	93	197	640
Mov Cap-2 Maneuver	-	-	-	-	-	-	164	183	-	93	197	-
Stage 1	-	-	-	-	-	-	483	461	-	432	510	-
Stage 2	-	-	-	-	-	-	477	479	-	267	471	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	0.4		0.8		20.3		156.1					
HCM LOS					C		F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	386	1121	-	-	1033	-	-	126				
HCM Lane V/C Ratio	0.396	0.023	-	-	0.042	-	-	1.032				
HCM Control Delay (s)	20.3	8.3	-	-	8.6	-	-	156.1				
HCM Lane LOS	C	A	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	1.9	0.1	-	-	0.1	-	-	7.2				

HCM 2010 AWSC
6: Shea & Abbott

2030 Future Total
AM Peak Hour

Intersection						
Intersection Delay, s/veh	30.4					
Intersection LOS	D					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↔	↔	↔
Traffic Vol, veh/h	134	118	450	150	122	453
Future Vol, veh/h	134	118	450	150	122	453
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	9	4	2	6	4
Mvmt Flow	134	118	450	150	122	453
Number of Lanes	1	0	1	1	1	1
Approach	EB	WB	NB			
Opposing Approach	WB	EB				
Opposing Lanes	2	1	0			
Conflicting Approach Left		NB	EB			
Conflicting Lanes Left	0	2	1			
Conflicting Approach Right	NB		WB			
Conflicting Lanes Right	2	0	2			
HCM Control Delay	16	40.3	26.5			
HCM LOS	C	E	D			
Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	
Vol Left, %	100%	0%	0%	100%	0%	
Vol Thru, %	0%	0%	53%	0%	100%	
Vol Right, %	0%	100%	47%	0%	0%	
Sign Control	Stop	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	122	453	252	450	150	
LT Vol	122	0	0	450	0	
Through Vol	0	0	134	0	150	
RT Vol	0	453	118	0	0	
Lane Flow Rate	122	453	252	450	150	
Geometry Grp	7	7	4	7	7	
Degree of Util (X)	0.258	0.8	0.477	0.916	0.283	
Departure Headway (Hd)	7.617	6.359	6.808	7.327	6.782	
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	
Cap	468	566	524	491	527	
Service Time	5.408	4.149	4.904	5.116	4.571	
HCM Lane V/C Ratio	0.261	0.8	0.481	0.916	0.285	
HCM Control Delay	13.1	30.1	16	49.6	12.3	
HCM Lane LOS	B	D	C	E	B	
HCM 95th-tile Q	1	7.7	2.5	10.6	1.2	

HCM 2010 TWSC
8: Shea & Flewellyn

2030 Future Total
AM Peak Hour

Intersection												
Int Delay, s/veh	25.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	60	382	26	2	202	24	8	184	13	42	193	51
Future Vol, veh/h	60	382	26	2	202	24	8	184	13	42	193	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	2	4	2	2	12	13	5	2	2	3	8
Mvmt Flow	60	382	26	2	202	24	8	184	13	42	193	51
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	226	0	0	408	0	0	855	745	395	832	746	214
Stage 1	-	-	-	-	-	-	515	515	-	218	218	-
Stage 2	-	-	-	-	-	-	340	230	-	614	528	-
Critical Hdwy	4.17	-	-	4.12	-	-	7.23	6.55	6.22	7.12	6.53	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.55	-	6.12	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.55	-	6.12	5.53	-
Follow-up Hdwy	2.263	-	-	2.218	-	-	3.617	4.045	3.318	3.518	4.027	3.372
Pot Cap-1 Maneuver	1313	-	-	1151	-	-	266	339	654	288	341	811
Stage 1	-	-	-	-	-	-	523	530	-	784	721	-
Stage 2	-	-	-	-	-	-	652	708	-	479	526	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1313	-	-	1151	-	-	124	318	654	146	320	811
Mov Cap-2 Maneuver	-	-	-	-	-	-	124	318	-	146	320	-
Stage 1	-	-	-	-	-	-	492	499	-	738	720	-
Stage 2	-	-	-	-	-	-	446	707	-	279	495	-
Approach	EB	WB	NB	SB								
HCM Control Delay, s	1	0.1	36.9	79								
HCM LOS			E	F								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	309	1313	-	-	1151	-	-	300				
HCM Lane V/C Ratio	0.663	0.046	-	-	0.002	-	-	0.953				
HCM Control Delay (s)	36.9	7.9	0	-	8.1	0	-	79				
HCM Lane LOS	E	A	A	-	A	A	-	F				
HCM 95th %tile Q(veh)	4.4	0.1	-	-	0	-	-	9.5				

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2030 Future Total
AM Peak Hour

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5	Ø8	Ø9
Lane Configurations	↔	↕	↕	↕	↕	↕					
Traffic Volume (vph)	55	633	375	169	208	65					
Future Volume (vph)	55	633	375	169	208	65					
Satd. Flow (prot)	1626	1664	1548	1401	1580	1401					
Fit Permitted	0.950				0.950						
Satd. Flow (perm)	1626	1664	1548	1368	1580	1401					
Satd. Flow (RTOR)				169		65					
Lane Group Flow (vph)	55	633	375	169	208	65					
Turn Type	Prot	NA	NA	custom	Perm	Perm					
Protected Phases	13	1 2 9	5 6				1	2	5	8	9
Permitted Phases				6	4	4					
Detector Phase	13	1 2 9	5 6	6	4	4					
Switch Phase											
Minimum Initial (s)	5.0			10.0	10.0	10.0	1.0	10.0	1.0	1.0	10.0
Minimum Split (s)	24.2			25.3	30.0	30.0	4.0	24.2	4.0	30.7	24.2
Total Split (s)	28.0			40.0	32.0	32.0	5.0	40.0	5.0	32.0	28.0
Total Split (%)	26.7%			38.1%	30.5%	30.5%	5%	38%	5%	30%	27%
Yellow Time (s)	4.6			4.6	3.3	3.3	2.0	4.6	2.0	3.3	4.6
All-Red Time (s)	1.6			1.6	2.7	2.7	0.0	1.6	0.0	2.7	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0					
Total Lost Time (s)	6.2			6.2	6.0	6.0					
Lead/Lag	Lead						Lag	Lag		Lead	
Lead-Lag Optimize?	Yes						Yes	Yes		Yes	
Recall Mode	None			Max	None	None	None	Max	None	None	None
Act Effct Green (s)	8.6	68.3	56.2	46.9	17.7	17.7					
Actuated g/C Ratio	0.09	0.73	0.60	0.50	0.19	0.19					
v/c Ratio	0.37	0.52	0.41	0.22	0.70	0.21					
Control Delay	49.1	8.4	14.4	3.8	49.2	9.9					
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0					
Total Delay	49.1	8.4	14.4	3.8	49.2	9.9					
LOS	D	A	B	A	D	A					
Approach Delay		11.6	11.1		39.8						
Approach LOS		B	B		D						
Queue Length 50th (m)	9.8	42.8	36.1	0.0	36.7	0.0					
Queue Length 95th (m)	22.4	88.1	73.8	12.2	59.9	10.3					
Internal Link Dist (m)		1197.5	448.1		313.2						
Turn Bay Length (m)	100.0			120.0	90.0						
Base Capacity (vph)	380	1202	923	766	440	437					
Starvation Cap Reductn	0	0	0	0	0	0					
Spillback Cap Reductn	0	0	0	0	0	0					
Storage Cap Reductn	0	0	0	0	0	0					
Reduced v/c Ratio	0.14	0.53	0.41	0.22	0.47	0.15					

Intersection Summary

Cycle Length: 105
Actuated Cycle Length: 94.1
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.70

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2030 Future Total
AM Peak Hour

Intersection Signal Delay: 16.6
Intersection Capacity Utilization 55.7%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service B

Splits and Phases: 9: Fernbank & Robert Grant



Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2030 Future Total
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	101	570	242	4	313	96	211	330	7	81	278	68
Future Volume (vph)	101	570	242	4	313	96	211	330	7	81	278	68
Satd. Flow (prot)	1626	1745	1441	1353	1728	1375	1595	1722	0	1537	1695	1351
Fit Permitted	0.305			0.369			0.546			0.484		
Satd. Flow (perm)	517	1745	1411	525	1728	1314	917	1722	0	773	1695	1351
Satd. Flow (RTOR)			242			114		1				68
Lane Group Flow (vph)	101	570	242	4	313	96	211	337	0	81	278	68
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	pt+ov	
Protected Phases	7	4			8		2			6		6.7
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	8	8	8	2	2		6	6	6.7
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	11.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2		24.2	24.2	
Total Split (s)	17.0	52.0	52.0	35.0	35.0	35.0	38.0	38.0		38.0	38.0	
Total Split (%)	18.9%	57.8%	57.8%	38.9%	38.9%	38.9%	42.2%	42.2%		42.2%	42.2%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.2	4.2		4.2	4.2	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2		6.2	6.2	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	36.4	36.4	36.4	23.8	23.8	23.8	41.2	41.2		41.2	41.2	56.3
Actuated g/C Ratio	0.40	0.40	0.40	0.26	0.26	0.26	0.46	0.46		0.46	0.46	0.63
v/c Ratio	0.32	0.81	0.34	0.03	0.68	0.22	0.50	0.43		0.23	0.36	0.08
Control Delay	17.8	32.6	3.2	23.5	38.1	4.8	25.2	20.5		20.1	19.5	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	17.8	32.6	3.2	23.5	38.1	4.8	25.2	20.5		20.1	19.5	2.7
LOS	B	C	A	C	D	A	C	C		C	B	A
Approach Delay		23.2			30.2			22.3			17.0	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	10.7	84.2	0.0	0.5	50.4	0.0	25.1	38.2		8.3	30.4	0.0
Queue Length 95th (m)	17.0	103.4	10.9	2.8	70.6	7.9	55.4	71.7		21.8	58.5	5.5
Internal Link Dist (m)		230.5			610.3			1085.2			428.2	
Turn Bay Length (m)	85.0		100.0	120.0		120.0	110.0			125.0		135.0
Base Capacity (vph)	342	888	836	168	552	498	419	789		353	776	897
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.30	0.64	0.29	0.02	0.57	0.19	0.50	0.43		0.23	0.36	0.08

Intersection Summary

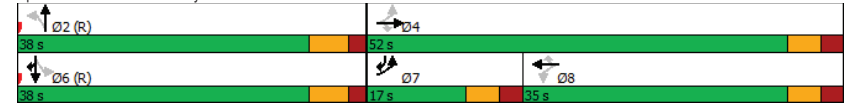
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 69 (77%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2030 Future Total
AM Peak Hour

Maximum v/c Ratio: 0.81	Intersection LOS: C
Intersection Signal Delay: 23.1	ICU Level of Service E
Intersection Capacity Utilization 88.5%	
Analysis Period (min) 15	

Splits and Phases: 10: Terry Fox & Fernbank



HCM 2010 TWSC
12: Shea & Street 21

2030 Future Total
AM Peak Hour

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	45	14	6	275	275	19
Future Vol, veh/h	45	14	6	275	275	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	14	6	275	275	19
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	572	285	294	0	-	0
Stage 1	285	-	-	-	-	-
Stage 2	287	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	482	754	1268	-	-	-
Stage 1	763	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	479	754	1268	-	-	-
Mov Cap-2 Maneuver	479	-	-	-	-	-
Stage 1	758	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	12.7	0.2	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1268	-	524	-	-	
HCM Lane V/C Ratio	0.005	-	0.113	-	-	
HCM Control Delay (s)	7.9	0	12.7	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.4	-	-	

HCM 2010 TWSC
13: Flewellyn & Street 19

2030 Future Total
AM Peak Hour

Intersection						
Int Delay, s/veh	6.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	56	329	203	57	139	137
Future Vol, veh/h	56	329	203	57	139	137
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	56	329	203	57	139	137
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	260	0	0	673	232	
Stage 1	-	-	-	232	-	
Stage 2	-	-	-	441	-	
Critical Hdwy	4.12	-	-	6.42	6.22	
Critical Hdwy Stg 1	-	-	-	5.42	-	
Critical Hdwy Stg 2	-	-	-	5.42	-	
Follow-up Hdwy	2.218	-	-	3.518	3.318	
Pot Cap-1 Maneuver	1304	-	-	421	807	
Stage 1	-	-	-	807	-	
Stage 2	-	-	-	648	-	
Platoon blocked, %	-	-	-	-	-	
Mov Cap-1 Maneuver	1304	-	-	399	807	
Mov Cap-2 Maneuver	-	-	-	399	-	
Stage 1	-	-	-	764	-	
Stage 2	-	-	-	648	-	
Approach	EB	WB	SB			
HCM Control Delay, s	1.1	0	18.8			
HCM LOS			C			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1304	-	-	-	533	
HCM Lane V/C Ratio	0.043	-	-	-	0.518	
HCM Control Delay (s)	7.9	0	-	-	18.8	
HCM Lane LOS	A	A	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	3	

HCM 2010 TWSC
14: Flewellyn & Street 7

2030 Future Total
AM Peak Hour

Intersection						
Int Delay, s/veh	5.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	52	267	288	52	118	114
Future Vol, veh/h	52	267	288	52	118	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	52	267	288	52	118	114

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	340	0	0	685	314
Stage 1	-	-	-	314	-
Stage 2	-	-	-	371	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2,218	-	-	3,518	3,318
Pot Cap-1 Maneuver	1219	-	-	414	726
Stage 1	-	-	-	741	-
Stage 2	-	-	-	698	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1219	-	-	393	726
Mov Cap-2 Maneuver	-	-	-	393	-
Stage 1	-	-	-	704	-
Stage 2	-	-	-	698	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	18
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1219	-	-	-	507
HCM Lane V/C Ratio	0.043	-	-	-	0.458
HCM Control Delay (s)	8.1	0	-	-	18
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	2.4

HCM 2010 TWSC
15: Shea & Street 22

2030 Future Total
AM Peak Hour

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↕			↕	↕	
Traffic Vol, veh/h	14	4	2	267	283	6
Future Vol, veh/h	14	4	2	267	283	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	4	2	267	283	6

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	557	286	289	0	0
Stage 1	286	-	-	-	-
Stage 2	271	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3,518	3,318	2,218	-	-
Pot Cap-1 Maneuver	491	753	1273	-	-
Stage 1	763	-	-	-	-
Stage 2	775	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	490	753	1273	-	-
Mov Cap-2 Maneuver	490	-	-	-	-
Stage 1	761	-	-	-	-
Stage 2	775	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1273	-	531	-	-
HCM Lane V/C Ratio	0.002	-	0.034	-	-
HCM Control Delay (s)	7.8	0	12	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	43	21	6	314	273	12
Future Vol, veh/h	43	21	6	314	273	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	5	3	2
Mvmt Flow	43	21	6	314	273	12

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	605	279	285
Stage 1	279	-	-
Stage 2	326	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	461	760	1277
Stage 1	768	-	-
Stage 2	731	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	458	760	1277
Mov Cap-2 Maneuver	458	-	-
Stage 1	763	-	-
Stage 2	731	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1277	-	527	-	-
HCM Lane V/C Ratio	0.005	-	0.121	-	-
HCM Control Delay (s)	7.8	0	12.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

MOVEMENT SUMMARY

Site: 101 [Fernbank at Shea FT2030 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance												
Mov ID	Turn Class	Demand Flows [Total HV]	Arrival Flows [Total HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
		veh/h %	veh/h %	v/c	sec		[Veh. Dist]				km/h	
South: Shea												
1	L2 All MCs	18 6.0	18 6.0	0.688	24.1	LOS C	4.7 35.1	0.86	1.02	1.48	40.0	
2	T1 All MCs	254 5.0	254 5.0	0.688	23.9	LOS C	4.7 35.1	0.86	1.02	1.48	40.6	
3	R2 All MCs	92 13.0	92 13.0	0.688	25.6	LOS D	4.7 35.1	0.86	1.02	1.48	40.3	
Approach		364 7.1	364 7.1	0.688	24.3	LOS C	4.7 35.1	0.86	1.02	1.48	40.5	
East: Fernbank												
4	L2 All MCs	87 5.0	87 5.0	0.588	14.9	LOS B	4.6 33.5	0.79	0.83	1.23	44.3	
5	T1 All MCs	265 4.0	265 4.0	0.588	14.7	LOS B	4.6 33.5	0.79	0.83	1.23	45.0	
6	R2 All MCs	75 2.0	75 2.0	0.588	14.5	LOS B	4.6 33.5	0.79	0.83	1.23	44.8	
Approach		427 3.9	427 3.9	0.588	14.7	LOS B	4.6 33.5	0.79	0.83	1.23	44.8	
North: Shea												
7	L2 All MCs	131 4.0	131 4.0	0.606	12.9	LOS B	6.0 44.3	0.75	0.70	1.11	45.1	
8	T1 All MCs	191 7.0	191 7.0	0.606	13.1	LOS B	6.0 44.3	0.75	0.70	1.11	45.8	
9	R2 All MCs	222 5.0	222 5.0	0.606	13.0	LOS B	6.0 44.3	0.75	0.70	1.11	45.5	
Approach		544 5.5	544 5.5	0.606	13.0	LOS B	6.0 44.3	0.75	0.70	1.11	45.5	
West: Fernbank												
10	L2 All MCs	305 4.0	305 4.0	0.847	27.8	LOS D	18.5 133.3	1.00	1.33	2.36	38.1	
11	T1 All MCs	401 3.0	401 3.0	0.847	27.7	LOS D	18.5 133.3	1.00	1.33	2.36	38.6	
12	R2 All MCs	33 3.0	33 3.0	0.847	27.7	LOS D	18.5 133.3	1.00	1.33	2.36	38.4	
Approach		739 3.4	739 3.4	0.847	27.7	LOS D	18.5 133.3	1.00	1.33	2.36	38.4	
All Vehicles		2074 4.7	2074 4.7	0.847	20.6	LOS C	18.5 133.3	0.87	1.01	1.64	41.7	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Eagleson at Flewellyn FT2030 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
		[Total HV]	%	[Total HV]	%				[Veh.]	Dist]					
South: Eagleson															
1	L2	All MCs	10	2.0	10	2.0	0.575	12.3	LOS B	5.1	36.8	0.74	0.67	1.08	53.6
2	T1	All MCs	487	4.0	487	4.0	0.575	12.5	LOS B	5.1	36.8	0.74	0.67	1.08	54.3
Approach			497	4.0	497	4.0	0.575	12.5	LOS B	5.1	36.8	0.74	0.67	1.08	54.3
North: Eagleson															
8	T1	All MCs	425	6.0	425	6.0	0.484	6.5	LOS A	3.8	27.8	0.11	0.02	0.11	59.3
9	R2	All MCs	219	4.0	219	4.0	0.484	6.4	LOS A	3.8	27.8	0.11	0.02	0.11	59.2
Approach			644	5.3	644	5.3	0.484	6.5	LOS A	3.8	27.8	0.11	0.02	0.11	59.2
West: Flewellyn															
10	L2	All MCs	420	3.0	420	3.0	0.508	10.9	LOS B	3.8	27.2	0.70	0.61	0.93	51.4
12	R2	All MCs	17	6.0	17	6.0	0.508	11.2	LOS B	3.8	27.2	0.70	0.61	0.93	51.4
Approach			437	3.1	437	3.1	0.508	11.0	LOS B	3.8	27.2	0.70	0.61	0.93	51.4
All Vehicles			1578	4.3	1578	4.3	0.575	9.6	LOS A	5.1	36.8	0.47	0.39	0.64	55.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: C:\Users\MichelleChen\CGH TRANSPORTATION\CGH Active Projects - Documents\2021\2021-128 Caivan Flewellyn\DATA\W-4 Report\Sidra - W-4 Report\2021-128 Shea Road at Fernbank Road - 2024-12-13.sip9

MOVEMENT SUMMARY

Site: 101 [Terry Fox ar Eagleson Road FT2030 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
		[Total HV]	%	[Total HV]	%				[Veh.]	Dist]					
South: Eagleson															
1	L2	All MCs	215	5.0	215	5.0	0.529	12.1	LOS B	3.7	27.0	0.69	0.66	1.01	52.1
2	T1	All MCs	495	2.0	495	2.0	0.529	11.3	LOS B	3.8	27.1	0.68	0.64	0.98	55.2
3	R2	All MCs	197	2.0	197	2.0	0.529	11.0	LOS B	3.8	27.1	0.67	0.63	0.97	55.9
Approach			907	2.7	907	2.7	0.529	11.4	LOS B	3.8	27.1	0.68	0.64	0.99	54.6
East: Terry Fox															
4	L2	All MCs	110	4.0	110	4.0	0.337	9.9	LOS A	1.4	10.3	0.65	0.61	0.72	53.9
5	T1	All MCs	266	2.0	266	2.0	0.337	9.2	LOS A	1.4	10.3	0.64	0.59	0.70	57.0
6	R2	All MCs	101	3.0	101	3.0	0.337	9.0	LOS A	1.4	10.2	0.63	0.58	0.69	57.5
Approach			477	2.7	477	2.7	0.337	9.3	LOS A	1.4	10.3	0.64	0.59	0.71	56.3
North: Eagleson															
7	L2	All MCs	141	2.0	141	2.0	0.296	8.2	LOS A	1.2	8.7	0.60	0.51	0.60	54.9
8	T1	All MCs	328	2.0	328	2.0	0.296	7.7	LOS A	1.2	8.7	0.58	0.49	0.58	58.6
9	R2	All MCs	3	2.0	3	2.0	0.296	7.6	LOS A	1.2	8.6	0.58	0.49	0.58	58.9
Approach			472	2.0	472	2.0	0.296	7.9	LOS A	1.2	8.7	0.59	0.50	0.59	57.5
West: Terry Fox															
10	L2	All MCs	7	2.0	7	2.0	0.353	8.9	LOS A	1.6	11.3	0.62	0.54	0.66	56.9
11	T1	All MCs	359	2.0	359	2.0	0.353	8.7	LOS A	1.6	11.3	0.61	0.53	0.65	58.3
12	R2	All MCs	195	7.0	195	7.0	0.353	8.7	LOS A	1.5	11.2	0.60	0.51	0.64	56.9
Approach			561	3.7	561	3.7	0.353	8.7	LOS A	1.6	11.3	0.61	0.52	0.65	57.8
All Vehicles			2417	2.8	2417	2.8	0.529	9.7	LOS A	3.8	27.1	0.64	0.58	0.77	56.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2030 Future Total
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	54	32	69	68	134	25	739	83	120	885	45
Future Volume (vph)	39	54	32	69	68	134	25	739	83	120	885	45
Satd. Flow (prot)	1610	1574	0	1658	1532	0	1658	1712	1414	1658	1730	0
Fit Permitted	0.462			0.701			0.209			0.308		
Satd. Flow (perm)	779	1574	0	1177	1532	0	365	1712	1358	536	1730	0
Satd. Flow (RTOR)		32		114					34		5	
Lane Group Flow (vph)	39	86	0	69	202	0	25	739	83	120	930	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	28.3	28.3		28.3	28.3		30.2	30.2	30.2	30.2	30.2	
Total Split (s)	33.0	33.0		33.0	33.0		57.0	57.0	57.0	57.0	57.0	
Total Split (%)	36.7%	36.7%		36.7%	36.7%		63.3%	63.3%	63.3%	63.3%	63.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.9	1.9	1.9	1.9	1.9	
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)	5.3	5.3		5.3	5.3		5.2	5.2	5.2	5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	15.4	15.4		15.4	15.4		64.1	64.1	64.1	64.1	64.1	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.71	0.71	0.71	0.71	0.71	
v/c Ratio	0.29	0.29		0.34	0.57		0.10	0.61	0.08	0.31	0.75	
Control Delay	35.7	22.3		35.3	20.7		7.0	10.7	3.9	9.2	15.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	35.7	22.3		35.3	20.7		7.0	10.7	3.9	9.2	15.2	
LOS	D	C		D	C		A	B	A	A	B	
Approach Delay		26.5			24.4			9.9			14.5	
Approach LOS		C			C			A			B	
Queue Length 50th (m)	6.3	8.6		11.3	14.4		0.9	42.4	1.7	5.0	65.1	
Queue Length 95th (m)	13.8	18.6		20.5	30.8		5.0	115.7	8.1	20.3	#210.0	
Internal Link Dist (m)		510.2			520.3			308.9			352.8	
Turn Bay Length (m)	25.0			23.0			15.0		17.0	23.5		
Base Capacity (vph)	239	506		362	550		260	1219	977	381	1233	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.16	0.17		0.19	0.37		0.10	0.61	0.08	0.31	0.75	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 9 (10%), Referenced to phase 2:NBL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2030 Future Total
PM Peak Hour

Maximum v/c Ratio: 0.75	Intersection LOS: B
Intersection Signal Delay: 14.6	ICU Level of Service G
Intersection Capacity Utilization 100.2%	
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Stittsville Main & Abbott



Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2030 Future Total
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	20	165	10	40	134	78	4	488	51	43	574	32
Future Volume (vph)	20	165	10	40	134	78	4	488	51	43	574	32
Satd. Flow (prot)	1470	1704	0	1523	1664	1483	1353	1687	0	1551	1692	0
Fit Permitted	0.671			0.647			0.321			0.380		
Satd. Flow (perm)	1033	1704	0	1034	1664	1444	457	1687	0	620	1692	0
Satd. Flow (RTOR)		4				78		9			5	
Lane Group Flow (vph)	20	175	0	40	134	78	4	539	0	43	606	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8		8	2		6		6
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.9	24.9		24.9	24.9	
Total Split (s)	34.6	34.6		34.6	34.6	34.6	46.9	46.9		46.9	46.9	
Total Split (%)	42.5%	42.5%		42.5%	42.5%	42.5%	57.5%	57.5%		57.5%	57.5%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	4.6	4.6		4.6	4.6	4.6	3.6	3.6		3.6	3.6	
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)	7.6	7.6		7.6	7.6	7.6	6.9	6.9		6.9	6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Ped	Ped		Ped	Ped	
Act Effct Green (s)	12.5	12.5		12.5	12.5	12.5	25.9	25.9		25.9	25.9	
Actuated g/C Ratio	0.23	0.23		0.23	0.23	0.23	0.49	0.49		0.49	0.49	
v/c Ratio	0.08	0.44		0.17	0.34	0.20	0.02	0.66		0.14	0.74	
Control Delay	19.2	22.0		20.2	21.1	7.1	7.8	14.8		9.3	17.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	19.2	22.0		20.2	21.1	7.1	7.8	14.8		9.3	17.4	
LOS	B	C		C	C	A	A	B		A	B	
Approach Delay		21.7			16.6			14.8			16.9	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	1.3	12.0		2.6	9.2	0.0	0.2	31.5		1.9	37.9	
Queue Length 95th (m)	7.1	35.9		11.6	28.6	9.1	1.5	72.9		7.5	87.8	
Internal Link Dist (m)		229.8			252.5			682.0			279.7	
Turn Bay Length (m)	40.0			75.0		55.0	70.0			110.0		
Base Capacity (vph)	542	895		542	872	794	355	1313		481	1316	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.04	0.20		0.07	0.15	0.10	0.01	0.41		0.09	0.46	

Intersection Summary

Cycle Length: 81.5
Actuated Cycle Length: 53.4
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74

Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2030 Future Total
PM Peak Hour

Intersection Signal Delay: 16.7
Intersection Capacity Utilization 74.7%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service D

Splits and Phases: 2: Stittsville Main & Fernbank



Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2030 Future Total
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	30	21	39	34	32	61	75	396	37	52	492	46
Future Volume (vph)	30	21	39	34	32	61	75	396	37	52	492	46
Satd. Flow (prot)	1580	1495	0	1470	1527	0	1658	1707	0	1658	1728	1441
Fit Permitted	0.697			0.718			0.443			0.491		
Satd. Flow (perm)	1139	1495	0	1103	1527	0	771	1707	0	857	1728	1404
Satd. Flow (RTOR)		39			61			9				46
Lane Group Flow (vph)	30	60	0	34	93	0	75	433	0	52	492	46
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	6
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	29.5	29.5		29.5	29.5		29.0	29.0		29.0	29.0	29.0
Total Split (s)	33.5	33.5		33.5	33.5		59.0	59.0		59.0	59.0	59.0
Total Split (%)	36.2%	36.2%		36.2%	36.2%		63.8%	63.8%		63.8%	63.8%	63.8%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	3.5	3.5		3.5	3.5		2.7	2.7		2.7	2.7	2.7
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)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Ped	Ped		Ped	Ped	Ped
Act Effct Green (s)	12.2	12.2		12.2	12.2		30.0	30.0		30.0	30.0	30.0
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.60	0.60		0.60	0.60	0.60
v/c Ratio	0.11	0.15		0.13	0.22		0.16	0.42		0.10	0.47	0.05
Control Delay	15.6	8.8		15.8	8.7		9.3	10.1		8.6	11.0	3.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	15.6	8.8		15.8	8.7		9.3	10.1		8.6	11.0	3.4
LOS	B	A		B	A		A	B		A	B	A
Approach Delay		11.1			10.6			10.0			10.2	
Approach LOS		B			B			A			B	
Queue Length 50th (m)	1.9	1.3		2.2	2.0		2.9	19.7		1.9	24.0	0.0
Queue Length 95th (m)	7.4	8.4		8.1	10.9		12.8	59.2		9.2	70.8	4.5
Internal Link Dist (m)		206.7			174.8			888.7			682.0	
Turn Bay Length (m)	30.0			20.0			135.0			120.0		110.0
Base Capacity (vph)	629	844		610	871		741	1640		823	1660	1350
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.05	0.07		0.06	0.11		0.10	0.26		0.06	0.30	0.03

Intersection Summary												
Cycle Length: 92.5												
Actuated Cycle Length: 49.9												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.47												

Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2030 Future Total
PM Peak Hour

Intersection Signal Delay: 10.2	Intersection LOS: B
Intersection Capacity Utilization 62.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Stittsville Main & West Ridge/Parade



HCM 2010 AWSC
4: Huntley/Stittville Main & Flewellyn

2030 Future Total
PM Peak Hour

Intersection												
Intersection Delay, s/veh	60.9											
Intersection LOS	F											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↕			↔			↕		
Traffic Vol, veh/h	44	138	14	19	201	215	27	234	31	231	272	47
Future Vol, veh/h	44	138	14	19	201	215	27	234	31	231	272	47
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
Heavy Vehicles, %	2	2	7	2	2	2	4	2	7	2	2	2
Mvmt Flow	44	138	14	19	201	215	27	234	31	231	272	47
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	19.1			43.3			24.5			109.1		
HCM LOS	C			E			C			F		
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	9%	22%	4%	42%								
Vol Thru, %	80%	70%	46%	49%								
Vol Right, %	11%	7%	49%	9%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	292	196	435	550								
LT Vol	27	44	19	231								
Through Vol	234	138	201	272								
RT Vol	31	14	215	47								
Lane Flow Rate	292	196	435	550								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.634	0.454	0.869	1.134								
Departure Headway (Hd)	8.272	8.898	7.647	7.423								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	441	408	479	495								
Service Time	6.272	6.898	5.647	5.423								
HCM Lane V/C Ratio	0.662	0.48	0.908	1.111								
HCM Control Delay	24.5	19.1	43.3	109.1								
HCM Lane LOS	C	C	E	F								
HCM 95th-tile Q	4.3	2.3	9.1	19								

HCM 2010 TWSC
5: Edenwyld/Cope & Fernbank

2030 Future Total
PM Peak Hour

Intersection												
Int Delay, s/veh	11.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↕			↕		
Traffic Vol, veh/h	22	474	50	128	482	71	26	2	80	70	1	35
Future Vol, veh/h	22	474	50	128	482	71	26	2	80	70	1	35
Conflicting Peds, #/hr	1	0	2	2	0	1	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	3	2	2	3	83	13	2	2	22	2	7
Mvmt Flow	22	474	50	128	482	71	26	2	80	70	1	35
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	554	0	0	526	0	0	1337	1355	502	1360	1345	519
Stage 1	-	-	-	-	-	-	545	545	-	775	775	-
Stage 2	-	-	-	-	-	-	792	810	-	585	570	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.23	6.52	6.22	7.32	6.52	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.52	-	6.32	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.52	-	6.32	5.52	-
Follow-up Hdwy	2,218	-	-	2,218	-	-	3,617	4,018	3,318	3,698	4,018	3,363
Pot Cap-1 Maneuver	1016	-	-	1041	-	-	123	149	569	114	151	547
Stage 1	-	-	-	-	-	-	503	519	-	362	408	-
Stage 2	-	-	-	-	-	-	367	393	-	464	505	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1015	-	-	1039	-	-	102	127	568	86	129	547
Mov Cap-2 Maneuver	-	-	-	-	-	-	102	127	-	86	129	-
Stage 1	-	-	-	-	-	-	491	507	-	354	357	-
Stage 2	-	-	-	-	-	-	300	344	-	388	493	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	0.3		1.7		28		121.1					
HCM LOS					D		F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	262	1015	-	-	1039	-	-	120				
HCM Lane V/C Ratio	0.412	0.022	-	-	0.123	-	-	0.883				
HCM Control Delay (s)	28	8.6	-	-	9	-	-	121.1				
HCM Lane LOS	D	A	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	1.9	0.1	-	-	0.4	-	-	5.5				

HCM 2010 AWSC
6: Shea & Abbott

2030 Future Total
PM Peak Hour

Intersection						
Intersection Delay, s/veh	38.2					
Intersection LOS	E					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↔	↔	↔
Traffic Vol, veh/h	152	104	512	151	153	399
Future Vol, veh/h	152	104	512	151	153	399
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	3
Mvmt Flow	152	104	512	151	153	399
Number of Lanes	1	0	1	1	1	1
Approach	EB	WB	NB			
Opposing Approach	WB	EB				
Opposing Lanes	2	1	0			
Conflicting Approach Left		NB	EB			
Conflicting Lanes Left	0	2	1			
Conflicting Approach Right	NB		WB			
Conflicting Lanes Right	2	0	2			
HCM Control Delay	16.2	60.5	21.6			
HCM LOS	C	F	C			
Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	
Vol Left, %	100%	0%	0%	100%	0%	
Vol Thru, %	0%	0%	59%	0%	100%	
Vol Right, %	0%	100%	41%	0%	0%	
Sign Control	Stop	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	153	399	256	512	151	
LT Vol	153	0	0	512	0	
Through Vol	0	0	152	0	151	
RT Vol	0	399	104	0	0	
Lane Flow Rate	153	399	256	512	151	
Geometry Grp	7	7	4	7	7	
Degree of Util (X)	0.327	0.72	0.485	1.028	0.282	
Departure Headway (Hd)	7.703	6.496	6.814	7.226	6.716	
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	
Cap	464	551	525	502	532	
Service Time	5.495	4.287	4.907	5.012	4.501	
HCM Lane V/C Ratio	0.33	0.724	0.488	1.02	0.284	
HCM Control Delay	14.2	24.4	16.2	74.8	12.2	
HCM Lane LOS	B	C	C	F	B	
HCM 95th-tile Q	1.4	5.9	2.6	14.7	1.2	

HCM 2010 TWSC
8: Shea & Flewellyn

2030 Future Total
PM Peak Hour

Intersection												
Int Delay, s/veh	100.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	59	288	11	2	415	50	16	213	17	27	255	71
Future Vol, veh/h	59	288	11	2	415	50	16	213	17	27	255	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	5	2	18	2	2	2	6	2	6	2	2	3
Mvmt Flow	59	288	11	2	415	50	16	213	17	27	255	71
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	465	0	0	299	0	0	1019	881	294	971	861	440
Stage 1	-	-	-	-	-	-	412	412	-	444	444	-
Stage 2	-	-	-	-	-	-	607	469	-	527	417	-
Critical Hdwy	4.15	-	-	4.12	-	-	7.16	6.52	6.26	7.12	6.52	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.245	-	-	2.218	-	-	3.554	4.018	3.354	3.518	4.018	3.327
Pot Cap-1 Maneuver	1081	-	-	1262	-	-	212	285	736	232	293	615
Stage 1	-	-	-	-	-	-	609	594	-	593	575	-
Stage 2	-	-	-	-	-	-	477	561	-	535	591	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1081	-	-	1262	-	-	32	266	736	73	273	615
Mov Cap-2 Maneuver	-	-	-	-	-	-	32	266	-	73	273	-
Stage 1	-	-	-	-	-	-	569	555	-	554	574	-
Stage 2	-	-	-	-	-	-	234	560	-	301	552	-
Approach	EB	WB	NB	SB								
HCM Control Delay, s	1.4	0	226.5	247.8								
HCM LOS			F	F								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	186	1081	-	-	1262	-	-	249				
HCM Lane V/C Ratio	1.323	0.055	-	-	0.002	-	-	1.418				
HCM Control Delay (s)	226.5	8.5	0	-	7.9	0	-	247.8				
HCM Lane LOS	F	A	A	-	A	A	-	F				
HCM 95th %tile Q(veh)	14.1	0.2	-	-	0	-	-	19.7				

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2030 Future Total
PM Peak Hour

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5	Ø8	Ø9
Lane Configurations	↔	↗	↖	↗	↖	↖					
Traffic Volume (vph)	66	665	756	201	218	88					
Future Volume (vph)	66	665	756	201	218	88					
Satd. Flow (prot)	1658	1712	1728	1469	1610	1388					
Fit Permitted	0.950				0.950						
Satd. Flow (perm)	1658	1712	1728	1469	1610	1388					
Satd. Flow (RTOR)				201		88					
Lane Group Flow (vph)	66	665	756	201	218	88					
Turn Type	Prot	NA	NA	custom	Perm	Perm					
Protected Phases	13	1 2 9	5 6				1	2	5	8	9
Permitted Phases				6	4	4					
Detector Phase	13	1 2 9	5 6	6	4	4					
Switch Phase											
Minimum Initial (s)	5.0			10.0	10.0	10.0	1.0	10.0	1.0	1.0	10.0
Minimum Split (s)	24.2			24.2	30.0	30.0	4.0	24.2	4.0	30.0	24.2
Total Split (s)	28.0			40.0	32.0	32.0	5.0	40.0	5.0	32.0	28.0
Total Split (%)	26.7%			38.1%	30.5%	30.5%	5%	38%	5%	30%	27%
Yellow Time (s)	4.6			4.6	3.3	3.3	2.0	4.6	2.0	3.3	4.6
All-Red Time (s)	1.6			1.6	2.7	2.7	0.0	1.6	0.0	2.7	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0					
Total Lost Time (s)	6.2			6.2	6.0	6.0					
Lead/Lag	Lead						Lag	Lag	Lead		
Lead-Lag Optimize?	Yes						Yes	Yes	Yes	Yes	
Recall Mode	None			Max	None	None	None	Max	None	None	None
Act Effct Green (s)	9.2	68.6	55.9	46.7	18.1	18.1					
Actuated g/C Ratio	0.10	0.72	0.59	0.49	0.19	0.19					
v/c Ratio	0.41	0.54	0.74	0.24	0.71	0.26					
Control Delay	49.7	8.6	23.3	3.6	49.5	9.2					
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0					
Total Delay	49.7	8.6	23.3	3.6	49.5	9.2					
LOS	D	A	C	A	D	A					
Approach Delay		12.4	19.2		37.9						
Approach LOS		B	B		D						
Queue Length 50th (m)	11.9	46.4	101.1	0.0	38.9	0.0					
Queue Length 95th (m)	25.6	93.6	#211.3	13.3	62.6	11.7					
Internal Link Dist (m)		1197.5	448.1		313.2						
Turn Bay Length (m)	100.0			120.0	90.0						
Base Capacity (vph)	384	1239	1020	825	445	447					
Starvation Cap Reductn	0	0	0	0	0	0					
Spillback Cap Reductn	0	0	0	0	0	0					
Storage Cap Reductn	0	0	0	0	0	0					
Reduced v/c Ratio	0.17	0.54	0.74	0.24	0.49	0.20					

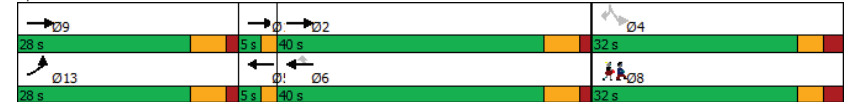
Intersection Summary	
Cycle Length:	105
Actuated Cycle Length:	94.7
Natural Cycle:	95
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.74

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2030 Future Total
PM Peak Hour

Intersection Signal Delay: 19.5	Intersection LOS: B
Intersection Capacity Utilization 72.4%	ICU Level of Service C
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 9: Fernbank & Robert Grant



Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2030 Future Total
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	136	541	200	4	635	100	362	433	17	119	386	98
Future Volume (vph)	136	541	200	4	635	100	362	433	17	119	386	98
Satd. Flow (prot)	1658	1745	1483	1658	1745	1401	1658	1732	0	1610	1745	1483
Fit Permitted	0.114			0.346			0.197			0.503		
Satd. Flow (perm)	199	1745	1432	600	1745	1309	342	1732	0	842	1745	1483
Satd. Flow (RTOR)			200			155			3			93
Lane Group Flow (vph)	136	541	200	4	635	100	362	450	0	119	386	98
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	NA	pt+ov	
Protected Phases	7	4			8		5	2			6	6.7
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	8	8	8	5	2		6	6	6.7
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0		10.0	10.0	
Minimum Split (s)	11.2	33.2	33.2	33.2	33.2	33.2	11.2	29.2		29.2	29.2	
Total Split (s)	15.0	50.0	50.0	35.0	35.0	35.0	25.0	60.0		35.0	35.0	
Total Split (%)	13.6%	45.5%	45.5%	31.8%	31.8%	31.8%	22.7%	54.5%		31.8%	31.8%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.2	4.2		4.2	4.2	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2		6.2	6.2	
Lead/Lag	Lead			Lag	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes			Yes	Yes	
Recall Mode	None	None	None	None	None	None	C-Max			C-Max	C-Max	
Act Effct Green (s)	43.8	43.8	43.8	28.8	28.8	28.8	53.8	53.8		28.9	28.9	43.8
Actuated g/C Ratio	0.40	0.40	0.40	0.26	0.26	0.26	0.49	0.49		0.26	0.26	0.40
v/c Ratio	0.70	0.78	0.29	0.03	1.39	0.22	0.93	0.53		0.54	0.84	0.15
Control Delay	42.3	38.2	4.2	31.0	221.7	2.2	53.4	22.1		45.4	56.5	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	42.3	38.2	4.2	31.0	221.7	2.2	53.4	22.1		45.4	56.5	5.5
LOS	D	D	A	C	F	A	D	C		D	E	A
Approach Delay		31.1			191.0			36.1			46.0	
Approach LOS		C			F			D			D	
Queue Length 50th (m)	18.9	99.7	0.0	0.6	~182.0	0.0	51.0	63.9		22.0	78.7	0.7
Queue Length 95th (m)	#40.6	143.0	13.7	3.5	#249.2	3.2	#105.8	93.2		41.7	#127.9	10.6
Internal Link Dist (m)		330.2			610.3			1085.2			359.0	
Turn Bay Length (m)	85.0		100.0	120.0		120.0	110.0			125.0		135.0
Base Capacity (vph)	195	694	690	157	457	457	392	848		221	457	647
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.70	0.78	0.29	0.03	1.39	0.22	0.92	0.53		0.54	0.84	0.15

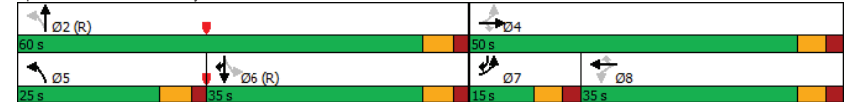
Intersection Summary												
Cycle Length: 110												
Actuated Cycle Length: 110												
Offset: 0 (0%), Referenced to phase 2:NBL and 6:SBTL, Start of Green												
Natural Cycle: 145												
Control Type: Actuated-Coordinated												

Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2030 Future Total
PM Peak Hour

Maximum v/c Ratio: 1.39	Intersection LOS: E
Intersection Signal Delay: 74.4	ICU Level of Service G
Intersection Capacity Utilization 106.5%	
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Terry Fox & Fernbank



HCM 2010 TWSC
12: Shea & Street 21

2030 Future Total
PM Peak Hour

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	32	10	14	315	353	43
Future Vol, veh/h	32	10	14	315	353	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	10	14	315	353	43

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	718	375	396
Stage 1	375	-	-
Stage 2	343	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	396	671	1163
Stage 1	695	-	-
Stage 2	719	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	390	671	1163
Mov Cap-2 Maneuver	390	-	-
Stage 1	685	-	-
Stage 2	719	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.2	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1163	-	433	-	-
HCM Lane V/C Ratio	0.012	-	0.097	-	-
HCM Control Delay (s)	8.1	0	14.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

HCM 2010 TWSC
13: Flewellyn & Street 19

2030 Future Total
PM Peak Hour

Intersection						
Int Delay, s/veh	5.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	123	260	373	129	98	97
Future Vol, veh/h	123	260	373	129	98	97
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	123	260	373	129	98	97

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	502	0	944
Stage 1	-	-	438
Stage 2	-	-	506
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1062	-	291
Stage 1	-	-	651
Stage 2	-	-	606
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1062	-	252
Mov Cap-2 Maneuver	-	-	252
Stage 1	-	-	563
Stage 2	-	-	606

Approach	EB	WB	SB
HCM Control Delay, s	2.8	0	26.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1062	-	-	-	357
HCM Lane V/C Ratio	0.116	-	-	-	0.546
HCM Control Delay (s)	8.8	0	-	-	26.6
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.4	-	-	-	3.1

HCM 2010 TWSC
14: Flewellyn & Street 7

2030 Future Total
PM Peak Hour

Intersection						
Int Delay, s/veh	4.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	120	300	350	120	83	80
Future Vol, veh/h	120	300	350	120	83	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	120	300	350	120	83	80

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	470	0	0	950	410
Stage 1	-	-	-	410	-
Stage 2	-	-	-	540	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1092	-	-	289	642
Stage 1	-	-	-	670	-
Stage 2	-	-	-	584	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1092	-	-	251	642
Mov Cap-2 Maneuver	-	-	-	251	-
Stage 1	-	-	-	582	-
Stage 2	-	-	-	584	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	23.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1092	-	-	-	358
HCM Lane V/C Ratio	0.11	-	-	-	0.455
HCM Control Delay (s)	8.7	0	-	-	23.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	2.3

HCM 2010 TWSC
15: Shea & Street 22

2030 Future Total
PM Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↕			↕	↕	
Traffic Vol, veh/h	10	3	3	319	350	13
Future Vol, veh/h	10	3	3	319	350	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	3	3	319	350	13

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	682	357	363	0	0
Stage 1	357	-	-	-	-
Stage 2	325	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	415	687	1196	-	-
Stage 1	708	-	-	-	-
Stage 2	732	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	414	687	1196	-	-
Mov Cap-2 Maneuver	414	-	-	-	-
Stage 1	706	-	-	-	-
Stage 2	732	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1196	-	456	-	-
HCM Lane V/C Ratio	0.003	-	0.029	-	-
HCM Control Delay (s)	8	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	24	12	21	326	385	43
Future Vol, veh/h	24	12	21	326	385	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	24	12	21	326	385	43

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	775	407	428
Stage 1	407	-	-
Stage 2	368	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	366	644	1131
Stage 1	672	-	-
Stage 2	700	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	358	644	1131
Mov Cap-2 Maneuver	358	-	-
Stage 1	657	-	-
Stage 2	700	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.4	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1131	-	420	-	-
HCM Lane V/C Ratio	0.019	-	0.086	-	-
HCM Control Delay (s)	8.2	0	14.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

MOVEMENT SUMMARY

Site: 101 [Fernbank at Shea FT2030 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows [Total HV]	Arrival Flows [Total HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			veh/h %	veh/h %	v/c	sec		Dist m				km/h	
South: Shea													
1	L2	All MCs	30 3.0	30 3.0	0.601	16.5	LOS C	4.3	30.8	0.81	0.87	1.25	43.6
2	T1	All MCs	217 3.0	217 3.0	0.601	16.5	LOS C	4.3	30.8	0.81	0.87	1.25	44.3
3	R2	All MCs	141 6.0	141 6.0	0.601	17.0	LOS C	4.3	30.8	0.81	0.87	1.25	44.0
Approach			388 4.1	388 4.1	0.601	16.7	LOS C	4.3	30.8	0.81	0.87	1.25	44.1
East: Fernbank													
4	L2	All MCs	130 8.0	130 8.0	0.883	32.4	LOS D	24.3	175.3	1.00	1.50	2.65	36.8
5	T1	All MCs	551 3.0	551 3.0	0.883	31.9	LOS D	24.3	175.3	1.00	1.50	2.65	37.4
6	R2	All MCs	115 2.0	115 2.0	0.883	31.8	LOS D	24.3	175.3	1.00	1.50	2.65	37.2
Approach			796 3.7	796 3.7	0.883	31.9	LOS D	24.3	175.3	1.00	1.50	2.65	37.3
North: Shea													
7	L2	All MCs	60 2.0	60 2.0	0.814	31.2	LOS D	9.1	65.7	0.95	1.22	2.04	37.1
8	T1	All MCs	308 2.0	308 2.0	0.814	31.2	LOS D	9.1	65.7	0.95	1.22	2.04	37.6
9	R2	All MCs	144 9.0	144 9.0	0.814	32.4	LOS D	9.1	65.7	0.95	1.22	2.04	37.3
Approach			512 4.0	512 4.0	0.814	31.5	LOS D	9.1	65.7	0.95	1.22	2.04	37.5
West: Fernbank													
10	L2	All MCs	133 5.0	133 5.0	0.831	28.0	LOS D	14.4	103.8	1.00	1.29	2.27	38.4
11	T1	All MCs	495 3.0	495 3.0	0.831	27.8	LOS D	14.4	103.8	1.00	1.29	2.27	38.9
12	R2	All MCs	34 3.0	34 3.0	0.831	27.8	LOS D	14.4	103.8	1.00	1.29	2.27	38.7
Approach			662 3.4	662 3.4	0.831	27.9	LOS D	14.4	103.8	1.00	1.29	2.27	38.8
All Vehicles			2358 3.7	2358 3.7	0.883	28.2	LOS D	24.3	175.3	0.96	1.28	2.18	38.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Eagleson at Flewellyn FT2030 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
		[Total HV]	%	[Total HV]	%				[Veh.]	Dist]					
South: Eagleson															
1	L2	All MCs	14	7.0	14	7.0	0.530	10.7	LOS B	4.2	30.1	0.66	0.50	0.80	54.2
2	T1	All MCs	504	2.0	504	2.0	0.530	10.4	LOS B	4.2	30.1	0.66	0.50	0.80	56.4
Approach			518	2.1	518	2.1	0.530	10.4	LOS B	4.2	30.1	0.66	0.50	0.80	56.4
North: Eagleson															
8	T1	All MCs	616	2.0	616	2.0	0.794	11.3	LOS B	15.2	107.9	0.33	0.07	0.33	55.8
9	R2	All MCs	453	2.0	453	2.0	0.794	11.3	LOS B	15.2	107.9	0.33	0.07	0.33	55.3
Approach			1069	2.0	1069	2.0	0.794	11.3	LOS B	15.2	107.9	0.33	0.07	0.33	55.6
West: Flewellyn															
10	L2	All MCs	319	2.0	319	2.0	0.466	11.6	LOS B	2.8	20.4	0.73	0.69	0.97	51.1
12	R2	All MCs	13	15.0	13	15.0	0.466	13.4	LOS B	2.8	20.4	0.73	0.69	0.97	49.4
Approach			332	2.5	332	2.5	0.466	11.7	LOS B	2.8	20.4	0.73	0.69	0.97	51.0
All Vehicles			1919	2.1	1919	2.1	0.794	11.1	LOS B	15.2	107.9	0.49	0.29	0.57	54.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Report\Sidra - W-4 Report\2021-128 Shea Road at Fernbank Road - 2024-12-13.sip9

MOVEMENT SUMMARY

Site: 101 [Terry Fox ar Eagleson Road FT2030 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
		[Total HV]	%	[Total HV]	%				[Veh.]	Dist]					
South: Eagleson															
1	L2	All MCs	236	2.0	236	2.0	0.471	10.6	LOS B	2.9	20.7	0.66	0.60	0.87	53.2
2	T1	All MCs	436	2.0	436	2.0	0.471	10.1	LOS B	2.9	20.7	0.64	0.58	0.84	56.3
3	R2	All MCs	139	2.0	139	2.0	0.471	9.9	LOS A	2.9	20.6	0.64	0.57	0.83	56.9
Approach			811	2.0	811	2.0	0.471	10.2	LOS B	2.9	20.7	0.65	0.58	0.85	55.5
East: Terry Fox															
4	L2	All MCs	230	3.0	230	3.0	0.689	19.7	LOS C	6.0	42.9	0.83	0.93	1.54	47.4
5	T1	All MCs	581	2.0	581	2.0	0.689	18.7	LOS C	6.2	44.3	0.82	0.92	1.53	49.9
6	R2	All MCs	193	2.0	193	2.0	0.689	18.1	LOS C	6.2	44.3	0.82	0.91	1.52	50.6
Approach			1004	2.2	1004	2.2	0.689	18.8	LOS C	6.2	44.3	0.82	0.92	1.53	49.4
North: Eagleson															
7	L2	All MCs	164	2.0	164	2.0	0.705	27.0	LOS D	4.6	32.7	0.85	1.02	1.58	43.7
8	T1	All MCs	573	2.0	573	2.0	0.705	25.1	LOS D	4.8	34.0	0.84	1.01	1.57	46.2
9	R2	All MCs	9	2.0	9	2.0	0.705	24.3	LOS C	4.8	34.0	0.83	1.01	1.56	46.7
Approach			746	2.0	746	2.0	0.705	25.5	LOS D	4.8	34.0	0.84	1.01	1.57	45.6
West: Terry Fox															
10	L2	All MCs	20	2.0	20	2.0	0.544	17.2	LOS C	2.9	20.7	0.76	0.86	1.17	50.4
11	T1	All MCs	326	2.0	326	2.0	0.544	17.0	LOS C	2.9	21.0	0.76	0.86	1.17	51.6
12	R2	All MCs	266	4.0	266	4.0	0.544	15.9	LOS C	2.9	21.0	0.75	0.84	1.16	51.7
Approach			612	2.9	612	2.9	0.544	16.5	LOS C	2.9	21.0	0.76	0.85	1.16	51.6
All Vehicles			3173	2.2	3173	2.2	0.705	17.7	LOS C	6.2	44.3	0.77	0.84	1.29	50.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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HCM 2010 AWSC
4: Huntley/Stittsville Main & Flewellyn

2030 Future Total-Mitigation
AM Peak Hour

Intersection	
Intersection Delay, s/veh	22.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↕			↕		↔	↔	
Traffic Vol, veh/h	38	168	15	24	154	233	17	232	19	127	259	53
Future Vol, veh/h	38	168	15	24	154	233	17	232	19	127	259	53
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
Heavy Vehicles, %	2	4	2	2	2	3	18	10	2	3	5	2
Mvmt Flow	38	168	15	24	154	233	17	232	19	127	259	53
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	17	28.5	20.6	20.3
HCM LOS	C	D	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	6%	17%	6%	100%	0%
Vol Thru, %	87%	76%	37%	0%	83%
Vol Right, %	7%	7%	57%	0%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	268	221	411	127	312
LT Vol	17	38	24	127	0
Through Vol	232	168	154	0	259
RT Vol	19	15	233	0	53
Lane Flow Rate	268	221	411	127	312
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.572	0.463	0.767	0.284	0.645
Departure Headway (Hd)	7.679	7.542	6.722	8.041	7.44
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	469	477	543	446	484
Service Time	5.748	5.61	4.722	5.804	5.202
HCM Lane V/C Ratio	0.571	0.463	0.757	0.285	0.645
HCM Control Delay	20.6	17	28.5	14	22.8
HCM Lane LOS	C	C	D	B	C
HCM 95th-tile Q	3.5	2.4	6.9	1.2	4.5

HCM 2010 AWSC
4: Huntley/Stittsville Main & Flewellyn

2030 Future Total-Mitigation
PM Peak Hour

Intersection	
Intersection Delay, s/veh	26.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↕			↕		↔	↔	
Traffic Vol, veh/h	44	138	14	19	201	215	27	234	31	231	272	47
Future Vol, veh/h	44	138	14	19	201	215	27	234	31	231	272	47
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
Heavy Vehicles, %	2	2	7	2	2	2	4	2	7	2	2	2
Mvmt Flow	44	138	14	19	201	215	27	234	31	231	272	47
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	17.3	37.1	22.9	22.7
HCM LOS	C	E	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	9%	22%	4%	100%	0%
Vol Thru, %	80%	70%	46%	0%	85%
Vol Right, %	11%	7%	49%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	292	196	435	231	319
LT Vol	27	44	19	231	0
Through Vol	234	138	201	0	272
RT Vol	31	14	215	0	47
Lane Flow Rate	292	196	435	231	319
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.626	0.439	0.842	0.528	0.674
Departure Headway (Hd)	7.715	8.057	6.971	8.223	7.602
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	467	445	518	439	475
Service Time	5.78	6.129	5.024	5.984	5.362
HCM Lane V/C Ratio	0.625	0.44	0.84	0.526	0.672
HCM Control Delay	22.9	17.3	37.1	19.9	24.8
HCM Lane LOS	C	C	E	C	C
HCM 95th-tile Q	4.2	2.2	8.6	3	4.9

Lanes, Volumes, Timings
6: Shea & Abbott

2030 Future Total-Mitigation
AM Peak Hour

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	134	118	450	150	122	453
Future Volume (vph)	134	118	450	150	122	453
Satd. Flow (prot)	1545	0	1626	1745	1595	1455
Fit Permitted			0.603		0.950	
Satd. Flow (perm)	1545	0	1023	1745	1473	1416
Satd. Flow (RTOR)	98					453
Lane Group Flow (vph)	252	0	450	150	122	453
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		8	8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.4		23.4	23.4	25.3	25.3
Total Split (s)	63.0		63.0	63.0	27.0	27.0
Total Split (%)	70.0%		70.0%	70.0%	30.0%	30.0%
Yellow Time (s)	3.3		3.3	3.3	3.7	3.7
All-Red Time (s)	2.1		2.1	2.1	1.6	1.6
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4		5.4	5.4	5.3	5.3
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	65.3		65.3	65.3	14.0	14.0
Actuated g/C Ratio	0.73		0.73	0.73	0.16	0.16
v/c Ratio	0.22		0.61	0.12	0.54	0.75
Control Delay	3.4		11.6	4.7	42.7	11.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	3.4		11.6	4.7	42.7	11.9
LOS	A		B	A	D	B
Approach Delay	3.4			9.9	18.5	
Approach LOS	A			A	B	
Queue Length 50th (m)	6.3		29.6	6.0	20.0	0.0
Queue Length 95th (m)	18.8		82.3	16.2	32.8	25.6
Internal Link Dist (m)	261.3			151.6	1348.0	
Turn Bay Length (m)			115.0		40.0	
Base Capacity (vph)	1148		742	1266	355	685
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.22		0.61	0.12	0.34	0.66

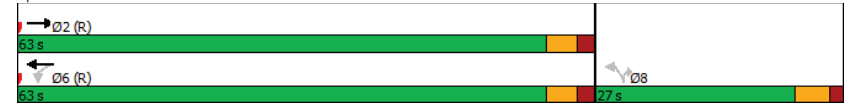
Intersection Summary	
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated

Lanes, Volumes, Timings
6: Shea & Abbott

2030 Future Total-Mitigation
AM Peak Hour

Maximum v/c Ratio: 0.75	Intersection LOS: B
Intersection Signal Delay: 12.2	ICU Level of Service C
Intersection Capacity Utilization 67.2%	
Analysis Period (min) 15	

Splits and Phases: 6: Shea & Abbott



Lanes, Volumes, Timings
6: Shea & Abbott

2030 Future Total-Mitigation
PM Peak Hour

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	152	104	512	151	153	399
Future Volume (vph)	152	104	512	151	153	399
Satd. Flow (prot)	1649	0	1658	1745	1658	1469
Fit Permitted			0.601		0.950	
Satd. Flow (perm)	1649	0	1049	1745	1639	1469
Satd. Flow (RTOR)	79					399
Lane Group Flow (vph)	256	0	512	151	153	399
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		8	8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.4		23.6	23.6	25.3	25.3
Total Split (s)	64.4		64.4	64.4	25.6	25.6
Total Split (%)	71.6%		71.6%	71.6%	28.4%	28.4%
Yellow Time (s)	3.3		3.3	3.3	3.7	3.7
All-Red Time (s)	2.1		2.1	2.1	1.6	1.6
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4		5.4	5.4	5.3	5.3
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	65.2		65.2	65.2	14.1	14.1
Actuated g/C Ratio	0.72		0.72	0.72	0.16	0.16
v/c Ratio	0.21		0.67	0.12	0.60	0.70
Control Delay	3.6		13.5	4.6	44.4	10.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	3.6		13.5	4.6	44.4	10.9
LOS	A		B	A	D	B
Approach Delay	3.6			11.5	20.2	
Approach LOS	A			B	C	
Queue Length 50th (m)	7.7		38.7	6.4	25.1	0.0
Queue Length 95th (m)	19.0		96.8	15.2	40.7	23.7
Internal Link Dist (m)	261.3			151.6	1348.0	
Turn Bay Length (m)			115.0		40.0	
Base Capacity (vph)	1215		759	1263	369	640
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.21		0.67	0.12	0.41	0.62

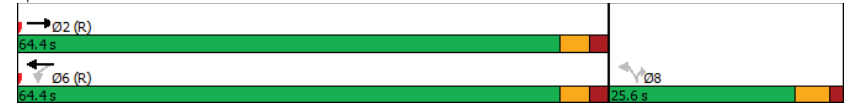
Intersection Summary	
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated

Lanes, Volumes, Timings
6: Shea & Abbott

2030 Future Total-Mitigation
PM Peak Hour

Maximum v/c Ratio: 0.70	Intersection LOS: B
Intersection Signal Delay: 13.4	ICU Level of Service C
Intersection Capacity Utilization 67.5%	
Analysis Period (min) 15	

Splits and Phases: 6: Shea & Abbott



MOVEMENT SUMMARY

Site: 101 [Shea at Flewellyn FT2030 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
		[Total HV]	%	[Total HV]	%				[Veh.]	Dist]					
		veh/h	%	veh/h	%	v/c	sec			m				km/h	
South: Shea															
1	L2	All MCs	8	13.0	8	13.0	0.257	8.1	LOS A	1.1	8.3	0.59	0.47	0.59	55.2
2	T1	All MCs	184	5.0	184	5.0	0.257	7.3	LOS A	1.1	8.3	0.59	0.47	0.59	58.4
3	R2	All MCs	13	2.0	13	2.0	0.257	7.1	LOS A	1.1	8.3	0.59	0.47	0.59	58.6
Approach			205	5.1	205	5.1	0.257	7.3	LOS A	1.1	8.3	0.59	0.47	0.59	58.3
East: Flewellyn															
4	L2	All MCs	2	12.0	2	12.0	0.219	6.1	LOS A	1.0	7.4	0.44	0.28	0.44	57.1
5	T1	All MCs	202	2.0	202	2.0	0.219	5.5	LOS A	1.0	7.4	0.44	0.28	0.44	61.0
6	R2	All MCs	24	2.0	24	2.0	0.219	5.5	LOS A	1.0	7.4	0.44	0.28	0.44	60.5
Approach			228	2.1	228	2.1	0.219	5.5	LOS A	1.0	7.4	0.44	0.28	0.44	61.0
North: Shea															
7	L2	All MCs	42	8.0	42	8.0	0.264	6.1	LOS A	1.3	9.6	0.42	0.25	0.42	57.3
8	T1	All MCs	193	3.0	193	3.0	0.264	5.8	LOS A	1.3	9.6	0.42	0.25	0.42	59.9
9	R2	All MCs	51	2.0	51	2.0	0.264	5.7	LOS A	1.3	9.6	0.42	0.25	0.42	59.6
Approach			286	3.6	286	3.6	0.264	5.8	LOS A	1.3	9.6	0.42	0.25	0.42	59.4
West: Flewellyn															
10	L2	All MCs	60	7.0	60	7.0	0.443	8.5	LOS A	2.7	19.2	0.54	0.33	0.54	55.5
11	T1	All MCs	382	2.0	382	2.0	0.443	8.2	LOS A	2.7	19.2	0.54	0.33	0.54	57.9
12	R2	All MCs	26	4.0	26	4.0	0.443	8.3	LOS A	2.7	19.2	0.54	0.33	0.54	57.0
Approach			468	2.8	468	2.8	0.443	8.3	LOS A	2.7	19.2	0.54	0.33	0.54	57.5
All Vehicles			1187	3.2	1187	3.2	0.443	7.0	LOS A	2.7	19.2	0.50	0.33	0.50	58.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Shea at Flewellyn FT2030 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
		[Total HV]	%	[Total HV]	%				[Veh.]	Dist]					
		veh/h	%	veh/h	%	v/c	sec			m				km/h	
South: Shea															
1	L2	All MCs	16	6.0	16	6.0	0.268	6.9	LOS A	1.3	9.1	0.54	0.39	0.54	57.3
2	T1	All MCs	213	2.0	213	2.0	0.268	6.6	LOS A	1.3	9.1	0.54	0.39	0.54	59.6
3	R2	All MCs	17	6.0	17	6.0	0.268	6.9	LOS A	1.3	9.1	0.54	0.39	0.54	58.2
Approach			246	2.5	246	2.5	0.268	6.7	LOS A	1.3	9.1	0.54	0.39	0.54	59.4
East: Flewellyn															
4	L2	All MCs	2	2.0	2	2.0	0.463	8.9	LOS A	2.8	19.9	0.59	0.39	0.59	56.6
5	T1	All MCs	415	2.0	415	2.0	0.463	8.9	LOS A	2.8	19.9	0.59	0.39	0.59	57.8
6	R2	All MCs	50	2.0	50	2.0	0.463	8.9	LOS A	2.8	19.9	0.59	0.39	0.59	57.4
Approach			467	2.0	467	2.0	0.463	8.9	LOS A	2.8	19.9	0.59	0.39	0.59	57.8
North: Shea															
7	L2	All MCs	27	3.0	27	3.0	0.407	9.1	LOS A	2.2	15.9	0.64	0.50	0.67	56.0
8	T1	All MCs	255	2.0	255	2.0	0.407	9.0	LOS A	2.2	15.9	0.64	0.50	0.67	57.5
9	R2	All MCs	71	2.0	71	2.0	0.407	9.0	LOS A	2.2	15.9	0.64	0.50	0.67	57.0
Approach			353	2.1	353	2.1	0.407	9.0	LOS A	2.2	15.9	0.64	0.50	0.67	57.3
West: Flewellyn															
10	L2	All MCs	59	5.0	59	5.0	0.356	7.4	LOS A	1.9	13.6	0.53	0.35	0.53	56.6
11	T1	All MCs	288	2.0	288	2.0	0.356	7.2	LOS A	1.9	13.6	0.53	0.35	0.53	58.6
12	R2	All MCs	11	18.0	11	18.0	0.356	8.3	LOS A	1.9	13.6	0.53	0.35	0.53	54.6
Approach			358	3.0	358	3.0	0.356	7.3	LOS A	1.9	13.6	0.53	0.35	0.53	58.1
All Vehicles			1424	2.4	1424	2.4	0.463	8.1	LOS A	2.8	19.9	0.58	0.41	0.59	58.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Appendix L

Synchro And Sidra Worksheets - 2030 Future Total Horizon

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2035 Future Total
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	38	147	13	54	59	210	7	797	72	85	438	19
Future Volume (vph)	38	147	13	54	59	210	7	797	72	85	438	19
Satd. Flow (prot)	1642	1718	0	1626	1471	0	1483	1712	1455	1510	1653	0
Fit Permitted	0.334			0.605			0.470			0.269		
Satd. Flow (perm)	574	1718	0	1020	1471	0	730	1712	1405	427	1653	0
Satd. Flow (RTOR)		6		157					31		4	
Lane Group Flow (vph)	38	160	0	54	269	0	7	797	72	85	457	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0		
Minimum Split (s)	28.3	28.3		28.3	28.3		30.2	30.2	30.2	30.2		
Total Split (s)	31.0	31.0		31.0	31.0		49.0	49.0	49.0	49.0		
Total Split (%)	38.8%	38.8%		38.8%	38.8%		61.3%	61.3%	61.3%	61.3%		
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3		
All-Red Time (s)	2.0	2.0		2.0	2.0		1.9	1.9	1.9	1.9		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.3	5.3		5.3	5.3		5.2	5.2	5.2	5.2		
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	14.3	14.3		14.3	14.3		55.2	55.2	55.2	55.2	55.2	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.69	0.69	0.69	0.69	0.69	
v/c Ratio	0.37	0.51		0.30	0.69		0.01	0.67	0.07	0.29	0.40	
Control Delay	37.4	33.3		30.7	21.8		5.9	12.5	3.9	9.7	7.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	37.4	33.3		30.7	21.8		5.9	12.5	3.9	9.7	7.5	
LOS	D	C		C	C		A	B	A	A	A	
Approach Delay		34.1			23.3			11.8			7.9	
Approach LOS		C			C			B			A	
Queue Length 50th (m)	5.3	22.0		7.4	15.7		0.3	53.6	1.5	3.8	22.4	
Queue Length 95th (m)	12.3	33.6		14.9	34.2		1.9	#140.2	7.5	16.1	57.8	
Internal Link Dist (m)		510.2			520.3			230.2			333.2	
Turn Bay Length (m)	25.0			23.0			15.0		17.0	23.5		
Base Capacity (vph)	184	555		327	579		503	1181	978	294	1141	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.21	0.29		0.17	0.46		0.01	0.67	0.07	0.29	0.40	

Intersection Summary

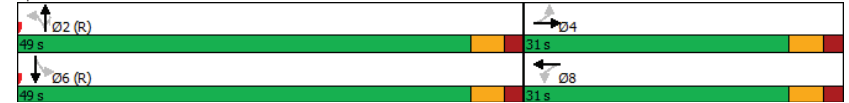
Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2035 Future Total
AM Peak Hour

Maximum v/c Ratio: 0.69	Intersection LOS: B
Intersection Signal Delay: 14.9	ICU Level of Service F
Intersection Capacity Utilization 96.1%	
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Stittsville Main & Abbott



Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2035 Future Total
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	17	99	6	25	230	65	0	561	43	24	322	26
Future Volume (vph)	17	99	6	25	230	65	0	561	43	24	322	26
Satd. Flow (prot)	1433	1699	0	1658	1664	1427	1745	1659	0	1496	1665	0
Fit Permitted	0.615			0.689					0.312			
Satd. Flow (perm)	928	1699	0	1202	1664	1427	1745	1659	0	491	1665	0
Satd. Flow (RTOR)		4				65		7				7
Lane Group Flow (vph)	17	105	0	25	230	65	0	604	0	24	348	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8		2	2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.9	24.9		24.9	24.9	
Total Split (s)	34.6	34.6		34.6	34.6	34.6	46.9	46.9		46.9	46.9	
Total Split (%)	42.5%	42.5%		42.5%	42.5%	42.5%	57.5%	57.5%		57.5%	57.5%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	4.6	4.6		4.6	4.6	4.6	3.6	3.6		3.6	3.6	
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)	7.6	7.6		7.6	7.6	7.6	6.9	6.9		6.9	6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Ped	Ped		Ped	Ped	
Act Effct Green (s)	14.0	14.0		14.0	14.0	14.0	26.3	26.3		26.3	26.3	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.25	0.47	0.47		0.47	0.47	
v/c Ratio	0.07	0.24		0.08	0.55	0.16	0.76	0.10		0.44	0.44	
Control Delay	19.1	19.2		19.0	24.8	7.0	19.6	9.9		11.7	11.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	19.1	19.2		19.0	24.8	7.0	19.6	9.9		11.7	11.7	
LOS	B	B		B	C	A	B	A		B	B	
Approach Delay		19.2			20.7		19.6			11.6		
Approach LOS		B			C		B			B		
Queue Length 50th (m)	1.2	7.2		1.7	18.0	0.0	42.5	1.2		19.5		
Queue Length 95th (m)	6.4	22.5		8.1	47.4	8.2	94.6	5.3		44.4		
Internal Link Dist (m)		229.8			252.5		682.0			280.4		
Turn Bay Length (m)	40.0			75.0		55.0		110.0				
Base Capacity (vph)	471	864		609	844	755	1248	368		1253		
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.04	0.12		0.04	0.27	0.09	0.48	0.07		0.28		

Intersection Summary

Cycle Length: 81.5
 Actuated Cycle Length: 55.5
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.76

Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2035 Future Total
AM Peak Hour

Intersection Signal Delay: 17.7
 Intersection Capacity Utilization 69.0%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 2: Stittsville Main & Fernbank



Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2035 Future Total
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	45	14	108	63	6	34	38	456	32	22	283	16
Future Volume (vph)	45	14	108	63	6	34	38	456	32	22	283	16
Satd. Flow (prot)	1610	1479	0	1566	1454	0	1510	1635	0	1483	1633	1327
Fit Permitted	0.731			0.679			0.586			0.446		
Satd. Flow (perm)	1230	1479	0	1119	1454	0	930	1635	0	696	1633	1298
Satd. Flow (RTOR)		108			34			6				41
Lane Group Flow (vph)	45	122	0	63	40	0	38	488	0	22	283	16
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	29.5	29.5		29.5	29.5		29.0	29.0		29.0	29.0	29.0
Total Split (s)	33.5	33.5		33.5	33.5		59.0	59.0		59.0	59.0	59.0
Total Split (%)	36.2%	36.2%		36.2%	36.2%		63.8%	63.8%		63.8%	63.8%	63.8%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	3.5	3.5		3.5	3.5		2.7	2.7		2.7	2.7	2.7
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)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Ped	Ped		Ped	Ped	Ped
Act Effct Green (s)	12.2	12.2		12.2	12.2		29.7	29.7		29.7	29.7	29.7
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.60	0.60		0.60	0.60	0.60
v/c Ratio	0.15	0.27		0.23	0.10		0.07	0.50		0.05	0.29	0.02
Control Delay	16.3	6.7		17.7	7.8		8.2	11.3		8.3	9.0	1.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	16.3	6.7		17.7	7.8		8.2	11.3		8.3	9.0	1.1
LOS	B	A		B	A		A	B		A	A	A
Approach Delay		9.3			13.8			11.1			8.6	
Approach LOS		A			B			B			A	
Queue Length 50th (m)	2.9	0.9		4.2	0.4		1.4	23.9		0.8	11.9	0.0
Queue Length 95th (m)	10.2	10.8		13.3	6.0		7.1	71.5		4.9	37.1	1.1
Internal Link Dist (m)		217.6			205.7			888.7			682.0	
Turn Bay Length (m)	30.0			20.0			135.0			120.0		110.0
Base Capacity (vph)	686	873		625	826		889	1564		666	1562	1243
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.07	0.14		0.10	0.05		0.04	0.31		0.03	0.18	0.01

Intersection Summary												
Cycle Length: 92.5												
Actuated Cycle Length: 49.7												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.50												

Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2035 Future Total
AM Peak Hour

Intersection Signal Delay: 10.3	Intersection LOS: B
Intersection Capacity Utilization 67.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Stittsville Main & West Ridge/Parade



HCM 2010 AWSC
4: Huntley/Stittville Main & Flewellyn

2035 Future Total
AM Peak Hour

Intersection												
Intersection Delay, s/veh	36.3											
Intersection LOS	E											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↕			↕			↔		
Traffic Vol, veh/h	38	168	15	24	164	233	17	240	19	127	269	53
Future Vol, veh/h	38	168	15	24	164	233	17	240	19	127	269	53
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
Heavy Vehicles, %	2	4	2	2	2	3	18	10	2	3	5	2
Mvmt Flow	38	168	15	24	164	233	17	240	19	127	269	53
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	19.4			38.2			23.9			50.4		
HCM LOS	C			E			C			F		
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	6%	17%	6%	28%								
Vol Thru, %	87%	76%	39%	60%								
Vol Right, %	7%	7%	55%	12%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	276	221	421	449								
LT Vol	17	38	24	127								
Through Vol	240	168	164	269								
RT Vol	19	15	233	53								
Lane Flow Rate	276	221	421	449								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.624	0.504	0.843	0.918								
Departure Headway (Hd)	8.14	8.209	7.205	7.363								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	442	438	501	489								
Service Time	6.211	6.287	5.266	5.425								
HCM Lane V/C Ratio	0.624	0.505	0.84	0.918								
HCM Control Delay	23.9	19.4	38.2	50.4								
HCM Lane LOS	C	C	E	F								
HCM 95th-tile Q	4.1	2.8	8.6	10.7								

HCM 2010 TWSC
5: Edenwyld/Cope & Fernbank

2035 Future Total
AM Peak Hour

Intersection												
Int Delay, s/veh	19.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↕			↕			↔		
Traffic Vol, veh/h	26	520	13	43	390	67	23	5	125	87	9	34
Future Vol, veh/h	26	520	13	43	390	67	23	5	125	87	9	34
Conflicting Peds, #/hr	1	0	1	1	0	1	4	0	1	1	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	4	25	2	6	58	5	20	3	76	11	2
Mvmt Flow	26	520	13	43	390	67	23	5	125	87	9	34
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	458	0	0	534	0	0	1115	1124	529	1156	1097	429
Stage 1	-	-	-	-	-	-	580	580	-	511	511	-
Stage 2	-	-	-	-	-	-	535	544	-	645	586	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.15	6.7	6.23	7.86	6.61	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.7	-	6.86	5.61	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.7	-	6.86	5.61	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.545	4.18	3.327	4.184	4.099	3.318
Pot Cap-1 Maneuver	1103	-	-	1034	-	-	183	190	548	125	205	626
Stage 1	-	-	-	-	-	-	495	472	-	431	522	-
Stage 2	-	-	-	-	-	-	524	491	-	358	483	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1102	-	-	1033	-	-	158	177	547	90	191	624
Mov Cap-2 Maneuver	-	-	-	-	-	-	158	177	-	90	191	-
Stage 1	-	-	-	-	-	-	483	460	-	421	500	-
Stage 2	-	-	-	-	-	-	465	470	-	267	471	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.7			20.7			169.1		
HCM LOS	C			C			C			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	380	1102	-	-	1033	-	-	122				
HCM Lane V/C Ratio	0.403	0.024	-	-	0.042	-	-	1.066				
HCM Control Delay (s)	20.7	8.3	-	-	8.6	-	-	169.1				
HCM Lane LOS	C	A	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	1.9	0.1	-	-	0.1	-	-	7.5				

Lanes, Volumes, Timings
6: Shea & Abbott

2035 Future Total
AM Peak Hour

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	136	118	498	173	122	476
Future Volume (vph)	136	118	498	173	122	476
Satd. Flow (prot)	1545	0	1626	1745	1595	1455
Fit Permitted			0.602		0.950	
Satd. Flow (perm)	1545	0	1021	1745	1473	1416
Satd. Flow (RTOR)	96					476
Lane Group Flow (vph)	254	0	498	173	122	476
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2		6		6	
Permitted Phases			6		8	8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.4		23.4	23.4	25.3	25.3
Total Split (s)	63.0		63.0	63.0	27.0	27.0
Total Split (%)	70.0%		70.0%	70.0%	30.0%	30.0%
Yellow Time (s)	3.3		3.3	3.3	3.7	3.7
All-Red Time (s)	2.1		2.1	2.1	1.6	1.6
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4		5.4	5.4	5.3	5.3
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	65.3		65.3	65.3	14.0	14.0
Actuated g/C Ratio	0.73		0.73	0.73	0.16	0.16
v/c Ratio	0.22		0.67	0.14	0.54	0.77
Control Delay	3.5		13.9	4.8	42.7	12.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	3.5		13.9	4.8	42.7	12.2
LOS	A		B	A	D	B
Approach Delay	3.5			11.6	18.4	
Approach LOS	A			B	B	
Queue Length 50th (m)	6.5		35.7	7.1	20.0	0.0
Queue Length 95th (m)	19.3		#104.4	18.5	32.8	26.5
Internal Link Dist (m)	261.3			175.4	1348.0	
Turn Bay Length (m)			130.0		40.0	
Base Capacity (vph)	1147		741	1266	355	702
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.22		0.67	0.14	0.34	0.68

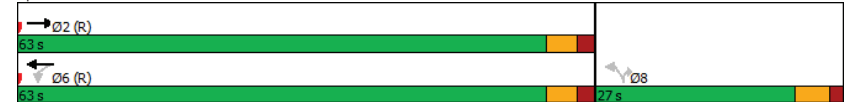
Intersection Summary	
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated

Lanes, Volumes, Timings
6: Shea & Abbott

2035 Future Total
AM Peak Hour

Maximum v/c Ratio: 0.77	Intersection LOS: B
Intersection Signal Delay: 12.9	ICU Level of Service C
Intersection Capacity Utilization 70.0%	
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 6: Shea & Abbott



HCM 2010 TWSC
8: Shea & Flewellyn

2035 Future Total
AM Peak Hour

Intersection												
Int Delay, s/veh	47.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	60	382	26	2	212	24	8	207	13	42	241	51
Future Vol, veh/h	60	382	26	2	212	24	8	207	13	42	241	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	2	4	2	2	12	13	5	2	2	3	8
Mvmt Flow	60	382	26	2	212	24	8	207	13	42	241	51
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	236	0	0	408	0	0	889	755	395	853	756	224
Stage 1	-	-	-	-	-	-	515	515	-	228	228	-
Stage 2	-	-	-	-	-	-	374	240	-	625	528	-
Critical Hdwy	4.17	-	-	4.12	-	-	7.23	6.55	6.22	7.12	6.53	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.55	-	6.12	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.55	-	6.12	5.53	-
Follow-up Hdwy	2.263	-	-	2.218	-	-	3.617	4.045	3.318	3.518	4.027	3.372
Pot Cap-1 Maneuver	1302	-	-	1151	-	-	252	334	654	279	336	801
Stage 1	-	-	-	-	-	-	523	530	-	775	714	-
Stage 2	-	-	-	-	-	-	625	701	-	473	526	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1302	-	-	1151	-	-	84	313	654	123	315	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	84	313	-	123	315	-
Stage 1	-	-	-	-	-	-	492	498	-	729	713	-
Stage 2	-	-	-	-	-	-	387	700	-	255	494	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.1			49.3			146.6		
HCM LOS	E			E			E			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	294	1302	-	-	1151	-	-	285				
HCM Lane V/C Ratio	0.776	0.046	-	-	0.002	-	-	1.172				
HCM Control Delay (s)	49.3	7.9	0	-	8.1	0	-	146.6				
HCM Lane LOS	E	A	A	-	A	A	-	F				
HCM 95th %tile Q(veh)	6	0.1	-	-	0	-	-	14.7				

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2035 Future Total
AM Peak Hour

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5	Ø8	Ø9
Lane Configurations	↔	↔	↔	↔	↔	↔					
Traffic Volume (vph)	55	633	395	169	208	65					
Future Volume (vph)	55	633	395	169	208	65					
Satd. Flow (prot)	1626	1664	1548	1401	1580	1401					
Fit Permitted	0.950										
Satd. Flow (perm)	1626	1664	1548	1368	1580	1401					
Satd. Flow (RTOR)	169										
Lane Group Flow (vph)	55	633	395	169	208	65					
Turn Type	Prot	NA	NA	custom	Perm	Perm					
Protected Phases	13	12	9	5	6		1	2	5	8	9
Permitted Phases							6	4	4		
Detector Phase	13	12	9	5	6		6	4	4		
Switch Phase											
Minimum Initial (s)	5.0		10.0		10.0	10.0	1.0	10.0	1.0	1.0	10.0
Minimum Split (s)	24.2		30.0		30.0	30.0	4.0	24.2	4.0	30.7	24.2
Total Split (s)	28.0		40.0		32.0	32.0	5.0	40.0	5.0	32.0	28.0
Total Split (%)	26.7%		38.1%		30.5%	30.5%	5%	38%	5%	30%	27%
Yellow Time (s)	4.6		4.6		3.3	3.3	2.0	4.6	2.0	3.3	4.6
All-Red Time (s)	1.6		1.6		2.7	2.7	0.0	1.6	0.0	2.7	1.6
Lost Time Adjust (s)	0.0		0.0		0.0	0.0					
Total Lost Time (s)	6.2		6.2		6.0	6.0					
Lead/Lag	Lead						Lag		Lag		Lead
Lead-Lag Optimize?	Yes						Yes		Yes		Yes
Recall Mode	None		Max		None	None	None	Max	None	None	None
Act Effct Green (s)	8.6	68.3	56.2	46.9	17.7	17.7					
Actuated g/C Ratio	0.09	0.73	0.60	0.50	0.19	0.19					
v/c Ratio	0.37	0.52	0.43	0.22	0.70	0.21					
Control Delay	49.1	8.4	14.7	3.8	49.2	9.9					
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0					
Total Delay	49.1	8.4	14.7	3.8	49.2	9.9					
LOS	D	A	B	A	D	A					
Approach Delay	11.6		11.4		39.8						
Approach LOS	B		B		D						
Queue Length 50th (m)	9.8	42.8	38.8	0.0	36.7	0.0					
Queue Length 95th (m)	22.4	88.1	78.7	12.2	59.9	10.3					
Internal Link Dist (m)	1197.5		448.1		313.2						
Turn Bay Length (m)	100.0		120.0		90.0						
Base Capacity (vph)	380	1202	923	766	440	437					
Starvation Cap Reductn	0	0	0	0	0	0					
Spillback Cap Reductn	0	0	0	0	0	0					
Storage Cap Reductn	0	0	0	0	0	0					
Reduced v/c Ratio	0.14	0.53	0.43	0.22	0.47	0.15					

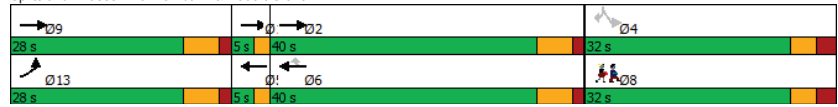
Intersection Summary											
Cycle Length: 105											
Actuated Cycle Length: 94.1											
Natural Cycle: 85											
Control Type: Actuated-Uncoordinated											
Maximum v/c Ratio: 0.70											

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2035 Future Total
AM Peak Hour

Intersection Signal Delay: 16.6 Intersection LOS: B
Intersection Capacity Utilization 55.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: Fernbank & Robert Grant



Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2035 Future Total
AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	101	570	242	4	333	96	211	338	7	81	315	68
Future Volume (vph)	101	570	242	4	333	96	211	338	7	81	315	68
Satd. Flow (prot)	1626	1745	1441	1353	1728	1375	1595	1722	0	1537	1695	1351
Fit Permitted	0.289			0.377			0.503			0.472		
Satd. Flow (perm)	490	1745	1411	537	1728	1314	845	1722	0	754	1695	1351
Satd. Flow (RTOR)			242			114		1				68
Lane Group Flow (vph)	101	570	242	4	333	96	211	345	0	81	315	68
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	pt+ov
Protected Phases	7	4			8			2				6.7
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	8	8	8	2	2		6	6	6.7
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	11.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2		24.2	24.2	
Total Split (s)	17.0	52.0	52.0	35.0	35.0	35.0	38.0	38.0		38.0	38.0	
Total Split (%)	18.9%	57.8%	57.8%	38.9%	38.9%	38.9%	42.2%	42.2%		42.2%	42.2%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.2	4.2		4.2	4.2	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2		6.2	6.2	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	37.1	37.1	37.1	24.5	24.5	24.5	40.5	40.5		40.5	40.5	55.6
Actuated g/C Ratio	0.41	0.41	0.41	0.27	0.27	0.27	0.45	0.45		0.45	0.45	0.62
v/c Ratio	0.32	0.79	0.33	0.03	0.71	0.22	0.56	0.44		0.24	0.41	0.08
Control Delay	17.4	31.1	3.1	23.0	38.6	4.6	28.3	21.3		20.8	20.9	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	17.4	31.1	3.1	23.0	38.6	4.6	28.3	21.3		20.8	20.9	2.8
LOS	B	C	A	C	D	A	C	C		C	C	A
Approach Delay		22.2			31.0		24.0				18.2	
Approach LOS		C			C		C				B	
Queue Length 50th (m)	10.5	82.4	0.0	0.5	53.5	0.0	26.3	40.2		8.5	36.2	0.0
Queue Length 95th (m)	16.8	102.6	10.8	2.8	75.5	7.9	#64.2	74.1		22.0	67.5	5.6
Internal Link Dist (m)		230.5			610.3			625.2			428.2	
Turn Bay Length (m)	85.0		100.0	120.0		120.0	110.0			125.0		135.0
Base Capacity (vph)	337	888	836	171	552	498	380	776		339	763	888
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.30	0.64	0.29	0.02	0.60	0.19	0.56	0.44		0.24	0.41	0.08

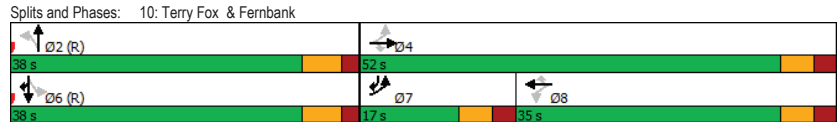
Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 69 (77%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2035 Future Total
AM Peak Hour

Maximum v/c Ratio: 0.79	Intersection LOS: C
Intersection Signal Delay: 23.4	ICU Level of Service E
Intersection Capacity Utilization 90.5%	
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	



HCM 2010 TWSC
12: Shea & Street 21

2035 Future Total
AM Peak Hour

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	45	14	6	298	323	19
Future Vol, veh/h	45	14	6	298	323	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	14	6	298	323	19

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	643	333	342
Stage 1	333	-	-
Stage 2	310	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	438	709	1217
Stage 1	726	-	-
Stage 2	744	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	435	709	1217
Mov Cap-2 Maneuver	435	-	-
Stage 1	722	-	-
Stage 2	744	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1217	-	479	-
HCM Lane V/C Ratio	0.005	-	0.123	-
HCM Control Delay (s)	8	0	13.6	-
HCM Lane LOS	A	A	B	-
HCM 95th %tile Q(veh)	0	-	0.4	-

HCM 2010 TWSC
13: Flewellyn & Street 19

2035 Future Total
AM Peak Hour

Intersection						
Int Delay, s/veh	6.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	56	329	213	57	139	137
Future Vol, veh/h	56	329	213	57	139	137
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	56	329	213	57	139	137

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	270	0	0	683	242
Stage 1	-	-	-	242	-
Stage 2	-	-	-	441	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2,218	-	-	3,518	3,318
Pot Cap-1 Maneuver	1293	-	-	415	797
Stage 1	-	-	-	798	-
Stage 2	-	-	-	648	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1293	-	-	393	797
Mov Cap-2 Maneuver	-	-	-	393	-
Stage 1	-	-	-	756	-
Stage 2	-	-	-	648	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	19.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1293	-	-	-	525
HCM Lane V/C Ratio	0.043	-	-	-	0.526
HCM Control Delay (s)	7.9	0	-	-	19.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	3

HCM 2010 TWSC
14: Flewellyn & Street 7

2035 Future Total
AM Peak Hour

Intersection						
Int Delay, s/veh	5.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	52	267	298	52	118	114
Future Vol, veh/h	52	267	298	52	118	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	52	267	298	52	118	114

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	350	0	0	695	324
Stage 1	-	-	-	324	-
Stage 2	-	-	-	371	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2,218	-	-	3,518	3,318
Pot Cap-1 Maneuver	1209	-	-	408	717
Stage 1	-	-	-	733	-
Stage 2	-	-	-	698	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1209	-	-	387	717
Mov Cap-2 Maneuver	-	-	-	387	-
Stage 1	-	-	-	696	-
Stage 2	-	-	-	698	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	18.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1209	-	-	-	500
HCM Lane V/C Ratio	0.043	-	-	-	0.464
HCM Control Delay (s)	8.1	0	-	-	18.3
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	2.4

HCM 2010 TWSC
15: Shea & Street 22

2035 Future Total
AM Peak Hour

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	14	4	2	290	331	6
Future Vol, veh/h	14	4	2	290	331	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	4	2	290	331	6

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	628	334	337
Stage 1	334	-	-
Stage 2	294	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	447	708	1222
Stage 1	725	-	-
Stage 2	756	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	446	708	1222
Mov Cap-2 Maneuver	446	-	-
Stage 1	724	-	-
Stage 2	756	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1222	-	486	-	-
HCM Lane V/C Ratio	0.002	-	0.037	-	-
HCM Control Delay (s)	8	0	12.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 2010 TWSC
18: Shea & Cosanti

2035 Future Total
AM Peak Hour

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	43	21	6	337	321	12
Future Vol, veh/h	43	21	6	337	321	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	5	3	2
Mvmt Flow	43	21	6	337	321	12

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	676	327	333
Stage 1	327	-	-
Stage 2	349	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	419	714	1226
Stage 1	731	-	-
Stage 2	714	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	416	714	1226
Mov Cap-2 Maneuver	416	-	-
Stage 1	727	-	-
Stage 2	714	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1226	-	482	-	-
HCM Lane V/C Ratio	0.005	-	0.133	-	-
HCM Control Delay (s)	8	0	13.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

MOVEMENT SUMMARY

Site: 101 [Fernbank at Shea FT2035 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
		[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
		veh/h	%	veh/h	%	v/c	sec			veh	m			km/h
South: Shea														
1	L2	All MCs	18 6.0	18 6.0	0.730	27.2	LOS D	5.5	40.5	0.88	1.07	1.62	38.8	
2	T1	All MCs	277 5.0	277 5.0	0.730	27.0	LOS D	5.5	40.5	0.88	1.07	1.62	39.3	
3	R2	All MCs	92 13.0	92 13.0	0.730	28.7	LOS D	5.5	40.5	0.88	1.07	1.62	39.0	
Approach			387 6.9	387 6.9	0.730	27.4	LOS D	5.5	40.5	0.88	1.07	1.62	39.2	
East: Fernbank														
4	L2	All MCs	87 5.0	87 5.0	0.631	16.7	LOS C	5.3	38.6	0.82	0.89	1.36	43.4	
5	T1	All MCs	285 4.0	285 4.0	0.631	16.6	LOS C	5.3	38.6	0.82	0.89	1.36	44.1	
6	R2	All MCs	75 2.0	75 2.0	0.631	16.3	LOS C	5.3	38.6	0.82	0.89	1.36	43.9	
Approach			447 3.9	447 3.9	0.631	16.6	LOS C	5.3	38.6	0.82	0.89	1.36	43.9	
North: Shea														
7	L2	All MCs	131 4.0	131 4.0	0.675	15.5	LOS C	8.1	59.3	0.82	0.83	1.36	43.8	
8	T1	All MCs	239 7.0	239 7.0	0.675	15.7	LOS C	8.1	59.3	0.82	0.83	1.36	44.4	
9	R2	All MCs	222 5.0	222 5.0	0.675	15.5	LOS C	8.1	59.3	0.82	0.83	1.36	44.2	
Approach			592 5.6	592 5.6	0.675	15.6	LOS C	8.1	59.3	0.82	0.83	1.36	44.2	
West: Fernbank														
10	L2	All MCs	305 4.0	305 4.0	0.892	36.0	LOS E	21.7	156.4	1.00	1.57	2.82	35.2	
11	T1	All MCs	401 3.0	401 3.0	0.892	35.9	LOS E	21.7	156.4	1.00	1.57	2.82	35.6	
12	R2	All MCs	33 3.0	33 3.0	0.892	35.9	LOS E	21.7	156.4	1.00	1.57	2.82	35.4	
Approach			739 3.4	739 3.4	0.892	35.9	LOS E	21.7	156.4	1.00	1.57	2.82	35.4	
All Vehicles			2165 4.7	2165 4.7	0.892	24.8	LOS C	21.7	156.4	0.89	1.14	1.91	39.9	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Report\Sidra - W-4 Report\2021-128 Shea Road at Fernbank Road - 2024-12-13.sip9

MOVEMENT SUMMARY

Site: 101 [Eagleson at Flewellyn FT2035 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
		[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
		veh/h	%	veh/h	%	v/c	sec			veh	m			km/h
South: Eagleson														
1	L2	All MCs	10 2.0	10 2.0	0.580	12.5	LOS B	5.2	37.6	0.75	0.68	1.09	53.5	
2	T1	All MCs	491 4.0	491 4.0	0.580	12.7	LOS B	5.2	37.6	0.75	0.68	1.09	54.2	
Approach			501 4.0	501 4.0	0.580	12.7	LOS B	5.2	37.6	0.75	0.68	1.09	54.2	
North: Eagleson														
8	T1	All MCs	455 6.0	455 6.0	0.514	6.8	LOS A	4.3	31.3	0.12	0.02	0.12	59.0	
9	R2	All MCs	229 4.0	229 4.0	0.514	6.7	LOS A	4.3	31.3	0.12	0.02	0.12	58.9	
Approach			684 5.3	684 5.3	0.514	6.8	LOS A	4.3	31.3	0.12	0.02	0.12	58.9	
West: Flewellyn														
10	L2	All MCs	420 3.0	420 3.0	0.525	11.6	LOS B	4.0	29.0	0.72	0.65	1.01	50.9	
12	R2	All MCs	17 6.0	17 6.0	0.525	11.9	LOS B	4.0	29.0	0.72	0.65	1.01	51.0	
Approach			437 3.1	437 3.1	0.525	11.6	LOS B	4.0	29.0	0.72	0.65	1.01	50.9	
All Vehicles			1622 4.3	1622 4.3	0.580	9.9	LOS A	5.2	37.6	0.47	0.39	0.66	55.1	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Report\Sidra - W-4 Report\2021-128 Shea Road at Fernbank Road - 2024-12-13.sip9

MOVEMENT SUMMARY

Site: 101 [Terry Fox or Eagleson Road FT2035 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance													
Mov ID	Turn Class	Demand Flows [Total HV]	Arrival Flows [Total HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
							v/c	sec					[Veh.]
South: Eagleson													
1	L2	All MCs	215 5.0	215 5.0	0.531	12.1	LOS B	3.8	27.3	0.69	0.66	1.01	52.0
2	T1	All MCs	499 2.0	499 2.0	0.531	11.4	LOS B	3.8	27.4	0.68	0.64	0.99	55.2
3	R2	All MCs	197 2.0	197 2.0	0.531	11.1	LOS B	3.8	27.4	0.67	0.63	0.97	55.8
Approach			911 2.7	911 2.7	0.531	11.5	LOS B	3.8	27.4	0.68	0.64	0.99	54.5
East: Terry Fox													
4	L2	All MCs	110 4.0	110 4.0	0.344	10.1	LOS B	1.5	10.7	0.65	0.62	0.74	53.8
5	T1	All MCs	274 2.0	274 2.0	0.344	9.4	LOS A	1.5	10.7	0.64	0.60	0.72	56.9
6	R2	All MCs	101 3.0	101 3.0	0.344	9.2	LOS A	1.5	10.6	0.63	0.59	0.71	57.3
Approach			485 2.7	485 2.7	0.344	9.5	LOS A	1.5	10.7	0.64	0.60	0.72	56.2
North: Eagleson													
7	L2	All MCs	141 2.0	141 2.0	0.317	8.6	LOS A	1.3	9.4	0.61	0.52	0.61	54.8
8	T1	All MCs	358 2.0	358 2.0	0.317	8.1	LOS A	1.3	9.4	0.59	0.51	0.59	58.3
9	R2	All MCs	3 2.0	3 2.0	0.317	7.9	LOS A	1.3	9.3	0.59	0.50	0.59	58.6
Approach			502 2.0	502 2.0	0.317	8.2	LOS A	1.3	9.4	0.60	0.51	0.60	57.3
West: Terry Fox													
10	L2	All MCs	7 2.0	7 2.0	0.363	9.3	LOS A	1.7	11.9	0.63	0.57	0.71	56.6
11	T1	All MCs	359 2.0	359 2.0	0.363	9.1	LOS A	1.7	11.9	0.63	0.56	0.70	58.0
12	R2	All MCs	195 7.0	195 7.0	0.363	9.0	LOS A	1.6	11.8	0.61	0.54	0.68	56.6
Approach			561 3.7	561 3.7	0.363	9.1	LOS A	1.7	11.9	0.62	0.55	0.69	57.5
All Vehicles			2459 2.8	2459 2.8	0.531	9.9	LOS A	3.8	27.4	0.64	0.59	0.79	56.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: C:\Users\MichelleChen\CGH TRANSPORTATION\CGH Active Projects - Documents\2021\2021-128 Caivan Fwelytyn\DATA\W-4 Report\Sidra - W-4 Report\2021-128 W-4 Lands - 2024-12-17.sip9

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2035 Future Total
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	39	54	32	69	68	137	25	748	83	135	894	45
Traffic Volume (vph)	39	54	32	69	68	137	25	748	83	135	894	45
Future Volume (vph)	39	54	32	69	68	137	25	748	83	135	894	45
Satd. Flow (prot)	1610	1574	0	1658	1532	0	1658	1712	1414	1658	1730	0
Fit Permitted	0.454			0.701			0.204			0.303		
Satd. Flow (perm)	765	1574	0	1177	1532	0	356	1712	1358	527	1730	0
Satd. Flow (RTOR)		32			116				34		5	
Lane Group Flow (vph)	39	86	0	69	205	0	25	748	83	135	939	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		6		
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	28.3	28.3		28.3	28.3		30.2	30.2	30.2	30.2	30.2	
Total Split (s)	33.0	33.0		33.0	33.0		57.0	57.0	57.0	57.0	57.0	
Total Split (%)	36.7%	36.7%		36.7%	36.7%		63.3%	63.3%	63.3%	63.3%	63.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.9	1.9	1.9	1.9	1.9	
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)	5.3	5.3		5.3	5.3		5.2	5.2	5.2	5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	15.4	15.4		15.4	15.4		64.1	64.1	64.1	64.1	64.1	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.71	0.71	0.71	0.71	0.71	
v/c Ratio	0.30	0.29		0.34	0.57		0.10	0.61	0.08	0.36	0.76	
Control Delay	35.9	22.3		35.3	20.7		7.1	10.8	3.9	10.1	15.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	35.9	22.3		35.3	20.7		7.1	10.8	3.9	10.1	15.5	
LOS	D	C		D	C		A	B	A	B	B	
Approach Delay	26.6			24.4			10.0			14.8		
Approach LOS	C			C			B			B		
Queue Length 50th (m)	6.3	8.6		11.3	14.6		0.9	43.5	1.7	6.0	66.9	
Queue Length 95th (m)	13.8	18.6		20.5	31.2		5.0	118.5	8.1	23.7	#213.7	
Internal Link Dist (m)	510.2			520.3			308.9			352.8		
Turn Bay Length (m)	25.0			23.0			15.0			23.5		
Base Capacity (vph)	235		506	362		551	253		1219	977		1233
Starvation Cap Reductn	0		0	0		0	0		0	0		0
Spillback Cap Reductn	0		0	0		0	0		0	0		0
Storage Cap Reductn	0		0	0		0	0		0	0		0
Reduced v/c Ratio	0.17	0.17		0.19	0.37		0.10	0.61	0.08	0.36	0.76	

Intersection Summary												
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 9 (10%), Referenced to phase 2:NBL and 6:SBTL, Start of Green												
Natural Cycle: 80												
Control Type: Actuated-Coordinated												

Lanes, Volumes, Timings
1: Stittsville Main & Abbott

2035 Future Total
PM Peak Hour

Maximum v/c Ratio: 0.76	Intersection LOS: B
Intersection Signal Delay: 14.8	ICU Level of Service G
Intersection Capacity Utilization 100.7%	
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Stittsville Main & Abbott



Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2035 Future Total
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	[Diagrammatic arrows for lane configurations]											
Traffic Volume (vph)	20	204	10	40	150	78	4	497	51	43	583	32
Future Volume (vph)	20	204	10	40	150	78	4	497	51	43	583	32
Satd. Flow (prot)	1470	1709	0	1523	1664	1483	1353	1687	0	1551	1692	0
Fit Permitted	0.662			0.624			0.304			0.364		
Satd. Flow (perm)	1019	1709	0	997	1664	1444	433	1687	0	594	1692	0
Satd. Flow (RTOR)		3				78		9			5	
Lane Group Flow (vph)	20	214	0	40	150	78	4	548	0	43	615	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.6	26.6		26.6	26.6	26.6	24.9	24.9		24.9	24.9	
Total Split (s)	34.6	34.6		34.6	34.6	34.6	46.9	46.9		46.9	46.9	
Total Split (%)	42.5%	42.5%		42.5%	42.5%	42.5%	57.5%	57.5%		57.5%	57.5%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.3	3.3		3.3	3.3	
All-Red Time (s)	4.6	4.6		4.6	4.6	4.6	3.6	3.6		3.6	3.6	
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)	7.6	7.6		7.6	7.6	7.6	6.9	6.9		6.9	6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Ped	Ped		Ped	Ped	
Act Effct Green (s)	13.2	13.2		13.2	13.2	13.2	25.3	25.3		25.3	25.3	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.25	0.47	0.47		0.47	0.47	
v/c Ratio	0.08	0.51		0.16	0.37	0.19	0.02	0.69		0.15	0.77	
Control Delay	19.4	23.6		20.3	21.6	7.0	8.0	16.0		9.8	19.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	19.4	23.6		20.3	21.6	7.0	8.0	16.0		9.8	19.2	
LOS	B	C		C	C	A	A	B		A	B	
Approach Delay		23.2			17.1			16.0			18.6	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	1.3	15.9		2.8	10.9	0.0	0.2	34.6		2.0	41.6	
Queue Length 95th (m)	7.0	43.7		11.7	31.8	9.0	1.5	75.6		7.6	91.0	
Internal Link Dist (m)		229.8			252.5			682.0			279.7	
Turn Bay Length (m)	40.0			75.0		55.0	70.0			110.0		
Base Capacity (vph)	535	899		524	874	796	337	1315		462	1318	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.04	0.24		0.08	0.17	0.10	0.01	0.42		0.09	0.47	

Intersection Summary

Cycle Length: 81.5
Actuated Cycle Length: 53.6
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77

Lanes, Volumes, Timings
2: Stittsville Main & Fernbank

2035 Future Total
PM Peak Hour

Intersection Signal Delay: 18.2 Intersection LOS: B
Intersection Capacity Utilization 76.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Stittsville Main & Fernbank



Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2035 Future Total
PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	32	21	41	34	32	61	79	403	37	52	499	48
Future Volume (vph)	32	21	41	34	32	61	79	403	37	52	499	48
Satd. Flow (prot)	1580	1494	0	1470	1527	0	1658	1707	0	1658	1728	1441
Fit Permitted	0.697			0.717			0.437			0.485		
Satd. Flow (perm)	1139	1494	0	1102	1527	0	761	1707	0	846	1728	1404
Satd. Flow (RTOR)		41			61			8				48
Lane Group Flow (vph)	32	62	0	34	93	0	79	440	0	52	499	48
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)	29.5	29.5		29.5	29.5		29.0	29.0		29.0	29.0	29.0
Total Split (s)	33.5	33.5		33.5	33.5		59.0	59.0		59.0	59.0	59.0
Total Split (%)	36.2%	36.2%		36.2%	36.2%		63.8%	63.8%		63.8%	63.8%	63.8%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	3.5	3.5		3.5	3.5		2.7	2.7		2.7	2.7	2.7
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)	6.5	6.5		6.5	6.5		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Ped	Ped		Ped	Ped	Ped
Act Effct Green (s)	12.2	12.2		12.2	12.2		30.0	30.0		30.0	30.0	30.0
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.60	0.60		0.60	0.60	0.60
v/c Ratio	0.12	0.16		0.13	0.22		0.17	0.43		0.10	0.48	0.06
Control Delay	15.8	8.8		15.9	8.7		9.4	10.2		8.6	11.0	3.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	15.8	8.8		15.9	8.7		9.4	10.2		8.6	11.0	3.3
LOS	B	A		B	A		A	B		A	B	A
Approach Delay		11.2			10.7			10.1			10.2	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	2.1	1.3		2.2	2.0		3.1	20.2		1.9	24.5	0.0
Queue Length 95th (m)	7.7	8.5		8.2	11.1		13.4	60.6		9.2	72.0	4.7
Internal Link Dist (m)		206.7			174.8			888.7			682.0	
Turn Bay Length (m)	30.0			20.0			135.0			120.0		110.0
Base Capacity (vph)	630	845		609	872		730	1638		812	1658	1349
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.05	0.07		0.06	0.11		0.11	0.27		0.06	0.30	0.04

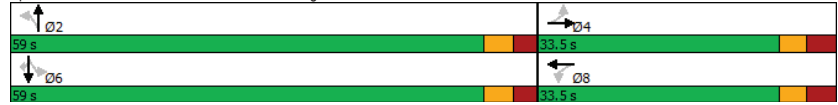
Intersection Summary
Cycle Length: 92.5
Actuated Cycle Length: 49.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.48

Lanes, Volumes, Timings
3: Stittsville Main & West Ridge/Parade

2035 Future Total
PM Peak Hour

Intersection Signal Delay: 10.3	Intersection LOS: B
Intersection Capacity Utilization 63.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Stittsville Main & West Ridge/Parade



HCM 2010 AWSC
4: Huntley/Stittsville Main & Flewellyn

2035 Future Total
PM Peak Hour

Intersection	
Intersection Delay, s/veh	66.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	44	149	14	19	201	215	27	245	31	231	281	47
Future Vol, veh/h	44	149	14	19	201	215	27	245	31	231	281	47
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
Heavy Vehicles, %	2	2	7	2	2	2	4	2	7	2	2	2
Mvmt Flow	44	149	14	19	201	215	27	245	31	231	281	47
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	20.4	46.7	27	120.9
HCM LOS	C	E	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	21%	4%	41%
Vol Thru, %	81%	72%	46%	50%
Vol Right, %	10%	7%	49%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	303	207	435	559
LT Vol	27	44	19	231
Through Vol	245	149	201	281
RT Vol	31	14	215	47
Lane Flow Rate	303	207	435	559
Geometry Grp	1	1	1	1
Degree of Util (X)	0.67	0.486	0.886	1.165
Departure Headway (Hd)	8.465	9.104	7.851	7.503
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	430	400	465	481
Service Time	6.465	7.104	5.851	5.596
HCM Lane V/C Ratio	0.705	0.517	0.935	1.162
HCM Control Delay	27	20.4	46.7	120.9
HCM Lane LOS	D	C	E	F
HCM 95th-tile Q	4.8	2.6	9.5	20.1

Intersection												
Int Delay, s/veh	13.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗		↖ ↗		↖ ↗		↖ ↗		↖ ↗		↖ ↗	
Traffic Vol, veh/h	22	513	50	128	482	71	26	2	80	70	1	35
Future Vol, veh/h	22	513	50	128	482	71	26	2	80	70	1	35
Conflicting Peds, #/hr	1	0	2	2	0	1	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	3	2	2	3	83	13	2	2	22	2	7
Mvmt Flow	22	513	50	128	482	71	26	2	80	70	1	35
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	554	0	0	565	0	0	1376	1394	541	1399	1384	519
Stage 1	-	-	-	-	-	-	584	584	-	775	775	-
Stage 2	-	-	-	-	-	-	792	810	-	624	609	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.23	6.52	6.22	7.32	6.52	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.52	-	6.32	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.52	-	6.32	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.617	4.018	3.318	3.698	4.018	3.363
Pot Cap-1 Maneuver	1016	-	-	1007	-	-	116	141	541	107	143	547
Stage 1	-	-	-	-	-	-	479	498	-	362	408	-
Stage 2	-	-	-	-	-	-	367	393	-	441	485	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1015	-	-	1005	-	-	96	120	540	80	122	547
Mov Cap-2 Maneuver	-	-	-	-	-	-	96	120	-	80	122	-
Stage 1	-	-	-	-	-	-	468	486	-	354	356	-
Stage 2	-	-	-	-	-	-	299	343	-	366	473	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	0.3		1.7		30.3		142.7					
HCM LOS	D		D		D		F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	248	1015	-	-	1005	-	-	112				
HCM Lane V/C Ratio	0.435	0.022	-	-	0.127	-	-	0.946				
HCM Control Delay (s)	30.3	8.6	-	-	9.1	-	-	142.7				
HCM Lane LOS	D	A	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	2.1	0.1	-	-	0.4	-	-	5.9				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↖ ↗		↖ ↗		↖ ↗	
Traffic Volume (vph)	167	104	542	154	153	446
Future Volume (vph)	167	104	542	154	153	446
Satd. Flow (prot)	1654	0	1658	1745	1658	1469
Fit Permitted			0.593		0.950	
Satd. Flow (perm)	1654	0	1035	1745	1639	1469
Satd. Flow (RTOR)	72		446		446	
Lane Group Flow (vph)	271	0	542	154	153	446
Turn Type	NA		Perm		NA Perm Perm	
Protected Phases	2		6		8	
Permitted Phases			6		8 8	
Detector Phase	2		6		6 8 8	
Switch Phase						
Minimum Initial (s)	10.0		10.0		10.0 10.0	
Minimum Split (s)	27.4		23.4		23.4 25.3 25.3	
Total Split (s)	64.4		64.4		64.4 25.6 25.6	
Total Split (%)	71.6%		71.6%		71.6% 28.4% 28.4%	
Yellow Time (s)	3.3		3.3		3.3 3.7 3.7	
All-Red Time (s)	2.1		2.1		2.1 1.6 1.6	
Lost Time Adjust (s)	0.0		0.0		0.0 0.0 0.0	
Total Lost Time (s)	5.4		5.4		5.4 5.3 5.3	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max		C-Max None None	
Act Effct Green (s)	65.1		65.1		14.2 14.2	
Actuated g/C Ratio	0.72		0.72		0.72 0.16 0.16	
v/c Ratio	0.22		0.72		0.12 0.59 0.73	
Control Delay	3.9		16.0		4.7 44.0 11.2	
Queue Delay	0.0		0.0		0.0 0.0 0.0	
Total Delay	3.9		16.0		4.7 44.0 11.2	
LOS	A		B		A D B	
Approach Delay	3.9		13.5		19.6	
Approach LOS	A		B		B	
Queue Length 50th (m)	8.7		44.0		6.5 25.1 0.0	
Queue Length 95th (m)	21.5		#133.3		15.8 40.4 25.3	
Internal Link Dist (m)	261.3		151.6		1348.0	
Turn Bay Length (m)			130.0		40.0	
Base Capacity (vph)	1216		748		1261 369 676	
Starvation Cap Reductn	0		0		0 0 0	
Spillback Cap Reductn	0		0		0 0 0	
Storage Cap Reductn	0		0		0 0 0	
Reduced v/c Ratio	0.22		0.72		0.12 0.41 0.66	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Lanes, Volumes, Timings
6: Shea & Abbott

2035 Future Total
PM Peak Hour

Maximum v/c Ratio: 0.73	Intersection Signal Delay: 14.2	Intersection LOS: B
Intersection Capacity Utilization 70.0%	ICU Level of Service C	
Analysis Period (min) 15		
# 95th percentile volume exceeds capacity, queue may be longer.		
Queue shown is maximum after two cycles.		

Splits and Phases: 6: Shea & Abbott



HCM 2010 TWSC
8: Shea & Flewellyn

2035 Future Total
PM Peak Hour

Intersection												
Int Delay, s/veh	319.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	59	299	11	2	415	50	16	260	17	27	285	71
Future Vol, veh/h	59	299	11	2	415	50	16	260	17	27	285	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	5	2	18	2	2	2	6	2	6	2	2	3
Mvmt Flow	59	299	11	2	415	50	16	260	17	27	285	71

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	465	0	310	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.15	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2,245	-	2,218	-
Pot Cap-1 Maneuver	1081	-	1250	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1081	-	1250	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0		\$ 1260.1
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1081	-	-	1250	-	-	106
HCM Lane V/C Ratio	-	0.055	-	-	0.002	-	-	3.613
HCM Control Delay (s)	-	8.5	0	-	7.9	0		\$ 1260.1
HCM Lane LOS	-	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	-	0.2	-	-	0	-	-	38.4

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2035 Future Total
PM Peak Hour

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5	Ø8	Ø9
Lane Configurations	↔	↕	↕	↕	↕	↕					
Traffic Volume (vph)	66	704	756	201	218	88					
Future Volume (vph)	66	704	756	201	218	88					
Satd. Flow (prot)	1658	1712	1728	1469	1610	1388					
Fit Permitted	0.950				0.950						
Satd. Flow (perm)	1658	1712	1728	1469	1610	1388					
Satd. Flow (RTOR)				201		88					
Lane Group Flow (vph)	66	704	756	201	218	88					
Turn Type	Prot	NA	NA	custom	Perm	Perm					
Protected Phases	13	1 2 9	5 6				1	2	5	8	9
Permitted Phases				6	4	4					
Detector Phase	13	1 2 9	5 6	6	4	4					
Switch Phase											
Minimum Initial (s)	5.0			10.0	10.0	10.0	1.0	10.0	1.0	1.0	10.0
Minimum Split (s)	24.2			24.2	30.0	30.0	4.0	24.2	4.0	30.0	24.2
Total Split (s)	28.0			40.0	32.0	32.0	5.0	40.0	5.0	32.0	28.0
Total Split (%)	26.7%			38.1%	30.5%	30.5%	5%	38%	5%	30%	27%
Yellow Time (s)	4.6			4.6	3.3	3.3	2.0	4.6	2.0	3.3	4.6
All-Red Time (s)	1.6			1.6	2.7	2.7	0.0	1.6	0.0	2.7	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0					
Total Lost Time (s)	6.2			6.2	6.0	6.0					
Lead/Lag	Lead						Lag	Lag	Lead		
Lead-Lag Optimize?	Yes						Yes	Yes	Yes	Yes	
Recall Mode	None			Max	None	None	None	Max	None	None	None
Act Effct Green (s)	9.2	68.9	56.3	47.0	18.1	18.1					
Actuated g/C Ratio	0.10	0.72	0.59	0.49	0.19	0.19					
v/c Ratio	0.41	0.57	0.74	0.24	0.71	0.26					
Control Delay	49.9	9.1	23.2	3.6	49.7	9.2					
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0					
Total Delay	49.9	9.1	23.2	3.6	49.7	9.2					
LOS	D	A	C	A	D	A					
Approach Delay		12.6	19.1		38.1						
Approach LOS		B	B		D						
Queue Length 50th (m)	11.9	51.1	101.1	0.0	38.9	0.0					
Queue Length 95th (m)	25.6	103.1	#211.3	13.3	62.6	11.7					
Internal Link Dist (m)		1197.5	448.1		313.2						
Turn Bay Length (m)	100.0			120.0	90.0						
Base Capacity (vph)	382	1241	1022	827	443	445					
Starvation Cap Reductn	0	0	0	0	0	0					
Spillback Cap Reductn	0	0	0	0	0	0					
Storage Cap Reductn	0	0	0	0	0	0					
Reduced v/c Ratio	0.17	0.57	0.74	0.24	0.49	0.20					

Intersection Summary

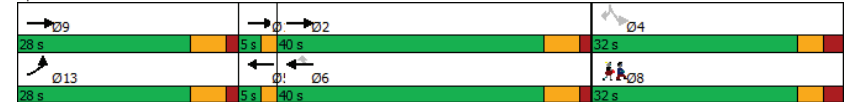
Cycle Length: 105
Actuated Cycle Length: 95.1
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74

Lanes, Volumes, Timings
9: Fernbank & Robert Grant

2035 Future Total
PM Peak Hour

Intersection Signal Delay: 19.5
Intersection Capacity Utilization 72.4%
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: Fernbank & Robert Grant



Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2035 Future Total
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	136	580	200	4	635	100	362	489	17	119	396	98
Future Volume (vph)	136	580	200	4	635	100	362	489	17	119	396	98
Satd. Flow (prot)	1658	1745	1483	1658	1745	1401	1658	1734	0	1610	1745	1483
Fit Permitted	0.114			0.286			0.183			0.478		
Satd. Flow (perm)	199	1745	1432	497	1745	1309	318	1734	0	801	1745	1483
Satd. Flow (RTOR)			200			155			2			93
Lane Group Flow (vph)	136	580	200	4	635	100	362	506	0	119	396	98
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	NA	pt+ov	
Protected Phases	7	4			8		5	2			6	6.7
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	8	8	8	5	2		6	6	6.7
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0		10.0	10.0	
Minimum Split (s)	11.2	33.2	33.2	33.2	33.2	33.2	11.2	29.2		29.2	29.2	
Total Split (s)	15.0	50.0	50.0	35.0	35.0	35.0	25.0	60.0		35.0	35.0	
Total Split (%)	13.6%	45.5%	45.5%	31.8%	31.8%	31.8%	22.7%	54.5%		31.8%	31.8%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.2	4.2		4.2	4.2	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2		6.2	6.2	
Lead/Lag	Lead			Lag	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes			Yes	Yes	
Recall Mode	None	None	None	None	None	None	C-Max			C-Max	C-Max	
Act Effct Green (s)	43.8	43.8	43.8	28.9	28.9	28.9	53.8	53.8		28.8	28.8	43.7
Actuated g/C Ratio	0.40	0.40	0.40	0.26	0.26	0.26	0.49	0.49		0.26	0.26	0.40
v/c Ratio	0.70	0.84	0.29	0.03	1.39	0.22	0.94	0.60		0.57	0.87	0.15
Control Delay	42.4	42.3	4.2	31.2	221.5	2.2	58.0	23.8		47.5	59.3	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	42.4	42.3	4.2	31.2	221.5	2.2	58.0	23.8		47.5	59.3	5.5
LOS	D	D	A	C	F	A	E	C		D	E	A
Approach Delay		34.0			190.8		38.1			48.4		
Approach LOS		C			F		D			D		
Queue Length 50th (m)	18.9	110.5	0.0	0.6	~182.0	0.0	53.2	75.5		22.2	81.4	0.7
Queue Length 95th (m)	#40.6	#169.5	13.7	3.5	#249.2	3.2	#109.3	108.8		42.3	#132.8	10.6
Internal Link Dist (m)		330.2			610.3		613.8				359.0	
Turn Bay Length (m)	85.0		100.0	120.0		120.0	110.0			125.0		135.0
Base Capacity (vph)	195	694	690	130	457	458	384	849		209	456	646
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.70	0.84	0.29	0.03	1.39	0.22	0.94	0.60		0.57	0.87	0.15

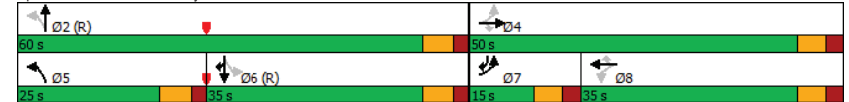
Intersection Summary												
Cycle Length: 110												
Actuated Cycle Length: 110												
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SRTL, Start of Green												
Natural Cycle: 135												
Control Type: Actuated-Coordinated												

Lanes, Volumes, Timings
10: Terry Fox & Fernbank

2035 Future Total
PM Peak Hour

Maximum v/c Ratio: 1.39	Intersection LOS: E
Intersection Signal Delay: 74.9	ICU Level of Service G
Intersection Capacity Utilization 107.1%	
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Spits and Phases: 10: Terry Fox & Fernbank



HCM 2010 TWSC
12: Shea & Street 21

2035 Future Total
PM Peak Hour

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	32	10	14	362	383	43
Future Vol, veh/h	32	10	14	362	383	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	10	14	362	383	43
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	795	405	426	0	-	0
Stage 1	405	-	-	-	-	-
Stage 2	390	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	357	646	1133	-	-	-
Stage 1	673	-	-	-	-	-
Stage 2	684	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	352	646	1133	-	-	-
Mov Cap-2 Maneuver	352	-	-	-	-	-
Stage 1	663	-	-	-	-	-
Stage 2	684	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	15.2	0.3	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1133	-	395	-	-	
HCM Lane V/C Ratio	0.012	-	0.106	-	-	
HCM Control Delay (s)	8.2	0	15.2	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0	-	0.4	-	-	

HCM 2010 TWSC
13: Flewellyn & Street 19

2035 Future Total
PM Peak Hour

Intersection						
Int Delay, s/veh	5.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↕		↕		↔	
Traffic Vol, veh/h	123	271	373	129	98	97
Future Vol, veh/h	123	271	373	129	98	97
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	123	271	373	129	98	97
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	502	0	0	955	438	
Stage 1	-	-	-	438	-	
Stage 2	-	-	-	517	-	
Critical Hdwy	4.12	-	-	6.42	6.22	
Critical Hdwy Stg 1	-	-	-	5.42	-	
Critical Hdwy Stg 2	-	-	-	5.42	-	
Follow-up Hdwy	2.218	-	-	3.518	3.318	
Pot Cap-1 Maneuver	1062	-	-	287	619	
Stage 1	-	-	-	651	-	
Stage 2	-	-	-	598	-	
Platoon blocked, %	-	-	-	-	-	
Mov Cap-1 Maneuver	1062	-	-	248	619	
Mov Cap-2 Maneuver	-	-	-	248	-	
Stage 1	-	-	-	562	-	
Stage 2	-	-	-	598	-	
Approach	EB	WB	SB			
HCM Control Delay, s	2.8	0	27.1			
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1062	-	-	-	353	
HCM Lane V/C Ratio	0.116	-	-	-	0.552	
HCM Control Delay (s)	8.8	0	-	-	27.1	
HCM Lane LOS	A	A	-	-	D	
HCM 95th %tile Q(veh)	0.4	-	-	-	3.2	

HCM 2010 TWSC
14: Flewellyn & Street 7

2035 Future Total
PM Peak Hour

Intersection						
Int Delay, s/veh	4.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	120	311	350	120	83	80
Future Vol, veh/h	120	311	350	120	83	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	120	311	350	120	83	80

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	470	0	0	961	410
Stage 1	-	-	-	410	-
Stage 2	-	-	-	551	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1092	-	-	284	642
Stage 1	-	-	-	670	-
Stage 2	-	-	-	577	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1092	-	-	246	642
Mov Cap-2 Maneuver	-	-	-	246	-
Stage 1	-	-	-	581	-
Stage 2	-	-	-	577	-

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	23.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1092	-	-	-	353
HCM Lane V/C Ratio	0.11	-	-	-	0.462
HCM Control Delay (s)	8.7	0	-	-	23.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	2.3

HCM 2010 TWSC
15: Shea & Street 22

2035 Future Total
PM Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↕			↕	↕	
Traffic Vol, veh/h	10	3	3	366	380	13
Future Vol, veh/h	10	3	3	366	380	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	3	3	366	380	13

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	759	387	393	0	0
Stage 1	387	-	-	-	-
Stage 2	372	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	374	661	1166	-	-
Stage 1	686	-	-	-	-
Stage 2	697	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	373	661	1166	-	-
Mov Cap-2 Maneuver	373	-	-	-	-
Stage 1	684	-	-	-	-
Stage 2	697	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1166	-	415	-	-
HCM Lane V/C Ratio	0.003	-	0.031	-	-
HCM Control Delay (s)	8.1	0	14	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	24	12	21	373	415	43
Future Vol, veh/h	24	12	21	373	415	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	3	2	2
Mvmt Flow	24	12	21	373	415	43

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	852	437	458
Stage 1	437	-	-
Stage 2	415	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	330	620	1103
Stage 1	651	-	-
Stage 2	666	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	322	620	1103
Mov Cap-2 Maneuver	322	-	-
Stage 1	635	-	-
Stage 2	666	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.4	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1103	-	383	-	-
HCM Lane V/C Ratio	0.019	-	0.094	-	-
HCM Control Delay (s)	8.3	0	15.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

MOVEMENT SUMMARY

Site: 101 [Fernbank at Shea FT2035 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows [Total HV]	Arrival Flows [Total HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			veh/h %	veh/h %	v/c	sec		Dist m				km/h	
South: Shea													
1	L2	All MCs	30 3.0	30 3.0	0.702	22.0	LOS C	5.8	41.9	0.87	1.01	1.53	41.0
2	T1	All MCs	264 3.0	264 3.0	0.702	22.0	LOS C	5.8	41.9	0.87	1.01	1.53	41.6
3	R2	All MCs	141 6.0	141 6.0	0.702	22.5	LOS C	5.8	41.9	0.87	1.01	1.53	41.3
Approach			435 4.0	435 4.0	0.702	22.2	LOS C	5.8	41.9	0.87	1.01	1.53	41.4
East: Fernbank													
4	L2	All MCs	130 8.0	130 8.0	0.928	43.2	LOS E	29.1	210.2	1.00	1.82	3.30	33.3
5	T1	All MCs	551 3.0	551 3.0	0.928	42.6	LOS E	29.1	210.2	1.00	1.82	3.30	33.7
6	R2	All MCs	115 2.0	115 2.0	0.928	42.5	LOS E	29.1	210.2	1.00	1.82	3.30	33.6
Approach			796 3.7	796 3.7	0.928	42.7	LOS E	29.1	210.2	1.00	1.82	3.30	33.7
North: Shea													
7	L2	All MCs	60 2.0	60 2.0	0.860	37.8	LOS E	11.3	81.9	0.98	1.36	2.39	34.8
8	T1	All MCs	338 2.0	338 2.0	0.860	37.8	LOS E	11.3	81.9	0.98	1.36	2.39	35.2
9	R2	All MCs	144 9.0	144 9.0	0.860	39.1	LOS E	11.3	81.9	0.98	1.36	2.39	35.0
Approach			542 3.9	542 3.9	0.860	38.1	LOS E	11.3	81.9	0.98	1.36	2.39	35.1
West: Fernbank													
10	L2	All MCs	133 5.0	133 5.0	0.908	41.4	LOS E	21.0	151.2	1.00	1.65	3.04	33.8
11	T1	All MCs	534 3.0	534 3.0	0.908	41.2	LOS E	21.0	151.2	1.00	1.65	3.04	34.2
12	R2	All MCs	34 3.0	34 3.0	0.908	41.2	LOS E	21.0	151.2	1.00	1.65	3.04	34.0
Approach			701 3.4	701 3.4	0.908	41.2	LOS E	21.0	151.2	1.00	1.65	3.04	34.1
All Vehicles			2474 3.7	2474 3.7	0.928	37.7	LOS E	29.1	210.2	0.97	1.53	2.72	35.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Eagleson at Flewellyn FT2035 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
		[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh.] veh	[Dist] m				
South: Eagleson														
1	L2	All MCs	14 7.0	14 7.0	0.574	11.9	LOS B	5.4	38.5	0.70	0.57	0.94	53.3	
2	T1	All MCs	541 2.0	541 2.0	0.574	11.5	LOS B	5.4	38.5	0.70	0.57	0.94	55.5	
Approach			555 2.1	555 2.1	0.574	11.5	LOS B	5.4	38.5	0.70	0.57	0.94	55.5	
North: Eagleson														
8	T1	All MCs	621 2.0	621 2.0	0.798	11.4	LOS B	15.5	110.3	0.33	0.07	0.33	55.7	
9	R2	All MCs	453 2.0	453 2.0	0.798	11.4	LOS B	15.5	110.3	0.33	0.07	0.33	55.3	
Approach			1074 2.0	1074 2.0	0.798	11.4	LOS B	15.5	110.3	0.33	0.07	0.33	55.5	
West: Flewellyn														
10	L2	All MCs	330 2.0	330 2.0	0.484	12.1	LOS B	3.1	21.9	0.74	0.71	1.01	50.7	
12	R2	All MCs	13 15.0	13 15.0	0.484	13.9	LOS B	3.1	21.9	0.74	0.71	1.01	49.1	
Approach			343 2.5	343 2.5	0.484	12.2	LOS B	3.1	21.9	0.74	0.71	1.01	50.7	
All Vehicles			1972 2.1	1972 2.1	0.798	11.6	LOS B	15.5	110.3	0.51	0.32	0.62	54.6	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: C:\Users\MichelleChen\CGH TRANSPORTATION\CGH Active Projects - Documents\2021\2021-128 Caivan Flewellyn\DATA\W-4 Report\Sidra - W-4 Report\2021-128 Shea Road at Fernbank Road - 2024-12-13.sip9

MOVEMENT SUMMARY

Site: 101 [Terry Fox at Eagleson Road FT2035 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
		[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh.] veh	[Dist] m				
South: Eagleson														
1	L2	All MCs	236 2.0	236 2.0	0.510	11.7	LOS B	3.4	24.1	0.69	0.66	0.98	52.4	
2	T1	All MCs	473 2.0	473 2.0	0.510	11.2	LOS B	3.4	24.2	0.68	0.64	0.96	55.4	
3	R2	All MCs	139 2.0	139 2.0	0.510	10.9	LOS B	3.4	24.2	0.67	0.63	0.95	56.0	
Approach			848 2.0	848 2.0	0.510	11.3	LOS B	3.4	24.2	0.68	0.65	0.97	54.6	
East: Terry Fox														
4	L2	All MCs	230 3.0	230 3.0	0.752	24.3	LOS C	7.4	52.6	0.87	1.04	1.80	44.9	
5	T1	All MCs	637 2.0	637 2.0	0.752	23.1	LOS C	7.7	54.7	0.87	1.03	1.79	47.2	
6	R2	All MCs	193 2.0	193 2.0	0.752	22.3	LOS C	7.7	54.7	0.87	1.03	1.78	47.9	
Approach			1060 2.2	1060 2.2	0.752	23.2	LOS C	7.7	54.7	0.87	1.03	1.79	46.8	
North: Eagleson														
7	L2	All MCs	164 2.0	164 2.0	0.747	31.9	LOS D	5.0	35.8	0.88	1.07	1.72	41.3	
8	T1	All MCs	578 2.0	578 2.0	0.747	29.7	LOS D	5.2	37.3	0.87	1.06	1.71	43.8	
9	R2	All MCs	9 2.0	9 2.0	0.747	28.6	LOS D	5.2	37.3	0.86	1.06	1.71	44.3	
Approach			751 2.0	751 2.0	0.747	30.1	LOS D	5.2	37.3	0.87	1.07	1.72	43.2	
West: Terry Fox														
10	L2	All MCs	20 2.0	20 2.0	0.581	18.7	LOS C	3.3	23.2	0.78	0.89	1.24	49.5	
11	T1	All MCs	365 2.0	365 2.0	0.581	18.3	LOS C	3.3	23.6	0.78	0.88	1.24	50.7	
12	R2	All MCs	266 4.0	266 4.0	0.581	17.3	LOS C	3.3	23.6	0.77	0.87	1.23	50.7	
Approach			651 2.8	651 2.8	0.581	17.9	LOS C	3.3	23.6	0.77	0.88	1.24	50.7	
All Vehicles			3310 2.2	3310 2.2	0.752	20.7	LOS C	7.7	54.7	0.80	0.91	1.45	48.4	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: C:\Users\MichelleChen\CGH TRANSPORTATION\CGH Active Projects - Documents\2021\2021-128 Caivan Flewellyn\DATA\W-4 Report\Sidra - W-4 Report\2021-128 W-4 Lands - 2024-12-17.sip9

HCM 2010 AWSC
4: Huntley/Stittsville Main & Flewellyn

2035 Future Total-Mitigation
AM Peak Hour

Intersection	
Intersection Delay, s/veh	24.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↕			↕		↔	↔	
Traffic Vol, veh/h	38	168	15	24	164	233	17	240	19	127	269	53
Future Vol, veh/h	38	168	15	24	164	233	17	240	19	127	269	53
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
Heavy Vehicles, %	2	4	2	2	2	3	18	10	2	3	5	2
Mvmt Flow	38	168	15	24	164	233	17	240	19	127	269	53
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	17.6	31.4	22	21.9
HCM LOS	C	D	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	6%	17%	6%	100%	0%
Vol Thru, %	87%	76%	39%	0%	84%
Vol Right, %	7%	7%	55%	0%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	276	221	421	127	322
LT Vol	17	38	24	127	0
Through Vol	240	168	164	0	269
RT Vol	19	15	233	0	53
Lane Flow Rate	276	221	421	127	322
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.599	0.473	0.795	0.288	0.677
Departure Headway (Hd)	7.814	7.713	6.797	8.166	7.567
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	461	466	530	439	477
Service Time	5.88	5.782	4.851	5.924	5.326
HCM Lane V/C Ratio	0.599	0.474	0.794	0.289	0.675
HCM Control Delay	22	17.6	31.4	14.2	24.9
HCM Lane LOS	C	C	D	B	C
HCM 95th-tile Q	3.8	2.5	7.5	1.2	5

HCM 2010 AWSC
4: Huntley/Stittsville Main & Flewellyn

2035 Future Total-Mitigation
PM Peak Hour

Intersection	
Intersection Delay, s/veh	28.5
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↕			↕		↔	↔	
Traffic Vol, veh/h	44	149	14	19	201	215	27	245	31	231	281	47
Future Vol, veh/h	44	149	14	19	201	215	27	245	31	231	281	47
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
Heavy Vehicles, %	2	2	7	2	2	2	4	2	7	2	2	2
Mvmt Flow	44	149	14	19	201	215	27	245	31	231	281	47
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	18.5	40.6	25.2	24.5
HCM LOS	C	E	D	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	9%	21%	4%	100%	0%
Vol Thru, %	81%	72%	46%	0%	86%
Vol Right, %	10%	7%	49%	0%	14%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	303	207	435	231	328
LT Vol	27	44	19	231	0
Through Vol	245	149	201	0	281
RT Vol	31	14	215	0	47
Lane Flow Rate	303	207	435	231	328
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.663	0.473	0.863	0.538	0.707
Departure Headway (Hd)	7.872	8.223	7.139	8.381	7.762
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	458	437	505	430	466
Service Time	5.949	6.307	5.202	6.154	5.535
HCM Lane V/C Ratio	0.662	0.474	0.861	0.537	0.704
HCM Control Delay	25.2	18.5	40.6	20.6	27.3
HCM Lane LOS	D	C	E	C	D
HCM 95th-tile Q	4.7	2.5	9.1	3.1	5.5

MOVEMENT SUMMARY

Site: 101 [Shea at Flewellyn FT2035 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
		[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh.]	[Dist]				
		veh/h	%	veh/h	%	v/c	sec			m				km/h
South: Shea														
1	L2	All MCs	8 13.0	8 13.0	0.286	8.5	LOS A	1.3	9.4	0.60	0.48	0.60	54.9	
2	T1	All MCs	207 5.0	207 5.0	0.286	7.7	LOS A	1.3	9.4	0.60	0.48	0.60	58.1	
3	R2	All MCs	13 2.0	13 2.0	0.286	7.4	LOS A	1.3	9.4	0.60	0.48	0.60	58.3	
Approach			228 5.1	228 5.1	0.286	7.7	LOS A	1.3	9.4	0.60	0.48	0.60	58.0	
East: Flewellyn														
4	L2	All MCs	2 12.0	2 12.0	0.234	6.4	LOS A	1.1	8.0	0.46	0.30	0.46	56.9	
5	T1	All MCs	212 2.0	212 2.0	0.234	5.8	LOS A	1.1	8.0	0.46	0.30	0.46	60.8	
6	R2	All MCs	24 2.0	24 2.0	0.234	5.8	LOS A	1.1	8.0	0.46	0.30	0.46	60.2	
Approach			238 2.1	238 2.1	0.234	5.8	LOS A	1.1	8.0	0.46	0.30	0.46	60.7	
North: Shea														
7	L2	All MCs	42 8.0	42 8.0	0.312	6.7	LOS A	1.6	11.8	0.45	0.27	0.45	56.9	
8	T1	All MCs	241 3.0	241 3.0	0.312	6.4	LOS A	1.6	11.8	0.45	0.27	0.45	59.4	
9	R2	All MCs	51 2.0	51 2.0	0.312	6.3	LOS A	1.6	11.8	0.45	0.27	0.45	59.1	
Approach			334 3.5	334 3.5	0.312	6.4	LOS A	1.6	11.8	0.45	0.27	0.45	59.0	
West: Flewellyn														
10	L2	All MCs	60 7.0	60 7.0	0.466	9.3	LOS A	2.8	20.1	0.59	0.39	0.59	54.9	
11	T1	All MCs	382 2.0	382 2.0	0.466	8.9	LOS A	2.8	20.1	0.59	0.39	0.59	57.3	
12	R2	All MCs	26 4.0	26 4.0	0.466	9.0	LOS A	2.8	20.1	0.59	0.39	0.59	56.4	
Approach			468 2.8	468 2.8	0.466	9.0	LOS A	2.8	20.1	0.59	0.39	0.59	56.9	
All Vehicles			1268 3.2	1268 3.2	0.466	7.5	LOS A	2.8	20.1	0.53	0.36	0.53	58.3	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 101 [Shea at Flewellyn FT2035 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
		[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh.]	[Dist]				
		veh/h	%	veh/h	%	v/c	sec			m				km/h
South: Shea														
1	L2	All MCs	16 6.0	16 6.0	0.323	7.7	LOS A	1.6	11.4	0.57	0.42	0.57	56.7	
2	T1	All MCs	260 2.0	260 2.0	0.323	7.4	LOS A	1.6	11.4	0.57	0.42	0.57	59.0	
3	R2	All MCs	17 6.0	17 6.0	0.323	7.7	LOS A	1.6	11.4	0.57	0.42	0.57	57.5	
Approach			293 2.5	293 2.5	0.323	7.4	LOS A	1.6	11.4	0.57	0.42	0.57	58.7	
East: Flewellyn														
4	L2	All MCs	2 2.0	2 2.0	0.486	9.6	LOS A	3.3	23.7	0.64	0.47	0.72	56.0	
5	T1	All MCs	415 2.0	415 2.0	0.486	9.6	LOS A	3.3	23.7	0.64	0.47	0.72	57.2	
6	R2	All MCs	50 2.0	50 2.0	0.486	9.6	LOS A	3.3	23.7	0.64	0.47	0.72	56.7	
Approach			467 2.0	467 2.0	0.486	9.6	LOS A	3.3	23.7	0.64	0.47	0.72	57.1	
North: Shea														
7	L2	All MCs	27 3.0	27 3.0	0.442	9.7	LOS A	2.7	19.2	0.66	0.53	0.76	55.6	
8	T1	All MCs	285 2.0	285 2.0	0.442	9.6	LOS A	2.7	19.2	0.66	0.53	0.76	57.0	
9	R2	All MCs	71 2.0	71 2.0	0.442	9.6	LOS A	2.7	19.2	0.66	0.53	0.76	56.5	
Approach			383 2.1	383 2.1	0.442	9.6	LOS A	2.7	19.2	0.66	0.53	0.76	56.8	
West: Flewellyn														
10	L2	All MCs	59 5.0	59 5.0	0.378	7.9	LOS A	2.0	14.6	0.56	0.38	0.56	56.2	
11	T1	All MCs	299 2.0	299 2.0	0.378	7.7	LOS A	2.0	14.6	0.56	0.38	0.56	58.2	
12	R2	All MCs	11 18.0	11 18.0	0.378	8.9	LOS A	2.0	14.6	0.56	0.38	0.56	54.2	
Approach			369 3.0	369 3.0	0.378	7.8	LOS A	2.0	14.6	0.56	0.38	0.56	57.7	
All Vehicles			1512 2.3	1512 2.3	0.486	8.7	LOS A	3.3	23.7	0.61	0.46	0.66	57.5	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stipline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglöch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Appendix M

MMLOS Worksheets

Multi-Modal Level of Service - Segments Form

Consultant	CGH Transportation Inc.
Scenario	Existing/Future
Comments	

Project	Stittsville South (W-4) Expansion Lands
Date	12/19/2024

SEGMENTS		Shea Road	Flewellyn Road	New Local Road (with sidewalk)	New Local Road (without sidewalk)	New Collector Road
		Ex/Fu	Ex/Fu	Fu	Fu	Fu
Pedestrian	Sidewalk Width	no sidewalk	no sidewalk	≥ 2 m	no sidewalk	≥ 2 m
	Boulevard Width	n/a	n/a	< 0.5	n/a	0.5 - 2 m
	Avg Daily Curb Lane Traffic Volume	> 3000	≤ 3000	≤ 3000	≤ 3000	≤ 3000
	Operating Speed	> 60 km/h	> 60 km/h	≤ 30 km/h	≤ 30 km/h	≤ 30 km/h
	On-Street Parking	no	no	yes	yes	yes
	Exposure to Traffic PLoS	F	F	A	C	A
	Effective Sidewalk Width					
Pedestrian Volume						
Crowding PLoS	-	-	-	-	-	
Level of Service		F	F	A	C	A
Bicycle	Type of Cycling Facility	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Physically Separated
	Number of Travel Lanes	2-3 lanes total	2-3 lanes total	2-3 lanes total	2-3 lanes total	
	Operating Speed	≥ 60 km/h	≥ 60 km/h	≤ 40 km/h	≤ 40 km/h	
	# of Lanes & Operating Speed LoS	F	F	B	B	-
	Bike Lane (+ Parking Lane) Width					
	Bike Lane Width LoS	-	-	-	-	-
	Bike Lane Blockages					
	Blockage LoS	-	-	-	-	-
	Median Refuge Width (no median = < 1.8 m)					
	No. of Lanes at Unsignalized Crossing					
	Sidestreet Operating Speed					
Unsignalized Crossing - Lowest LoS	-	-	-	-	A	
Level of Service		F	F	B	B	A
Transit	Facility Type					
	Friction or Ratio Transit:Posted Speed					
Level of Service		-	-	-	-	-
Truck	Truck Lane Width					
	Travel Lanes per Direction					
Level of Service		-	-	-	-	-