



Transportation Impact Assessment – Step 4: Analysis

1470 Hunt Club Road



Prepared for Larga Baffin c/o Pheonix Homes
by IBI Group
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TIA Plan Reports - Certification

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

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

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

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed¹ or registered¹ professional in good standing, whose field of expertise [check appropriate field(s)] is either transportation engineering or transportation planning .

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

Dated at Ottawa this 12th day of October 2021.
(City)

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Executive Summary

IBI Group (IBI) was retained by Phoenix Homes on behalf of Larga Baffin Ltd. to undertake a Transportation Impact Assessment (TIA) in support of an Official Plan Amendment and Zoning By-law Amendment application for a proposed medical boarding home development located at 1470 Hunt Club Road in Ottawa. Access to the site will be provided via a right-in/right-out access on Hunt Club Road as well as a full-movement private approach on Sieveright Avenue which will become the fourth leg of the Sieveright Avenue & Apple Hill Drive intersection.

The person-trip estimates for the site were estimated using the trip generation rates from the ITE Trip Generation Manual (10th Edition) for the 620: Nursing Home land use as it is also applicable to medical boarding homes. The proposed development is anticipated to generate 76 and 99 two-way person-trips during the weekday morning and afternoon peak hour, respectively. Mode share targets were developed for the site based on the Hunt Club Traffic Assessment Zone (TAZ) mode share distribution from the 2020 TRANS Trip Generation Manual and the transit mode share was increased by 4% in recognition of the planned improvements in transit infrastructure in the area. As a result, it is estimated that the site will generate 60 and 78 two-way vehicle-trips during the weekday morning and afternoon peak hour, respectively. Site-generated traffic was subsequently distributed and assigned to the road network based on the morning peak period commuter flows from the 2011 TRANS Origin-Destination Survey as well as the concentrations of residential land uses in the Hunt Club TAZ.

The proposed development has been well located with access to many amenities within a short walking distance of the site and is within 400m of the existing transit stops at the Hunt Club Road & Cahill Road intersection. A number of Transportation Demand Management (TDM) measures will be implemented, including:

- Providing safe, convenient and direct connections to adjacent pedestrian, cycling and transit facilities;
- Providing wayfinding signage where necessary;
- Providing supporting cycling infrastructure on-site to promote commuting by bike;
- Providing a designated pick-up/drop-off area for taxis and carshare services;
- Ensuring maps and OC Transpo brochures are available for residents;
- Providing shuttle buses for residents; and
- Providing on-site amenities and services.

A total of 13 surface and 80 underground vehicle parking spaces, and 10 surface and 70 underground bicycle parking spaces will be provided within the proposed development. This meets the by-law requirements for bicycle parking but falls short of the required parking supply for vehicles. It is expected, however, that a maximum of approximately 100 staff will be on-site at any given time, 79 of which are expected to drive a personal vehicle. As such, a total of 14 spaces will remain for visitor parking. As the same number of spaces are provided at the existing Larga Baffin facility on Richmond Road, it is expected that this will be sufficient to meet visitor parking demand. As such, the proposed parking supply will be adequate and no spillover parking demand is expected.

A multi-modal analysis was conducted for the segments of Hunt Club Road and Sieveright Avenue adjacent to the site as well as for all signalized intersections within the study area. The results indicated that the Pedestrian and Bicycle Level of Service (PLOS and BLOS) targets are not being met at any signalized intersections within the study area or along the segment of Hunt Club Road

adjacent to the site. Potential mitigation measures were recommended for each location to help improve the PLOS and BLOS such as providing bike lanes / cycle tracks, reducing operating speeds, widening sidewalks, removing right-turn channels, implementing high-visibility crosswalk markings, leading pedestrian intervals, right-turn-on-red prohibitions and providing bike boxes / protected intersection design. It should be noted, however, that the recommendations are solely for the consideration of the City of Ottawa to address existing deficiencies in user comfort and are not a direct requirement or consequence of the proposed development.

A high frequency of historical collisions was also noted at nearly all study area locations. Detailed collision analysis was conducted for each location to help identify potential mitigation measures to address the safety issues observed:

- **Hunt Club Road & Albion Road South:** Consider removing eastbound and northbound right-turn channels, review sightlines for the eastbound and westbound left-turn movements and consider providing fully protected left-turn phasing on the east/west approaches.
- **Bank Street & Albion Road South:** Consider implementing traffic calming measures on northbound approach.
- **Hunt Club Road & Cahill Drive:** Consider implementing passive traffic calming measures (e.g. automated speed display signs) and speed limit reductions on Hunt Club Road.
- **Hunt Club Road & Lorry Greenberg Drive / Sable Ridge Drive:** Consider implementing passive traffic calming measures (e.g. automated speed display signs) and speed limit reductions on Hunt Club Road, and review the signal timing plan to ensure there is sufficient time for the eastbound and westbound left-turn movements.

It should be noted again that the above recommendations are solely for the consideration of the City of Ottawa to address existing safety issues and are not a direct requirement or consequence of the proposed development.

As the proposed development depends on a local road (Sieveright Avenue) for access, the neighbourhood traffic impacts of the development were reviewed. The review indicated that the roadway is currently exceeding its maximum livability threshold with respect to two-way traffic volumes. The proposed development is expected to only contribute 8 to 13 vehicles to this roadway during the peak hours, representing only a small increase in traffic volumes. The impact of the proposed development will therefore be minimal. Additionally, this secondary access is required for access to this site.

It was noted that there was the potential for traffic to cut-through the site in order to avoid congestion on Hunt Club Road or Bank Street and therefore it was recommended that an access control measure be implemented at the Sieveright Avenue access in conjunction with signage indicating 'No Through Traffic'.

Intersection capacity analysis was completed for all study area intersections under existing, background and total traffic conditions. Three of the signalized intersections (Hunt Club Road & Albion Road South, Hunt Club Road & Lorry Greenberg Drive / Sable Ridge Drive and Bank Street & Albion Road South) were found to have movements approaching or exceeding their theoretical capacity. Signal timing optimization, in combination with the anticipated effects of peak spreading, was found to improve traffic operations for those critical movements such that all movements at all signalized intersections are expected to operate an acceptable Level of Service (i.e. LOS 'D' or better) under Future (2022 & 2027) Background & Total Traffic conditions. It was therefore recommended that the City consider signal timing optimization at those critical intersections.

The Bank Street & Sieveright Avenue intersection was also found to be currently exceeding or approaching its theoretical capacity under Existing (2021) Traffic conditions. The effects of peak

spreading, however, are expected to improve traffic operations at the intersection such that it operates at LOS 'E' under Future (2022 & 2027) Background & Total Traffic conditions. As there are no known plans to signalize the intersection within the timeframe of this study, it was assumed that the intersection would remain unsignalized. It should be noted that traffic signal warrant analysis indicates that traffic signals are not warranted at this location, despite the operational issues anticipated. Traffic generated by the proposed development is shown to have a negligible impact on the future operation of this intersection.

Geometric requirements at the study area intersections were also reviewed. Sightlines from the two site accesses were found to be acceptable. Auxiliary lane analysis indicates that the southbound left-turn lane at the Hunt Club Road & Albion Road South intersection and the northbound and southbound left-turn lanes at the Bank Street & Albion Road South intersection have storage deficiencies. As there is sufficient pavement width on those approaches, it was therefore recommended that the City consider adjusting the pavement markings delineating those left-turn lanes the next time they are renewed.

Based on the findings of this study, it is the overall opinion of IBI Group that the proposed development will integrate well with and can be safely accommodated by the adjacent transportation network. Consideration should be given by the City of Ottawa of the recommendations provided in order to address the existing issues identified.

Table of Contents

Executive Summary	ES-i
1 Introduction	1
2 TIA Screening	2
3 Project Scoping	2
3.1 Description of Proposed Development	2
3.1.1 Site Location	2
3.1.2 Land Use Details	2
3.1.3 Development Phasing & Date of Occupancy	3
3.2 Existing Conditions	6
3.2.1 Existing Road Network	6
3.2.2 Existing Bicycle and Pedestrian Facilities	8
3.2.3 Existing Transit Facilities and Service	8
3.2.4 Collision History	9
3.3 Planned Conditions	10
3.3.1 Transportation Network	10
3.3.2 Future Adjacent Developments	13
3.3.3 Network Concept Screenline	13
3.4 Study Area	14
3.5 Time Periods	15
3.6 Existing Lane Configurations and Traffic Volumes	15
3.7 Analysis Years	18
3.8 Exemptions Review	18
4 Forecasting	19
4.1 Development Generated Traffic	19
4.1.1 Trip Generation Methodology	19
4.1.2 Trip Generation Results	19
4.1.3 Trip Distribution and Assignment	22

Table of Contents (continued)

4.2	Background Network Traffic	24
4.2.1	Changes to the Background Transportation Network.....	24
4.2.2	General Background Growth Rates	24
4.2.3	Other Area Development	24
4.3	Demand Rationalization.....	24
4.3.1	Description of Capacity Issues.....	24
4.3.2	Adjustment to Development-Generated Demands	25
4.3.3	Adjustment to Background Network Demands	25
4.4	Traffic Volume Summary	25
4.4.1	Future Background Traffic Volumes	25
4.4.2	Future Total Traffic Volumes.....	25
5	Analysis	30
5.1	Development Design.....	30
5.1.1	Design for Sustainable Modes	30
5.1.2	Circulation and Access	30
5.1.3	New Street Networks	31
5.2	Parking.....	31
5.2.1	Parking Supply	31
5.2.2	Spillover Parking	31
5.3	Boundary Streets	31
5.3.1	Mobility	31
5.3.2	Road Safety	32
5.4	Access Intersections	36
5.4.1	Location and Design of Access.....	36
5.4.2	Access Intersection Control	37
5.4.3	Access Intersection Design (MMLOS).....	37
5.5	Transportation Demand Management (TDM).....	37
5.5.1	Context for TDM.....	37
5.5.2	Need and Opportunity.....	38

Table of Contents (continued)

5.5.3	TDM Program.....	38
5.6	Neighbourhood Traffic Management	38
5.6.1	Adjacent Neighbourhoods.....	38
5.7	Transit	39
5.7.1	Route Capacity.....	39
5.7.1	Transit Priority Measures	39
5.8	Review of Network Concept	39
5.9	Intersection Design	39
5.9.1	Intersection Control.....	39
5.9.2	Intersection Analysis Criteria (Automobile).....	40
5.9.3	Intersection Capacity Analysis	41
5.9.4	Intersection Design (MMLOS).....	46
5.10	Geometric Review.....	49
5.10.1	Sight Distance and Corner Clearances.....	49
5.10.2	Auxiliary Lane Analysis	49
5.11	Summary of Recommended Modifications.....	52
6	Conclusion	53

List of Tables

Table 1 - Land Use Statistics	2
Table 2 - Existing Roadways	6
Table 3 - Reported Collisions within the Vicinity of the Proposed Development.....	9
Table 4 - Exemptions Review	18
Table 5 - Base Vehicular Trip Generation.....	19
Table 6 - Person-Trip Generation	20
Table 7 - Proposed Mode Share Targets (Employees)	21
Table 8 – Peak Hour Person-Trips by Mode.....	22
Table 9 - Future Adjacent Developments	24

Table of Contents (continued)

Table 10 - Segment MMLOS Results	32
Table 11 - Intersection Collisions by Types	33
Table 12 - Intersection Collisions by Direction and Type.....	34
Table 13 - Roadway Segment Collisions by Types	36
Table 14 – Development Generated Transit Demand	39
Table 15 - LOS Criteria for Signalized Intersections.....	40
Table 16 - LOS Criteria for Unsignalized Intersections.....	41
Table 17 - Intersection Capacity Analysis: Existing (2021) Traffic	42
Table 18 - Intersection Capacity Analysis: Future (2022) Background Traffic	43
Table 19 - Intersection Capacity Analysis: Future (2027) Background Traffic	44
Table 20 - Intersection Capacity Analysis: Future (2022) Total Traffic.....	45
Table 21 - Intersection Capacity Analysis: Future (2027) Total Traffic.....	46
Table 22 - Intersection MMLOS	47
Table 23 - Auxiliary Left-Turn Storage Analysis at Signalized Intersections	50
Table 24 – Auxiliary Right-Turn Lane Storage Analysis at Signalized Intersections	51

List of Figures

Figure 1 - Future Road Network Projects	10
Figure 2 - Future Transit Network Projects	11
Figure 3 - O-Train Network Extension - Stage 2.....	12
Figure 4 - Ultimate Cycling Network	13
Figure 5 - Screenlines	14
Figure 6 – Kanata / Stittsville TAZ	20

List of Exhibits

Exhibit 1 - Site Location	4
Exhibit 2 - Proposed Development	5
Exhibit 3 - Existing (2021) Traffic	16

Table of Contents (continued)

Exhibit 4 - Existing (2021) Lane Configurations and Intersection Control	17
Exhibit 5 - Site Generated Traffic.....	23
Exhibit 6 - Future (2022) Background Traffic.....	26
Exhibit 7 - Future (2027) Background Traffic.....	27
Exhibit 8 - Future (2022) Total Traffic	28
Exhibit 9 - Future (2027) Total Traffic	29

List of Appendices

- Appendix A – City Circulation Comments
- Appendix B – Screening Form
- Appendix C – OC Transpo Routes
- Appendix D – Collision Data
- Appendix E – Turning Movement Counts
- Appendix F – Trip Generation Data
- Appendix G – TDM Checklists
- Appendix H – MMLOS Analysis
- Appendix I – Traffic Signal Warrants
- Appendix J – Roundabout Screening
- Appendix K – Intersection Capacity Analyses
- Appendix L – Auxiliary Lane Analysis

1 Introduction

IBI Group (IBI) was retained by Pheonix Homes on behalf of Larga Baffin Ltd. to undertake a Transportation Impact Assessment (TIA) in support of an Official Plan Amendment and Zoning By-law Amendment for a proposed medical boarding home development to be located at 1470 Hunt Club Road in Ottawa.

In accordance with the City of Ottawa's Transportation Impact Assessment Guidelines, published in June 2017, the following report is divided into four major components:

- **Screening** – Prior to the commencement of a TIA, an initial assessment of the proposed development is undertaken to establish the need for a comprehensive review of the site based on three triggers: Trip Generation, Location and Safety.
- **Scoping** – This component of the TIA report describes both the existing and planned conditions in the vicinity of the development and defines study parameters such as the study area, analysis periods and analysis years of the development. It also provides an opportunity to identify any scope exemptions that would eliminate elements of scope described in the TIA Guidelines that are not relevant to the development proposal, based on consultation with City staff.
- **Forecasting** – The Forecasting component of the TIA is intended to review both the development-generated travel demand and the background network travel demand, and provides an opportunity to rationalize this demand to ensure projections are within the capacity constraints of the transportation network.
- **Analysis** – This component documents the results of any analyses undertaken to ensure that the transportation related features of the proposed development are in conformance with prescribed technical standards and that its impacts on the transportation network are both sustainable and effectively managed. It also identifies a development strategy to ensure that what is being proposed is aligned with the City of Ottawa's city-building objectives, targets and policies.

Throughout the development of a TIA report, each of the four study components above are submitted in draft form to the City of Ottawa and undergo a review by a designated Transportation Project Manager. Any comments received are addressed to the satisfaction of the City's Transportation Project Manager before proceeding with subsequent components of the study. All technical comments and responses throughout this process are included in **Appendix A**.

Dependent on the findings of this report, the complete submission of this Transportation Impact Assessment may also require Functional Design Drawings of recommended roadway improvements to support a Roadway Modification Application (RMA). The submission may also require a post-development Monitoring Plan to track performance of the planned TIA Strategy. The need for these two elements will be confirmed through the analysis undertaken for this report.

2 TIA Screening

An initial screening was completed to confirm the need for a Transportation Impact Assessment by reviewing the following three triggers:

- **Trip Generation:** Based on the proposed size of the proposed development, it was estimated that the development would exceed the 60 person-trip threshold prescribed by the TIA Guidelines and as such the Trip Generation trigger is satisfied.
- **Location:** The proposed development is located along Hunt Club Road which is designated as a Spine cycling route in the Ottawa Cycling Plan and a potential Transit Priority Corridor in the Transportation Master Plan’s Rapid Transit and Transit Priority Network – 2031 Network Concept.
- **Safety:** None of the safety criteria are met along either of the boundary roadways. As such, the Safety Trigger is not satisfied.

As the proposed development meets the Trip Generation and Location triggers, the need to undertake a Transportation Impact Assessment is confirmed.

A copy of the Screening Form is provided in **Appendix B**.

3 Project Scoping

3.1 Description of Proposed Development

3.1.1 Site Location

The proposed development is located within the neighbourhoods of Greenboro and Blossom Park on the south edge of the City of Ottawa and falls within the bounds of the South Keys to Blossom Park – Bank Street Community Design Plan (CDP) and Secondary Plan (SP). The site is approximately 2 hectares in size and fronts onto both Hunt Club Road and Sieveright Avenue. To the east and west of the site are residential and light industrial land uses, respectively. The site is comprised of six separate parcels: 1452, 1460 and 1470 Hunt Club Road and 1525, 1531 and 1545 Sieveright Avenue.

The site location and its surrounding context is illustrated in **Exhibit 1**.

3.1.2 Land Use Details

The subject site is currently occupied by a used car dealership, a single-family home and a self-storage business. According to GeoOttawa, the site is within two zones: GM16[2294] – General Mixed Use and IL2 H(14) – Light Industrial.

The proposed development consists of a single six-storey, 350-bed, 220-unit medical boarding home with a central courtyard for residents. The development is expected to employ up to 175 full-time and part-time staff, with approximately 100 staff on site at any time. **Table 1** summarizes the relevant land use statistics for the site.

Table 1 - Land Use Statistics

LAND USE	SIZE
Medical Boarding Home	350 beds / 220 units

The site will provide a total of 13 surface parking spaces and 80 below-grade parking spaces for vehicles. A total of 10 surface bicycle parking spaces and 70 below-grade bicycle parking spaces will also be provided (equating to a rate of 0.25 per unit and 0.25 per employee, per bylaw requirements). Access to the site will be provided via a right-in/right-out access on Hunt Club Road and a full-movement access on Sieveright Avenue.

The configuration of the proposed development is illustrated in **Exhibit 2**.

3.1.3 Development Phasing & Date of Occupancy

The proposed development is anticipated to be constructed and fully occupied in a single phase by the end of 2022.



3.2 Existing Conditions

3.2.1 Existing Road Network

3.2.1.1 Roadways

Table 2 below summarizes the details of the boundary roadways as well as other streets within the context area of the proposed development.

Table 2 - Existing Roadways

NAME	CLASS	JURISDICTION	ORIENTATION & EXTENTS	CROSS-SECTION	ROW (m)	SPEED LIMIT (km/h)
Hunt Club Road	Arterial	City of Ottawa	East-West, Old Richmond Road to Highway 417	4-Lane, Urban, Divided	44.5	60
Bank Street	Arterial	City of Ottawa	North-South, Wellington Street to Belmeade Road / Marrionville Road	4-Lane, Urban, Divided	44.5	60
Albion Road South	Collector	City of Ottawa	North-South, North of Johnston Road to Mitch Owens Road	2-Lane, Urban, Undivided	20 & 24 ¹	50
Cahill Drive	Collector	City of Ottawa	East-West, Bank Street to Hunt Club Road	2-Lane, Urban, Undivided	26	50
Lorry Greenberg Drive	Collector	City of Ottawa	East-West, Hunt Club Road to Karsh Drive / Blohm Drive	2-Lane, Urban, Undivided	26	50
Sieveright Avenue	Local	City of Ottawa	East-West, Bank Street to Issam Private	2-Lane, Urban, Undivided	26	50
Sable Ridge Drive	Local	City of Ottawa	Oriented North-South at Hunt Club Road, forms a loop with itself	2-Lane, Urban, Undivided	21	40

¹ 20m north of Bank Street, 24m south of Bank Street.

3.2.1.2 Nearby Driveways

Along Hunt Club Road there are several driveways to the west within 200m of the site which are associated with single family homes, used car dealerships, automobile repair shops and a daycare. Along Sieveright Avenue there are several driveways to the east within 200m of the site which are associated with single family homes, and there are several driveways to the west within 200m of the site which are associated with a variety of light industrial land uses.

3.2.1.3 Intersections

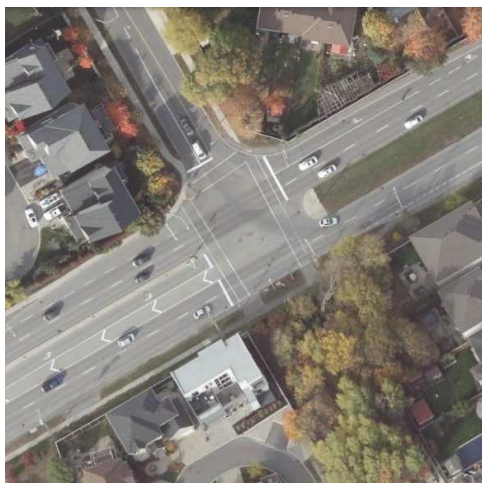
The following major intersections are located within the context area:



- **Hunt Club Road & Albion Road South** is a four-legged, signalized intersection with left-turn lanes and channelized right-turn lanes on all approaches. Trucks are prohibited from using the north leg of the intersection. This intersection is located approximately 450m west of the site.



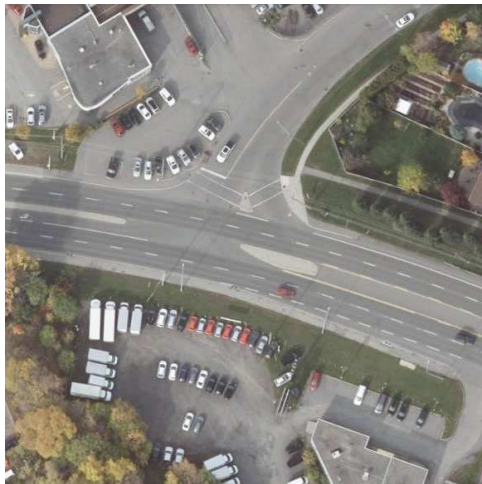
- **Bank Street & Albion Road South** is a four-legged, signalized intersection with left-turn lanes and channelized right-turn lanes on all approaches. The exception is the eastbound right-turn movement which is not channelized. This intersection is located approximately 450m west of the site.



- **Hunt Club Road & Cahill Drive** is a three-legged, signalized intersection with left-turn lanes on the eastbound and southbound approach and a right-turn lane on the westbound approach. Trucks are prohibited from using the north leg of the intersection. This intersection is located approximately 125m east of the site.



- **Hunt Club Road & Lorry Greenberg Drive / Sable Ridge Drive** is a four-legged, signalized intersection with left-turn lanes on all approaches and channelized right-turn lanes on the westbound and southbound approaches. This intersection is located approximately 625m east of the site.



- **Bank Street & Sieveright Avenue** is a three-legged, unsignalized intersection with stop control on the southbound approach, left-turn lanes on the eastbound and southbound approaches and a channelized westbound right-turn. This intersection is located approximately 225m west of the site.

3.2.1.4 Traffic Management Measures

A desktop review of the roadways in the vicinity of the proposed development indicate that there are no traffic management or traffic calming measures implemented within the context area.

3.2.2 Existing Bicycle and Pedestrian Facilities

Within the context area, the existing cycling facilities are limited to bike lanes on Hunt Club Road east of Cahill Drive and paved shoulders on Bank Street east of Sieveright Avenue. Sidewalks are present on both sides of every major roadway within the context area, with the following exceptions:

- Bank Street, east of Sieveright Avenue: South side only;
- Albion Road South, between Hunt Club Road and Bank Street: West side only;
- Sable Ridge Drive: West side only; and
- Sieveright Avenue: South side only.

3.2.3 Existing Transit Facilities and Service

The following transit routes, operated by OC Transpo, exist within the vicinity of the site:

- **Route #98** provides regular, all-day service between Hunt Club / Hawthorne and Hurdman Station, operating on 15- to 30-minute headways during the weekdays and weekends.

The nearest bus stops to the proposed development are located at the Hunt Club Road & Cahill Drive intersection and are located less than 400m walking distance from the site.

Transit map for the above noted route is provided in **Appendix C**.

3.2.4 Collision History

A review of historical collision data has been undertaken for the boundary streets within the vicinity of the proposed development. The TIA Guidelines require a safety review if at least six collisions for any one movement or of a discernible pattern, have occurred over a five-year period. **Table 3** below summarizes all reported collisions between January 1, 2015 and December 31, 2019.

Table 3 - Reported Collisions within the Vicinity of the Proposed Development

LOCATION	# OF REPORTED COLLISIONS
INTERSECTIONS	
Hunt Club Road & Albion Road South	67
Bank Street & Albion Road South	39
Hunt Club Road & Cahill Drive	37
Hunt Club Road & Lorry Greenberg Drive / Sable Ridge Drive	54
Bank Street & Sieveright Avenue	7
SEGMENTS	
Hunt Club Road – Albion Road South to Dunston Terrace	7
Hunt Club Road – Dunston Terrace to Cahill Drive	5
Hunt Club Road – Cahill Drive to Lorry Greenberg Drive / Sable Ridge Drive	12
Bank Street – Albion Road South to Sieveright Avenue	15

Based on a preliminary review of the collision history noted above, intersections or road segments with at least six collisions over the five-year period may require further review.

Detailed collision records are provided in **Appendix D**.

Another method of evaluating the relative magnitude of collision frequency at one intersection compared to another is to quantify the average historical number of collisions against the daily volume of traffic entering the intersection. This is commonly expressed in terms of average collisions per year per Million Vehicles Entering (MVE) and a rate of greater than 1.0 is considered significant. Average annual daily traffic (AADT) volumes are provided with all City-provided traffic counts. The study intersections are therefore calculated as having the following average collision frequencies:

- Hunt Club Road & Albion Road South: 1.09 collisions per MVE
- Bank Street & Albion Road South: 0.68 collisions per MVE
- Hunt Club Road & Cahill Drive: 0.67 collisions per MVE
- Hunt Club Road & Lorry Greenberg Drive / Sable Ridge Drive: 0.94 collisions per MVE

- Bank Street & Sieveright Avenue: 0.19 collisions per MVE

As illustrated above, only the Hunt Club Road & Albion Road South intersection experiences a collision frequency rate greater than 1.0 collisions per MVE.

3.3 Planned Conditions

3.3.1 Transportation Network

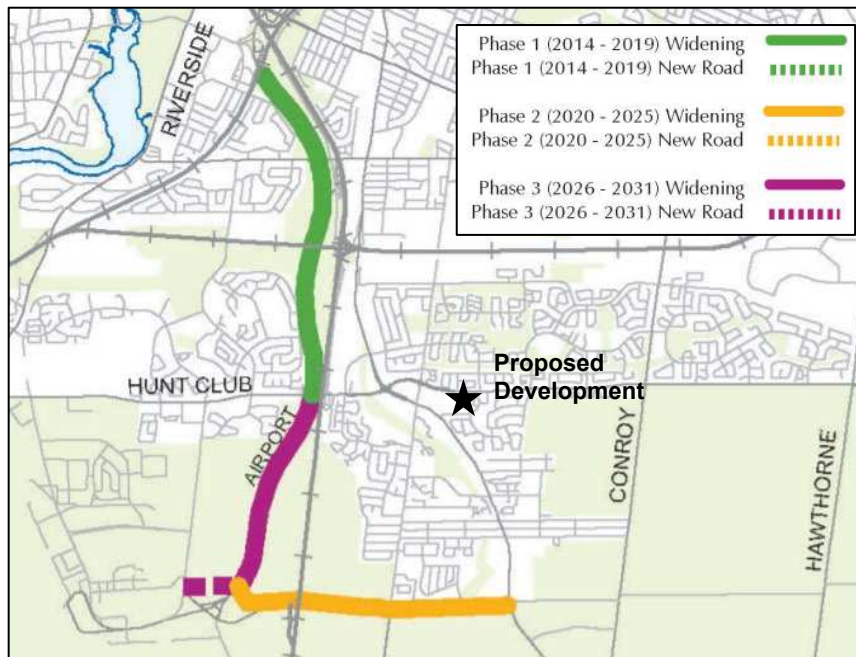
3.3.1.1 Future Road Network Projects

The 2013 Transportation Master Plan (TMP) outlines future road network modifications required in the 2031 'Affordable Network'. The following projects were noted that may have an impact on area traffic within the vicinity of the site:

- **Airport Parkway Widening (1)** – Planned widening of Airport Parkway from two to four lanes between Brookfield Road and Hunt Club Road (Phase 1: 2014-2019).
- **Lester Road Widening** – Planned widening of Lester Road from two to four lanes between Airport Parkway and Bank Street (Phase 2: 2020-2025).
- **Airport Parkway Widening (2)** – Planned widening of Airport Parkway from two to four lanes between Hunt Club Road and MacDonald-Cartier International Airport (Phase 3: 2026-2031).

Figure 1 below illustrates the planned changes to the arterial road network in the broader area, as per the TMP 'Affordable Network'.

Figure 1 - Future Road Network Projects



Source: 2013 Transportation Master Plan – Map 11 '2031 Affordable Network'

Development Charges Background Study

The Development Charges (DC) Amendment Background Study (March 2019), published well after the 2013 TMP, indicates that the timeframe for the above projects has been revised as follows:

- **Airport Parkway Widening (1)** from Brookfield Road to Hunt Club Road is expected to be implemented between 2020 and 2024.
- **Airport Parkway Widening (2)** from Hunt Club Road to MacDonald-Cartier International Airport is expected to be implemented between 2030 and 2031 and will now include a new link to Uplands Drive.
- **Lester Road Widening** from Airport Parkway to Bank Street is expected to be implemented between 2025 and 2029.

3.3.1.2 Future Transit Facilities and Services

The 2013 TMP outlines the future rapid transit and transit priority (RTTP) network. The following projects were noted that may have an impact on transit service within the vicinity of the site:

- **Hunt Club Road** – Bus lanes between Uplands Drive and Albion Road South.
- **Airport Parkway** – Peak period bus lanes between Hunt Club Road and MacDonald-Cartier International Airport.
- **Trillium Line Extension** – Extension of the O-Train Trillium Line from Greenboro Station to Bowesville / Riverside South Station.

Figure 2 below illustrates the planned changes to the transit network projects in the broader area, as per the TMP 'Rapid Transit and Transit Priority Network – 2031 Affordable Network'.

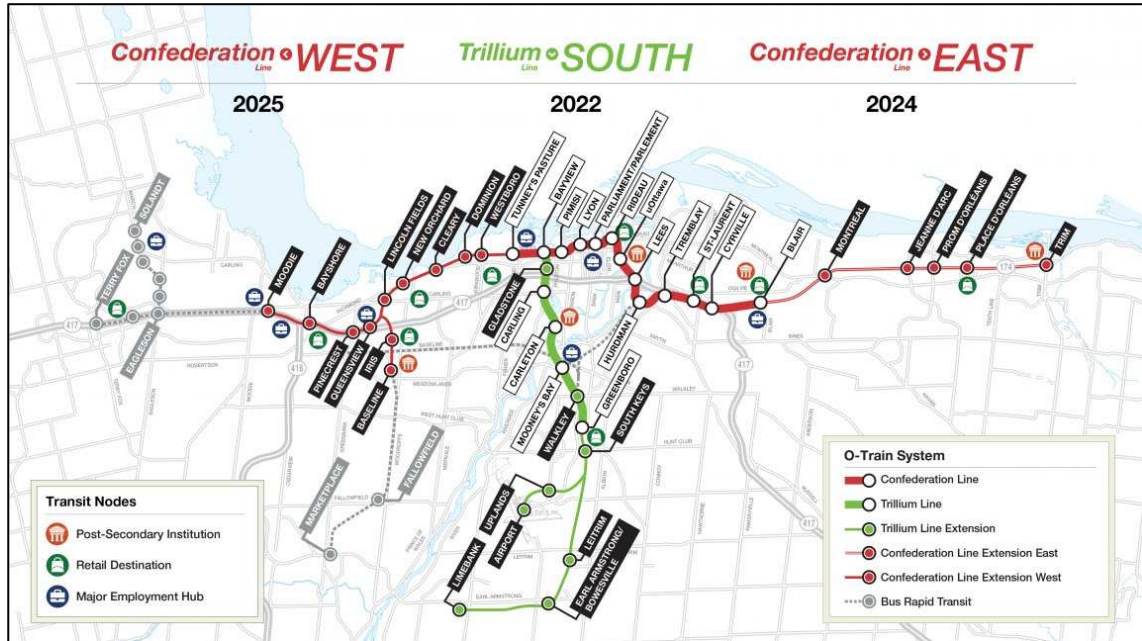
Figure 2 - Future Transit Network Projects



Since the TMP was published in 2013, there have been changes to the planned extension of the O-Train Trillium Line. The O-Train Trillium Line will now be extended up to Limebank Road with a

spur line connection between Greenboro Station and MacDonald-Cartier International Airport and is anticipated to be open for revenue service by 2022, see **Figure 3**.

Figure 3 - O-Train Network Extension - Stage 2



3.3.1.3 Future Cycling and Pedestrian Facilities

The 2013 Ottawa Cycling Plan (OCP) provides a long-term vision for Ottawa’s cycling network. Hunt Club Road and Bank Street are both identified as ‘Spine’ cycling routes and Cahill Drive, Lorry Greenberg Drive, Albion Road and Sable Ridge Drive are identified as ‘Local’ cycling routes in the OCP, see **Figure 4**. There are, however, no specific plans identified for future cycling facilities within the context area. There are also no specific plans for future pedestrian network improvements within the context area either.

Figure 4 - Ultimate Cycling Network



3.3.2 Future Adjacent Developments

The City of Ottawa Transportation Impact Assessment (TIA) Guidelines specify that all significant developments proposed within the surrounding area which are likely to occur within the study's horizon year must be identified and taken into consideration in the development of future background traffic projections.

There are currently two development applications of significance in the vicinity of the proposed development:

- **Waterford Ottawa Senior Apartments (2431 Bank Street)** is a proposed one-, seven- and fourteen-storey addition to an existing retirement home which will provide an additional 144 units to the building. The development is anticipated to be fully built out and occupied by the end of 2021.
- **20 Mountain Crescent** is a proposed twelve-storey residential building with 151 units. The development is anticipated to be fully built out by 2022.

3.3.3 Network Concept Screenline

A screenline is a predetermined boundary between areas of major traffic generation that captures all significant points of entry from one area to another to compare crossing demand with the available roadway capacity. Screenlines are typically located along geographical barriers such as rivers, rail lines or within the greenbelt. To capture existing flow and model future demand, count stations are established at each crossing point along the screenline.

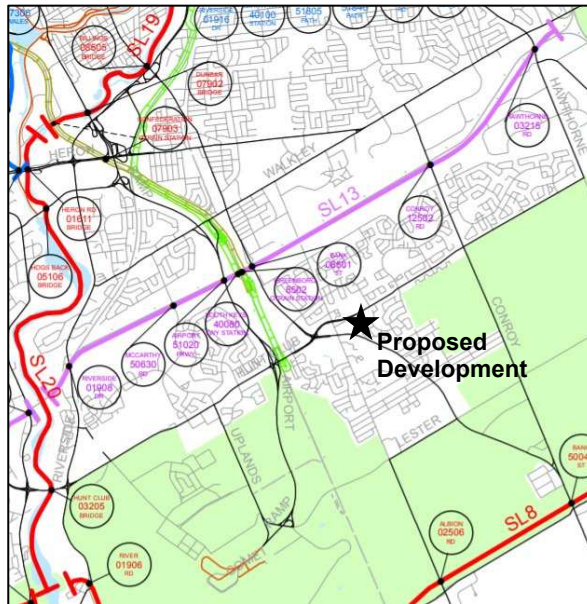
The nearest strategic planning screenlines adjacent to the development have been considered in the screenline analysis:

- **SL13 – CNR East** – This is the nearest east-west screenline to the study area and generally follows the alignment of the CNR railway. This screenline has eight crossing points: Riverside Drive, McCarthy Road, Airport Parkway, South Keys Transitway Station, Greenboro O-Train Station, Bank Street, Conroy Road and Hawthorne Road.

- **SL20 – Rideau River South** – This is the nearest north-south screenline to the study area and generally follows the alignment of the Rideau River. This screenline has three crossing points: Heron Road Bridge, Hogs Back Bridge and Hunt Club Bridge.

SL13 and SL20 are shown in **Figure 4** below, as determined from the City of Ottawa’s Road Network Development Report (2013), a supporting document to the 2013 Transportation Master Plan (TMP).

Figure 5 - Screenlines



3.4 Study Area

The information presented thus far provides a base level of information for the development’s context. With consideration of the above information, a study area including the following intersections is proposed:

- Hunt Club Road & Albion Road South (signalized);
- Bank Street & Albion Road South (signalized);
- Hunt Club Road & Cahill Drive (signalized);
- Hunt Club Road & Lorry Greenberg Drive / Sable Ridge Drive (signalized);
- Bank Street & Sieveright Avenue (unsignalized); and
- Hunt Club Road & Right-In/Right-Out Access (unsignalized).

Multi-Modal Level of Service (MMLOS) will be conducted for all of four of the above signalized intersections. Unsignalized intersections are exempt from this analysis, as no methodology currently exists for evaluating MMLOS for these types of intersection. Additional MMLOS analysis will be conducted for the segments of Hunt Club Road and Sieveright Avenue adjacent to the proposed development.

The remainder of the TIA will primarily focus on site-specific impacts, integration with its boundary streets, including a functional review of the site access geometry and intersection control, on-site drive aisle requirements to accommodate proposed design vehicles and a review of the site’s parking and loading requirements.

3.5 Time Periods

The majority of site-generated traffic is expected to be generated by staff as residents will not have access to a personal vehicle and will instead primarily use shuttle buses, taxis, transit, bicycles or walk to travel. As such, traffic generated by the proposed development is expected to be primarily work-related trips and therefore traffic generated during the weekday morning and afternoon peak hours is expected to result in the most significant impact to traffic operations on the adjacent road network in terms of combined development-generated and background traffic. These two time periods will therefore be considered for operational analysis in this study.

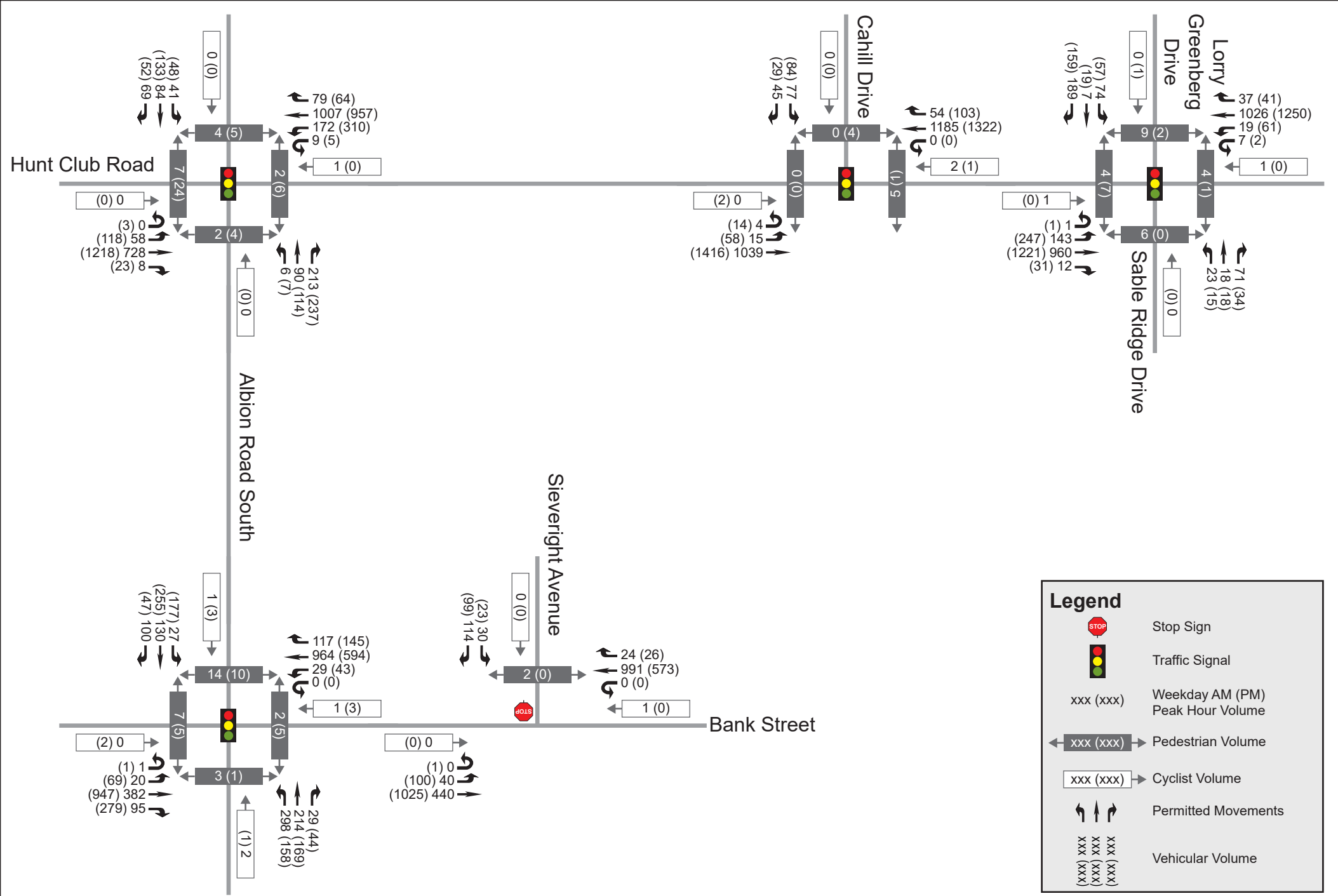
3.6 Existing Lane Configurations and Traffic Volumes

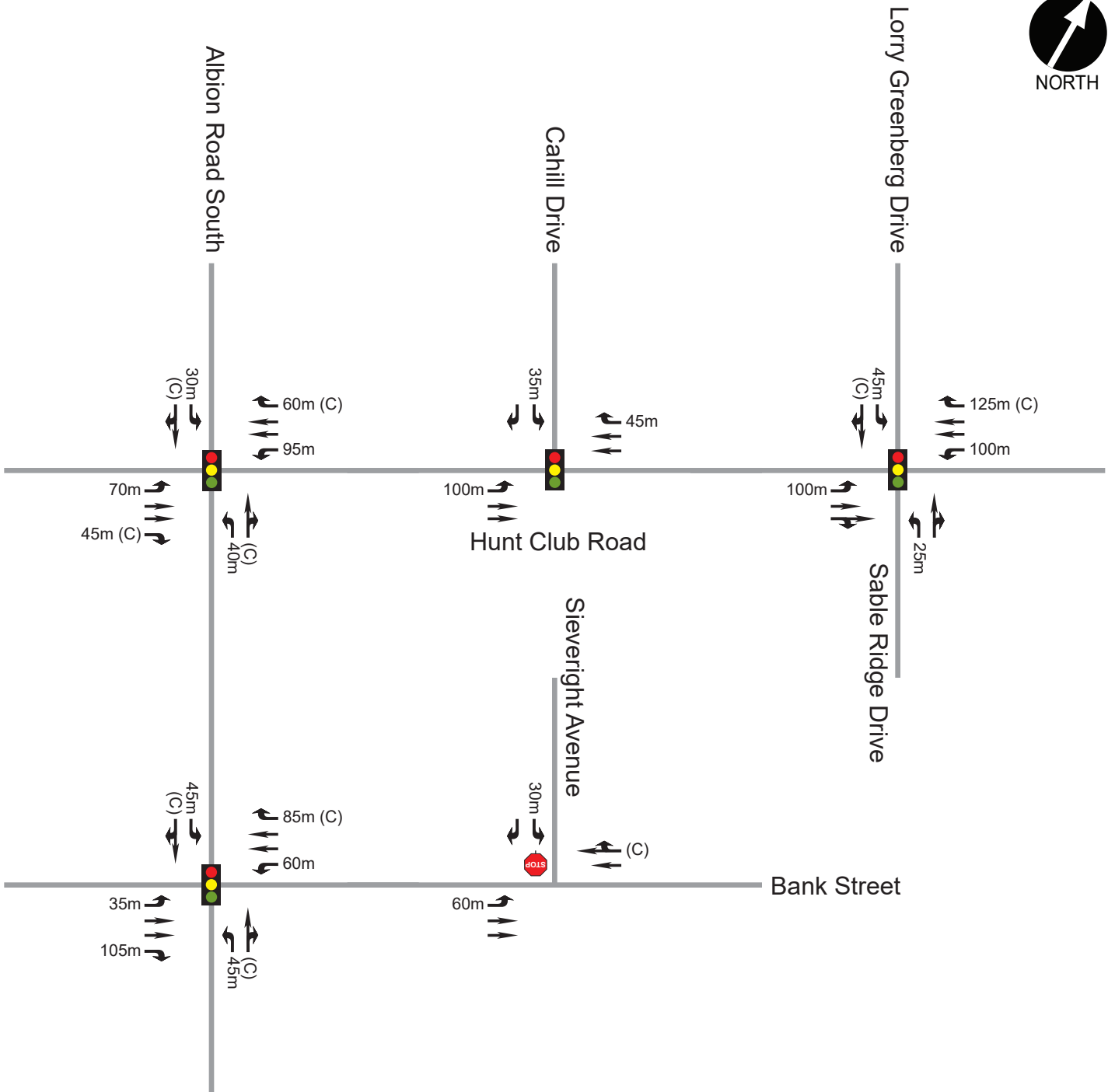
Weekday morning and afternoon peak hour turning movement counts were obtained from the City of Ottawa:

- Hunt Club Road & Albion Road South (City of Ottawa, April 2018)
- Bank Street & Albion Road South (City of Ottawa, June 2019)
- Hunt Club Road & Cahill Drive (City of Ottawa, August 2016)
- Hunt Club Road & Lorry Greenberg Drive / Sable Ridge Drive (City of Ottawa, April 2017)
- Bank Street & Sieveright Avenue (City of Ottawa, November 2017)

It should be noted that, due the ongoing COVID-19 pandemic, it is not possible to undertake reliable updated traffic counts at the study intersections. A growth rate was applied to the above noted turning movement counts, where required, to approximate existing (2021) traffic volumes from the latest traffic counts available that were conducted prior to the COVID-19 pandemic. Justification of background traffic volumes is discussed further in the Forecasting section of this TIA.

Peak hour traffic volumes representative of existing conditions are shown in **Exhibit 4**. Weekday morning and afternoon peak hour turning movement counts have been provided in **Appendix E**. The lane configurations and intersection control for the study area intersections are illustrated in **Exhibit 5**.





Legend

- Stop Sign
- Traffic Signal
- Lane Configurations
- xxxm Storage Lengths
- (C) Channelized Right-Turn



3.7 Analysis Years

Based on the anticipated build-out year of the proposed development, the following two analysis years will be considered in this TIA:

- Year 2022 – Full Build-out of the Proposed Development
- Year 2027 – 5 Years Beyond Full Build-out / Occupancy

3.8 Exemptions Review

The TIA Guidelines provide exemption considerations for elements of the Design Review and Network Impact components. **Table 4** summarizes the TIA modules that are not applicable to this study.

Table 4 - Exemptions Review

TIA MODULE	ELEMENT	EXEMPTION CONSIDERATIONS	REQUIRED
DESIGN REVIEW COMPONENT			
4.1 Development Design	4.1.2 Circulation and Access	<ul style="list-style-type: none"> • Only required for site plans 	✓
	4.1.3 New Street Networks	<ul style="list-style-type: none"> • Only required for plans of subdivision 	✗
4.2 Parking	4.2.1 Parking Supply	<ul style="list-style-type: none"> • Only required for site plans 	✓
	4.2.2 Spillover Parking	<ul style="list-style-type: none"> • Only required for site plans where parking supply is 15% below unconstrained demand 	✗
NETWORK IMPACT COMPONENT			
4.5 Transportation Demand Management	All Elements	<ul style="list-style-type: none"> • Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time 	✓
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	<ul style="list-style-type: none"> • Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds 	✓
4.8 Network Concept	n/a	<ul style="list-style-type: none"> • Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by established zoning 	✗

4 Forecasting

4.1 Development Generated Traffic

4.1.1 Trip Generation Methodology

Peak hour site-generated traffic volumes for the proposed development were developed using the Institute of Transportation Engineers' (ITE) Trip Generation Manual (10th Edition). The TIA Guidelines indicate that vehicle-trip generation rates from the ITE Trip Generation Manual should be converted to person-trips through the application of a 1.28 vehicle-to-person-trip conversion factor.

Person-trips generated by the proposed development were then subdivided based on representative mode share percentages applicable to the study area to determine the number of auto driver, auto passenger, transit, pedestrian, cycling and 'other' trip types.

4.1.2 Trip Generation Results

4.1.2.1 Vehicle Trip Generation

The proposed development consists of a 350-bed medical boarding home which will house residents while they are seeking medical care at a hospital or medical facility in Ottawa. Residents will not have access to a personal vehicle and will be shuttled to/from the hospital or medical facility via private shuttle bus. As such, the majority of site-generated vehicular traffic will be generated by staff while residents will primarily generate pedestrian, cycling and transit trips.

Trips generated by the proposed development were determined based on the trip generation rate for ITE Land Use: 620 Nursing Home which is applicable to medical boarding homes (i.e. convalescent homes). It should be noted, however, that this land use provides trip generation estimates that are only representative of employee-generated trips as resident trips by private vehicle are typically minimal. Trips generated by residents are not been captured by this land use and there is no information available to estimate the number of resident-generated trips. The number of pedestrian, cycling and transit trips generated by this development will therefore likely be under estimated as a result.

Relevant extracts from the ITE Trip Generation Manual are provided in **Appendix F**.

The base vehicular trip generation for the proposed development has been summarized in **Table 5** below.

Table 5 - Base Vehicular Trip Generation

LAND USE	SIZE	PERIOD	GENERATED TRIPS (VPH)		
			IN	OUT	TOTAL
620: Nursing Home	350 beds	AM	43	17	60
		PM	25	52	77

Notes: vph = vehicles per hour

4.1.2.2 Person Trip Generation

As prescribed in the TIA Guidelines, the base vehicular trip generation values have been expressed in terms of person-trips through the use of a 1.28 vehicle-to-person-trip conversion factor.

The resulting number of person-trips have been summarized in **Table 6** below.

Table 6 - Person-Trip Generation

LAND USE	PERIOD	PERSON TRIPS (PPH)		
		IN	OUT	TOTAL
620: Nursing Home	AM	55	21	76
	PM	33	66	99

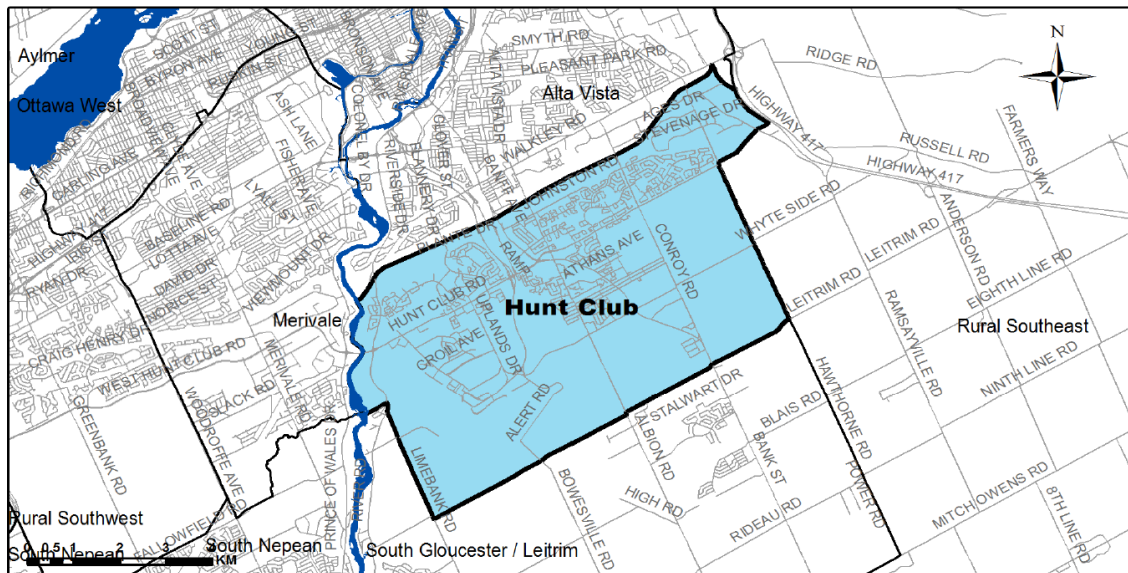
Notes: pph = persons per hour

4.1.2.3 Mode Share Proportions

As discussed previously, the trip generation estimates account primarily for employee-related trips. Residents are anticipated to primarily rely on non-auto modes of transportation, however, as there is not sufficient information to estimate resident-related trips the mode share targets presented below only apply to employee generated trips.

The TRANS Trip Generation Manual (October 2020) provides blended mode shares based on the 2011 TRANS Origin-Destination (O-D) Survey for select land uses for each of the Traffic Assessment Zones (TAZs) in the O-D Survey. The proposed development is located within the Hunt Club TAZ, as illustrated in **Figure 6** below. As discussed above, the trip generation rates used to estimate site-generated trips primarily represents employee-related trips. As such, the mode share distribution for the proposed development is based on the ‘employment generator’ mode share distributions from Table 12 of the TRANS Trip Generation Manual. Relevant extracts from the TRANS Trip Generation Manual are provided in **Appendix F**.

Figure 6 – Kanata / Stittsville TAZ



Source: 2011 TRANS O-D Survey

The planned improvements extension of the O-Train Trillium Line in conjunction with bus lanes on Hunt Club Road up to Albion Road South is anticipated to result in an increase in transit mode share in the area. Based on Exhibit 2.13 of the TMP, the transit mode share for the inner suburbs is anticipated to increase by 4% to 5% between 2011 to 2031. The target mode shares have therefore been increased accordingly to account for the planned transit improvements. The auto driver and auto passenger mode shares have correspondingly been reduced.

The existing mode share and the mode share targets of the proposed development are outlined below in **Table 7**.

Table 7 - Proposed Mode Share Targets (Employees)

TRAVEL MODE	EXISTING MODE SHARE	MODE SHARE TARGETS
Auto Driver	83%	79%
Auto Passenger	5%	4%
Transit	10%	14%
Cycling	1%	1%
Walking	1%	1%

4.1.2.4 Trip Reduction Factors

Deduction of Existing Development Trips

Not Applicable – The subject site is currently occupied by used car dealerships, a single-family home and a self-storage business. The trip generation of these land uses is assumed to be relatively low and has therefore not been deducted from the existing traffic volumes.

Pass-by Traffic

Not Applicable – The proposed development is primarily expected to generate work-related trips and therefore will not generate pass-by trips.

Synergy/ Internalization

Not Applicable – Synergy or internalization is typically applied to developments with two or more land uses to prevent double counting of trips with multiple intermediate destinations within the same site. As the proposed development contains only a single land use, no internalization reductions can be applied.

4.1.2.5 Trip Generation by Mode

The mode share targets presented above were applied to the number of development-generated person-trips to establish the number of trips per travel mode, as summarized in **Table 8** below.

Table 8 – Peak Hour Person-Trips by Mode

MODE	AM Peak Hour			PM Peak Hour		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Auto Driver	43	17	60	26	52	78
Auto Passenger	2	1	3	1	3	4
Transit	8	3	11	5	9	14
Cycling	1	0	1	0	1	1
Walking	1	0	1	1	1	2
Total	55	21	76	33	66	99

Based on the above, the proposed development is expected to generate up to 60 and 78 new two-way vehicular trips during the weekday morning and afternoon peak hours, respectively. As discussed previously, the above trip generation estimates account for only employee-related trips. There is not sufficient data available to estimate the trips generated by residents and as such the non-auto mode shares are under represented.

4.1.3 Trip Distribution and Assignment

Route selection and weighting for the proposed development distribution was derived based on a review of travel patterns from the Hunt Club Traffic Assessment Zone (TAZ) as well as the concentrations of residential development within the Hunt Club TAZ. Approximately 27% of trips originating within the Hunt Club TAZ remain within the area, therefore site-generated traffic was separated into 'local' and 'regional' traffic and assigned different distributions.

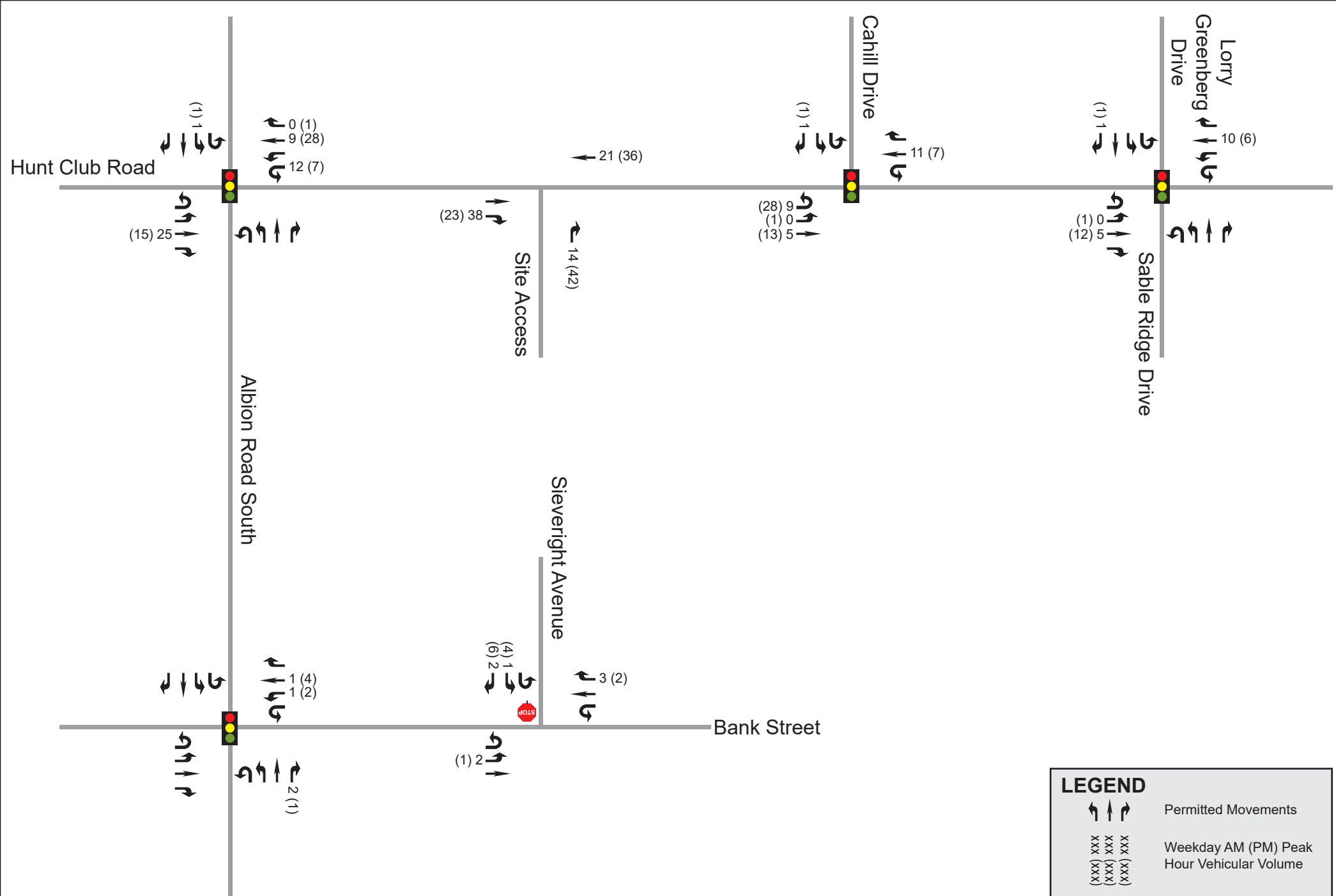
Based on the distribution of trips from the Hunt Club TAZ provided in the 2011 O-D Survey, 'regional' traffic was distributed as follows:

- 20% to/from the North via Bank Street
- 35% to/from the North via Airport Parkway
- 5% to/from the South via Bank Street
- 25% to/from the East via Hunt Club Road
- 15% to/from the West via Hunt Club Road

The distribution of 'local' traffic was based on the concentrations of residential development within the Hunt Club TAZ resulting in the following distribution:

- 30% to/from the North via Bank Street, Albion Road South, Cahill Drive and Lorry Greenberg Drive
- 30% to/from the South via Bank Street, Albion Road South and Apple Hill Drive
- 20% to/from the East via Hunt Club Road
- 20% to/from the West via Hunt Club Road

Utilizing the estimated number of new auto trips and applying the above distributions, future site-generated traffic volumes are illustrated for each of the study area intersections in **Exhibit 5** below.



LEGEND

- Permitted Movements
- xxx (xxx)
xxx (xxx)
xxx (xxx)
xxx (xxx) Weekday AM (PM) Peak Hour Vehicular Volume

4.2 Background Network Traffic

4.2.1 Changes to the Background Transportation Network

To properly assess future traffic conditions, planned modifications to the transportation network that may impact travel patterns or demand within the study area must be considered. The scoping section of this TIA reviewed the anticipated network modifications within the study area and determined that the most notable network change within the vicinity of the site is the planned widening of Airport Parkway from two to four lanes, the implementation of bus lanes on Hunt Club Road between Uplands Drive and Albion Road South, and the Trillium Line extension.

The upgrade and extension of the current Trillium Line will extend the line to the Ottawa International Airport and Limebank Station and is currently under construction. As part of this extension, South Keys Station will be converted from only Bus Rapid Transit (BRT) to Light Rail Transit (LRT) in parallel with BRT by 2022 and will improve transit service as a result.

The combined impact of the Trillium Line extension and of the other notable network changes on existing traffic volumes, travel patterns or mode shares, however, is not known and therefore no adjustments have been applied to background traffic volumes to account for these planned network changes.

4.2.2 General Background Growth Rates

The background growth rate is intended to represent any regional growth from outside the study area that will travel along the adjacent road network. Consistent with the TIA for both the Waterford Ottawa Senior Apartments development and 20 Mountain Crescent development, a 0.5% background traffic growth rate was applied to through movements on the arterial road network as well as all movements at arterial-to-arterial intersections.

4.2.3 Other Area Development

Future adjacent developments in the vicinity of the proposed development have been identified previously in the Scoping section of this report. **Table 9** below summarizes the land use details and expected build-out year of these future adjacent developments.

The targeted build-out dates identified are those stated in the respective studies.

Table 9 - Future Adjacent Developments

DEVELOPMENT	LAND USE	EXPECTED BUILD-OUT YEAR
Waterford Ottawa Senior Apartments (2431 Bank Street)	<ul style="list-style-type: none"> 144-unit expansion to existing retirement home 	End of 2021
20 Mountain Crescent	<ul style="list-style-type: none"> 151 apartment units 	2022

4.3 Demand Rationalization

The purpose of this section is to rationalize future travel demands within the study area to account for potential capacity limitations in the transportation network and its ability to effectively accommodate the additional demand generated by a new development.

4.3.1 Description of Capacity Issues

The study areas of the adjacent development TIAs do not overlap with the study area of this TIA. As such, there are no records of capacity issues at any of the study area intersections.

4.3.2 Adjustment to Development-Generated Demands

Development-generated demands were determined based on data from the ITE Trip Generation Manual, mode shares from the TRANS Trip Generation Manual and on travel patterns for the Hunt Club TAZ in the O-D Survey. The transit mode share target was increased by 4% relative to the existing mode share for the TAZ based on the anticipated increase documented in the TMP. The auto driver and auto passenger mode shares were correspondingly decreased to account for this increase.

4.3.3 Adjustment to Background Network Demands

As prescribed in the TIA Guidelines, the effects of peak-hour spreading have been considered in future analysis years of this study. It is anticipated that as traffic volumes continue to gradually increase, traffic volumes will have a natural tendency to be more evenly distributed across the peak hour (PHF = 1.0) and eventually increase demands in the shoulders of the peak as well. The impacts of peak hour spreading are accounted for in the Synchro modelling, completed as part of the Analysis component of this study.

As no specific capacity issues have been identified through previous studies, no further adjustments to background network demands are necessary.

4.4 Traffic Volume Summary

4.4.1 Future Background Traffic Volumes

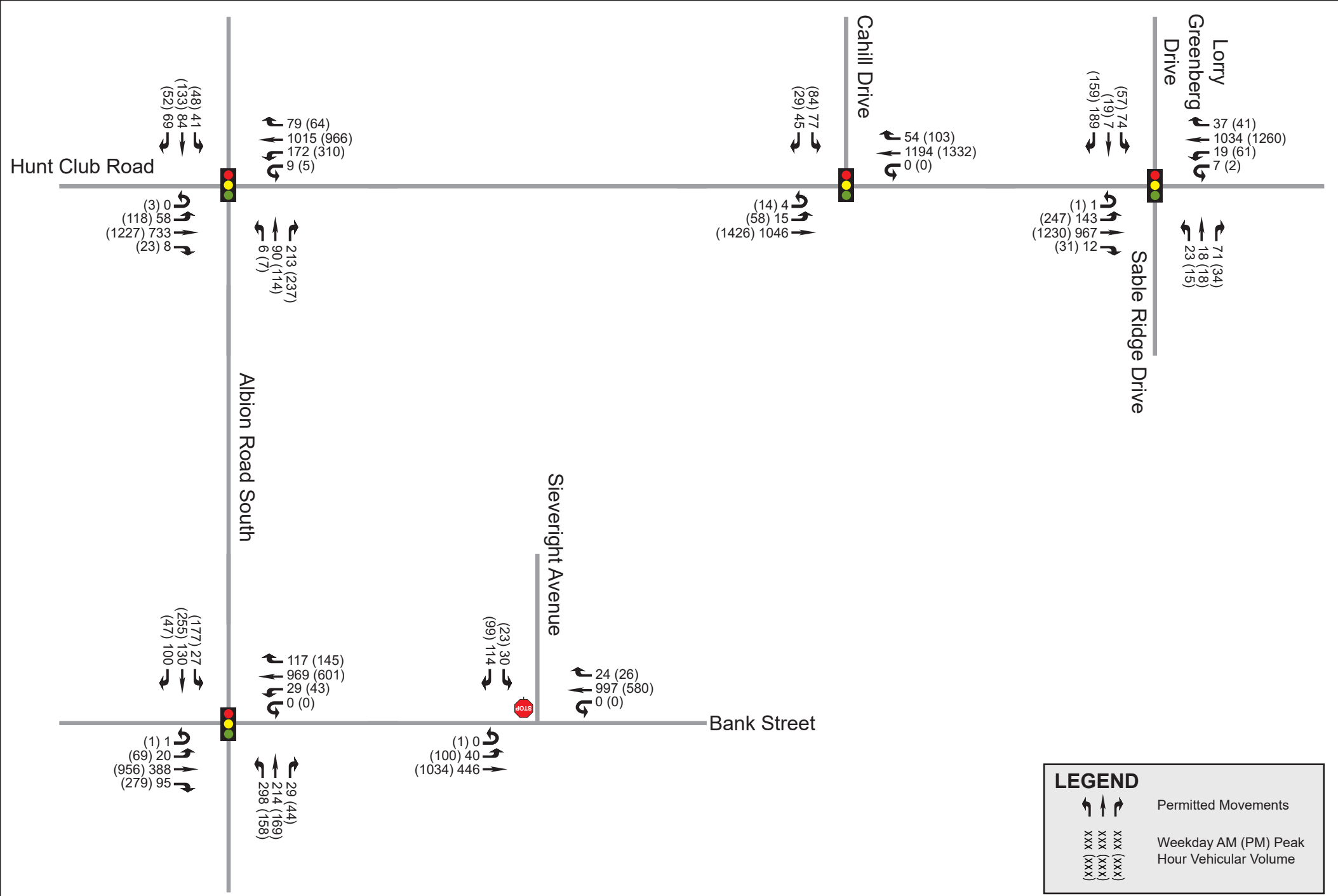
Future background traffic volumes were derived by applying a growth rate to existing traffic volumes and superimposing these volumes with future adjacent development volumes.

Exhibit 6 and **Exhibit 7** below presents the future background traffic volumes anticipated for the 2022 and 2027 analysis years, respectively.

4.4.2 Future Total Traffic Volumes

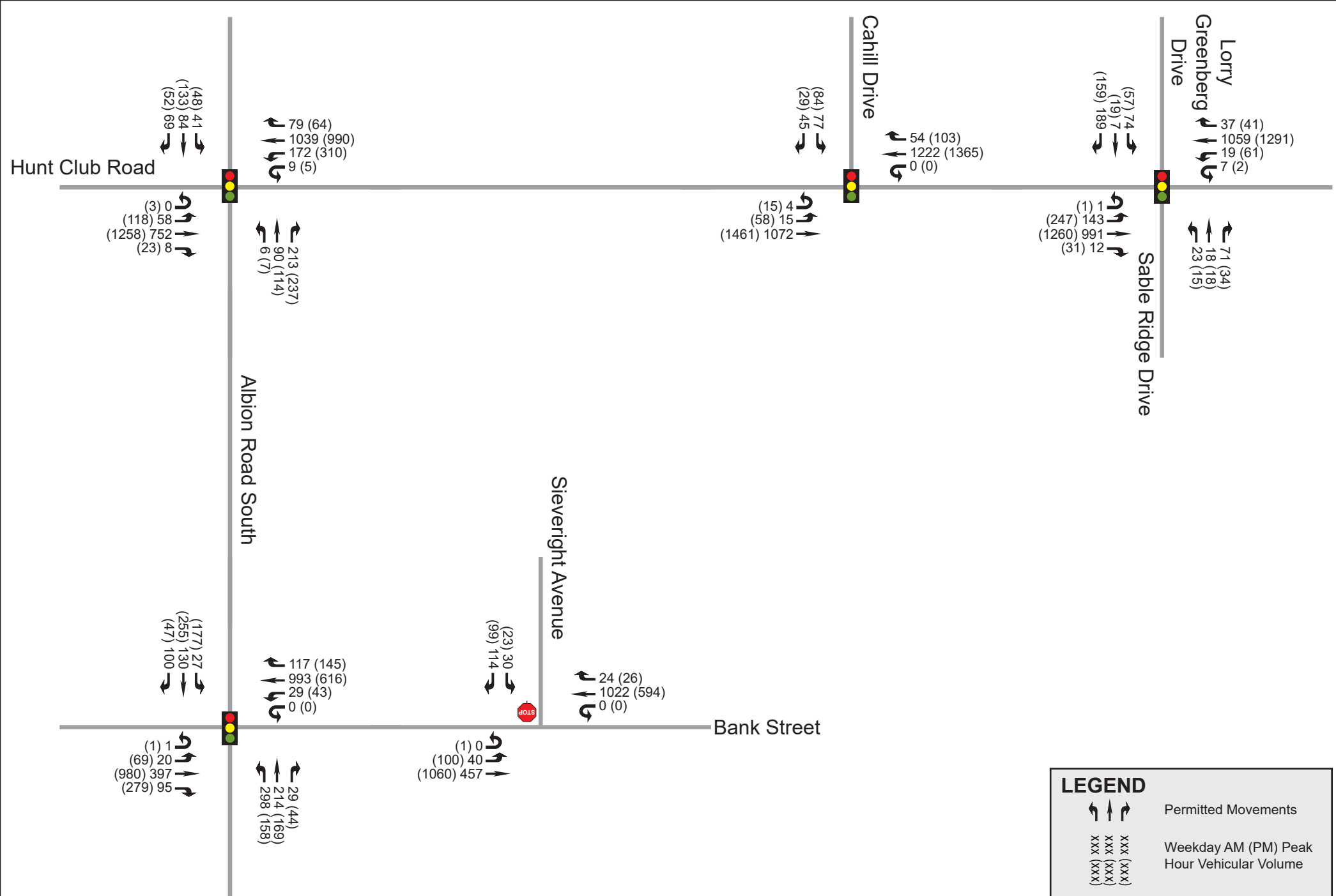
Future total traffic volumes have been established by combining the site-generated traffic volumes with the future background traffic volumes.

Exhibit 8 and **Exhibit 9** below presents the future total traffic volumes anticipated for the 2022 and 2027 analysis years, respectively.



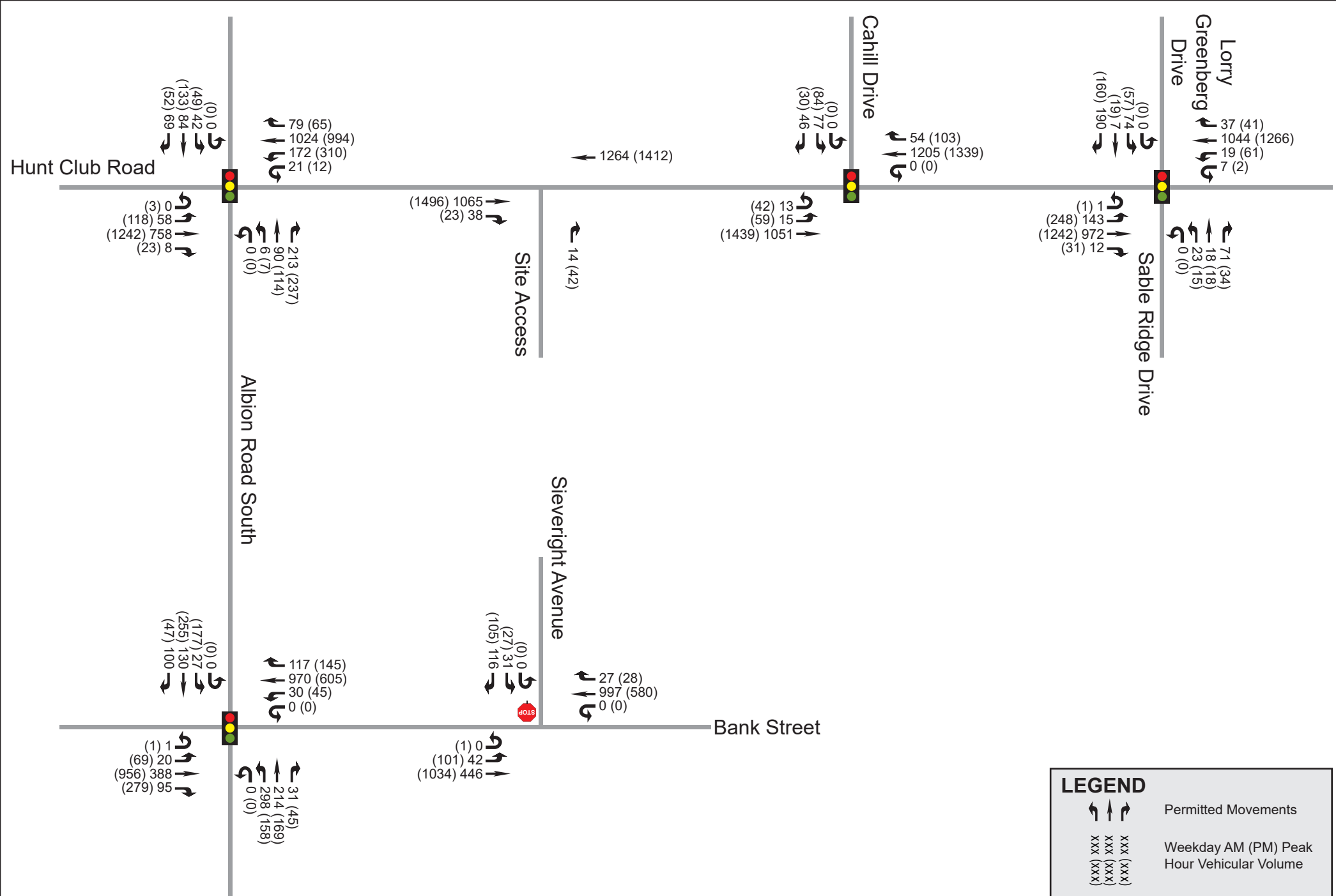
LEGEND

- Permitted Movements
- Weekday AM (PM) Peak Hour Vehicular Volume



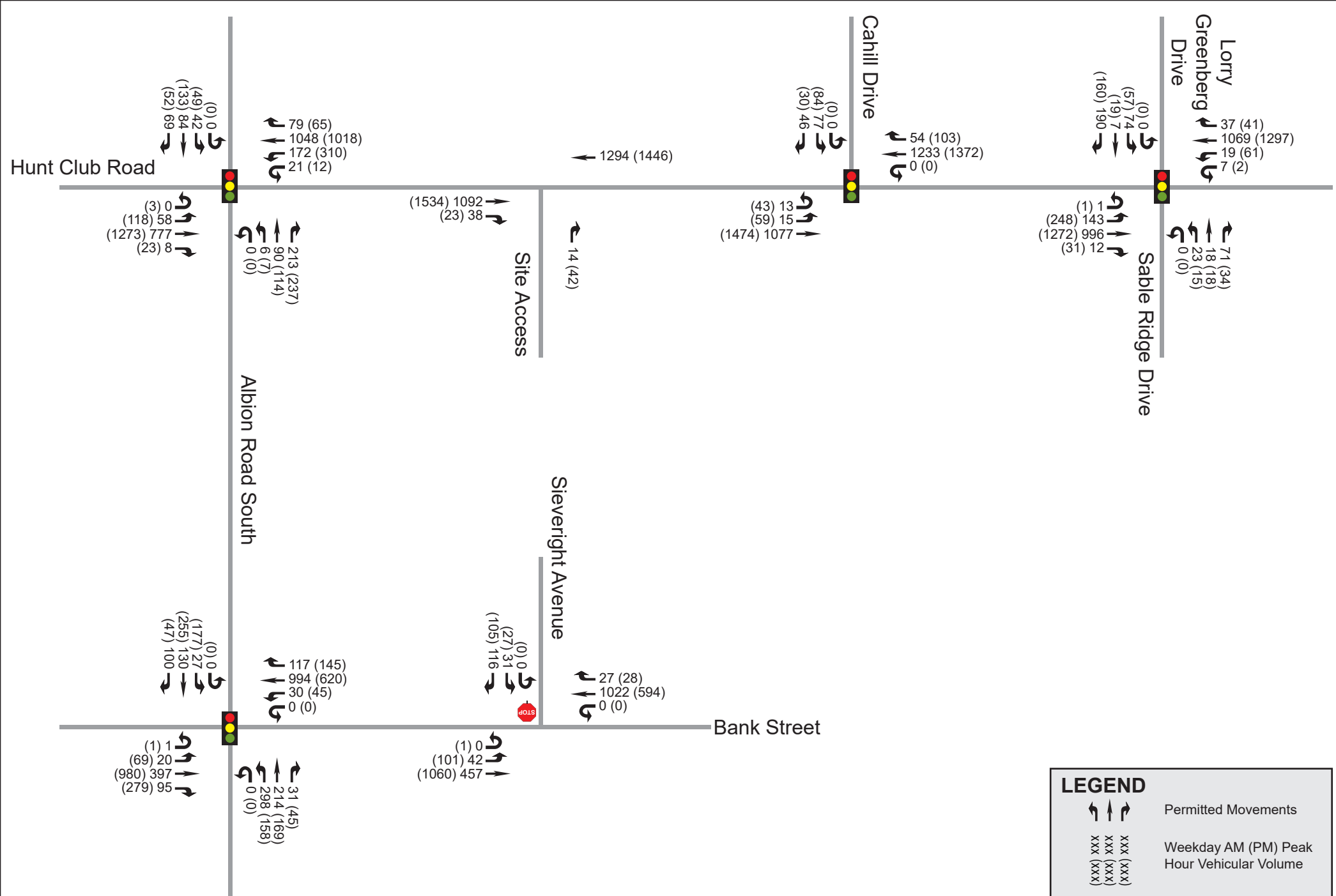
LEGEND

- Permitted Movements
- Weekday AM (PM) Peak Hour Vehicular Volume



LEGEND

- Permitted Movements
- xxx (xxx)
 xxx (xxx)
 xxx (xxx)
 xxx (xxx)
- Weekday AM (PM) Peak
 Hour Vehicular Volume



LEGEND

- Permitted Movements
- xxx (xxx)
xxx (xxx)
xxx (xxx)
xxx (xxx) Weekday AM (PM) Peak Hour Vehicular Volume

5 Analysis

5.1 Development Design

5.1.1 Design for Sustainable Modes

For consistency with the City of Ottawa’s Urban Design Guidelines and transportation policies, new developments shall provide safe and efficient access for all users, while creating an environment that encourages walking, cycling and transit use.

The proposed development is located within a short (600m) walking distance of the Southgate Shopping Centre which provides access to a variety of amenities including a grocery store, pharmacy, bank and fast-food restaurants. The South Keys Shopping Centre is also located within 1.5 km walking distance of the site and can also be accessed via Route #98. Given that residents will not have access to personal vehicles, it is important that they have access to amenities via active transportation.

The walking distances from the front doors of the proposed development to the transit stops at the Hunt Club Road & Cahill Drive intersection range from 300m to 400m and therefore meets the minimum-prescribed distance of 400m (5-minute) walking distance to public transportation.

The TDM-Supportive Development Design and Infrastructure Checklist was completed and is provided in **Appendix G**. This checklist identifies specific measures that are being considered in association with the proposed development to offset the vehicular impact on the adjacent road network. Notable measures that are being considered are:

- Providing safe, convenient and direct connections to adjacent pedestrian, cycling and transit facilities;
- Providing wayfinding signage where necessary;
- Providing the number of bicycle parking spaces required by by-law;
- Providing sheltered and secured bicycle parking spaces;
- Providing shower and change facilities for cyclists;
- Providing a bicycle repair station in the underground parking garage; and
- Providing a pick-up/drop-off area for taxis and carshare services.

5.1.2 Circulation and Access

All site-generated traffic will access the proposed development via two access driveways, one all movement driveway on Sieveright Avenue and one right-in/right-out driveway on Hunt Club Road. The majority of site-generated traffic is expected to use the Hunt Club Road access while the access on Sieveright Avenue is intended to be secondary and used less frequently. These driveways will be 6.0m wide and provide access to a surface parking lot at the rear of the building and pick-up/drop-off area at the front entrance to the building. Access to the underground parking garage will also be provided via a 6.4m wide ramp at the rear of the building. The surface and underground drive aisles will be 7.8m and 6.0m wide, respectively.

Delivery and waste collection vehicles will enter the site via the Hunt Club Road access and park near the loading zone at the rear of the building, exiting via Sieveright Avenue. Carts will then be used to transport goods from the delivery vehicle into the building. The site has been designed to accommodate a specific delivery vehicle: a SU-40 3-axle truck.

5.1.3 New Street Networks

Not Applicable: The New Street Networks element is exempt from this TIA, as defined in the study scope. This element is not required for development applications involving site plans.

5.2 Parking

5.2.1 Parking Supply

The Zoning By-law indicates that for a residential care facility, a minimum of 0.25 spaces per dwelling unit plus 1 space per 100 m² of gross floor area used for medical, health or personal services is required. As such, a minimum of 230 parking spaces are required.

Based on the site plan, a total of 13 surface parking spaces and 80 underground parking spaces will be provided, for a total of 93 spaces. The site is therefore deficient by 137 spaces. It is important to note that residents will not have access to a personal vehicle and therefore the parking demand will be generated solely by staff and visitors. Residents are expected to primarily use transit, private shuttles, taxis, walk or bicycle to travel. Approximately 100 staff will be on-site at any given time, of which 79% are anticipated to drive a personal vehicle, based on the target mode share described. Staff are therefore expected to generate a peak parking demand of 79 spaces. The remaining 14 parking spaces will therefore be available for visitors. As the same number of spaces are provided at the existing Larga Baffin facility on Richmond Road, it is expected that this will be sufficient to meet visitor parking demand. A pick-up/drop-off loop has also been provided at the main entrance to accommodate shuttle buses, taxis and rideshare vehicles.

The Zoning By-law also indicates that the minimum bicycle parking space requirement is 0.25 spaces per dwelling unit and 0.25 spaces per employee. A total of 80 bicycle spaces will be provided thereby meeting this requirement.

5.2.2 Spillover Parking

As discussed above, based on the mode share target for the proposed development, it is anticipated that a peak parking demand of 79 spaces will be generated by staff. The remaining 14 spaces will therefore be available for visitors.

5.3 Boundary Streets

The proposed development is located adjacent to two boundary streets: Hunt Club Road and Sieveright Avenue.

5.3.1 Mobility

Segment-based Multi-Modal Level of Service (MMLOS) results for the portion of Hunt Club Drive and Sieveright Avenue adjacent to the site are provided in **Table 10** below. Details of the Multi-Modal Level of Service (MMLOS) analysis are provided in **Appendix H**.

Table 10 - Segment MMLOS Results

LOCATION	LEVEL OF SERVICE BY MODE			
	PEDESTRIAN (PLOS)	BICYCLE (BLOS)	TRANSIT (TLOS)	TRUCK (TkLOS)
Existing Conditions				
Hunt Club Road	E (Target: C)	F (Target: C)	D (Target: D)	A (Target: D)
Sieveright Avenue	C (Target: C)	D (Target: D)	D (Target: N/A ¹)	A (Target: N/A ²)

Notes:

¹ – Sieveright Avenue is not designated as a rapid transit or transit priority corridor and therefore there is no TLOS target for this roadway.

² – There are no TKLOS targets for local roads.

The results of the Segment MMLOS indicate that Hunt Club Road is not meeting its PLOS or BLOS targets. Sensitivity analysis indicates that widening the sidewalks to 2.0m wide, providing exclusive cycling facilities and reducing operating speeds to 50-60 km/h (i.e. speed limit reduction and passive traffic calming measures) will improve the PLOS and BLOS to 'C' and 'A', respectively.

It should be noted that the measures listed above are intended only as suggestions to the City on how the MMLOS within the study area could be improved and do not identify measures to be implemented as a direct consequence of this development. The MMLOS analysis identifies existing deficiencies in the study area and these deficiencies are not expected to be exacerbated by the proposed development.

5.3.2 Road Safety

A summary of all reported collisions within the study period over the past five years was presented in the Scoping section of this TIA. The City requires a safety review if at least six collisions for any one movement or of a discernible pattern have occurred over a five-year period. Preliminary analyses identified that all study area intersections and all roadway segments may be of potential concern, with the exception of the segment of Hunt Club Road between Dunston Terrace and Cahill Drive. Further review was therefore conducted, as summarized below:

5.3.2.1 Intersections

Table 11 summarizes the number of collisions recorded at each study intersection in the five-year period, subdivided by collision type.

Table 11 - Intersection Collisions by Types

INTERSECTION	COLLISION TYPE					
	Angle	Rear End	Sideswipe	Turning Mvmt	Single Motor Vehicle	Other
Hunt Club Rd & Albion Rd S	9	30	1	26	1	0
Bank St & Albion Rd S	7	17	4	8	3	0
Hunt Club Rd & Cahill Dr	13	16	3	4	0	1
Hunt Club Rd & Lorry Greenberg Dr / Sable Ridge Dr	6	32	1	14	1	0
Bank St & Sieveright Ave	5	0	0	1	1	0

As indicated above, there are potentially significant collision patterns (i.e. 6 or more collisions) involving angle, rear-end and turning movement collisions. No significant collision patterns occurred involving sideswipe, single motor vehicle (SMV) or ‘other’ collisions and no significant collision patterns were observed at the Bank Street & Sieveright Avenue intersection either.

Table 12 summarizes the above intersection collisions and subdivides them by the approach direction of the at-fault vehicle. Sideswipe, SMV and ‘other’ collision types as well as the Bank Street & Sieveright Avenue intersection have been excluded from this analysis.

Table 12 - Intersection Collisions by Direction and Type

INTERSECTION	VEHICLE 1 DIRECTION	COLLISION TYPE		
		Angle	Rear End	Turning Mvmt
Hunt Club Rd & Albion Rd S	Northbound	1	11	0
	Southbound	3	4	0
	Eastbound	3	10	11
	Westbound	2	5	15
Bank St & Albion Rd S	Northbound	1	10	2
	Southbound	3	4	2
	Eastbound	3	2	2
	Westbound	0	1	2
Hunt Club Rd & Cahill Dr	Southbound	3	0	0
	Eastbound	2	6	4
	Westbound	8	10	0
Hunt Club Rd & Lorry Greenberg Dr / Sable Ridge Dr	Northbound	0	1	0
	Southbound	1	6	0
	Eastbound	3	13	9
	Westbound	2	12	5

The significant collision patterns identified above have been analysed in detail in order to identify potential contributing factors:

Hunt Club Road & Albion Road South:

Based on the collision records provided, the majority of the northbound rear-end collisions involved northbound right-turning vehicles and the majority of eastbound rear-end collisions involved eastbound through or eastbound right-turning vehicles. The high volume of collisions occurring in the right-turn lanes may indicate high operating speeds coupled with vehicles suddenly braking to yield the right-of-way to other vehicles or pedestrians.

The eastbound and westbound turning movement collisions generally involved left-turning vehicles failing to yield the right-of-way to through traffic. Hunt Club Road curves to the east and west of this intersection which may obscure vehicle sightlines and may therefore be a potential contributing factor. The eastbound and westbound left-turn volumes at this intersection are also high during the afternoon peak hour which may result in high delays and contribute to driver impatience and/or more dangerous behaviour.

Given the above observations, it is suggested that consideration be given to removing the eastbound and northbound right-turn channels in order to encourage right-turning traffic to reduce their operating speed further prior to turning. Channelized right-turns may encourage vehicles to attempt a right-turn at a higher operating speed, resulting in more aggressive braking behavior when yielding the right-of-way. Consideration should also be given to reviewing the sightlines for the eastbound and westbound left-turn lanes to ensure left-turning traffic have sufficient sight distance to safely complete their movement. Consideration should also be given to providing fully

protected left-turn phases in order to remove potential left-through conflicts on those approaches. Sensitivity analysis under Future (2027) Total Traffic conditions indicates that fully protected left-turn phases can be provided while maintaining traffic operations at an acceptable Level of Service (i.e. LOS 'D' or better).

Bank Street & Albion Road South:

A high frequency of northbound rear-end collisions were observed at the Bank Street & Albion Road South intersection, the majority of which involved collisions with a stopped vehicle. This may be an indication of excessive speeding on the approach, which is straight with few private approaches, and/or may be the result of vehicles stopping sooner than expected to turn into one of the gas stations to the east and west. Consideration should be given to implementing traffic calming measures (such as speed display signs, speed humps, curb extensions, flexible centreline signage, etc.) on this approach to encourage lower operating speeds.

Hunt Club Road & Cahill Drive:

At the Hunt Club Road & Cahill Drive intersection, a number of angle collisions were recorded involving westbound vehicles. Based on the collision records, the majority of these collisions involved westbound through vehicles failing to obey the traffic signals resulting in a collision with southbound vehicles.

A large number of rear-end collisions were also recorded involving eastbound and westbound vehicles. The majority were collisions with stopped vehicles and it may be an indication of excessive speeding on Hunt Club Road and/or high volumes. Lighting and weather conditions were not a significant contributing factor in the majority of collisions.

Overall, the above collision patterns suggest that speeding on Hunt Club Road may be the primary contributing factor to the collisions observed. Implementation of passive traffic calming measures (e.g. automated speed display signs) and a reduction in the speed limit may help reduce collision frequency at this intersection.

Hunt Club Road & Lorry Greenberg Drive / Sable Ridge Drive:

The collision records for this intersection indicate that the majority of eastbound and westbound rear-end collisions involved vehicles stopped at the intersection and the southbound rear-end collisions occurred primarily between two right-turning vehicles. As noted for the previous intersections, the eastbound and westbound rear-end collisions are likely the result of excessive speeds and/or high volumes on Hunt Club Road. The southbound rear-end collisions may be a result of vehicles stopping unexpectedly due to the presence of a bus stop in the acceleration lane.

A number of turning movement collisions were also recorded at this intersection. Based on the collision records, the majority were the result of an eastbound left-turning vehicle failing to yield the right-of-way to westbound traffic. The eastbound and westbound left-turn movements are fully protected at this intersection which suggests that driver impatience (e.g. running the red light) may be contributing to these collisions.

As suggested previously, consideration should be given to implementing passive traffic calming measures and potentially reducing the speed limit along this corridor. Furthermore, the signal timing plan should be reviewed to ensure sufficient green time and clearance interval is provided to the left-turn movements.

It should be noted that the recommended measures listed above are intended only as suggestions to the City on how the safety issues at the study area intersections could be improved and do not identify measures to be implemented as a direct consequence of this development. The historical collision analysis identifies existing deficiencies within the study area and these deficiencies are not expected to be exacerbated by the proposed development.

5.3.2.2 Roadway Segments

Table 13 summarizes the number of collisions recorded along each roadway segment within the study area in the five-year period, subdivided by collision type. As the segment of Hunt Club Road between Dunston Terrace and Cahill Drive experienced less than six collisions in the five-year period, it has been excluded from further analysis.

Table 13 - Roadway Segment Collisions by Types

ROADWAY SEGMENT	COLLISION TYPE					
	Angle	Rear End	Sideswipe	Turning Mvmt	Single Motor Vehicle	Other
Hunt Club Rd – Albion Rd to Dunston Ter	0	5	1	0	0	1
Hunt Club Rd – Cahill Drive to Lorry Greenberg Dr / Sable Ridge Dr	0	3	5	0	4	0
Bank St – Albion Rd S to Sieveright Ave	5	3	2	2	3	0

As indicated above, no significant collision patterns (i.e. 6 collisions or more) have been noted within the five-year period for any of the roadway segments above. As such, no further analysis is required.

5.4 Access Intersections

5.4.1 Location and Design of Access

The proposed development will provide a new two-way private approach on both Hunt Club Road and Sieveright Avenue. The proposed site accesses are in conformance with the City of Ottawa Private Approach By-law 2003-447, with particular confirmation of the following items:

- **Width:** A private approach shall have a minimum width of 2.4m and a maximum width of 9.0m.
 - The private approaches will be 6.0m wide. ✓
- **Quantity and Spacing of Private Approaches:** For sites with frontage between 46 and 150 metres, one (1) two-way private approach and two (2) one-way private approaches or two (2) two-way private approaches are permitted. Any two private approaches must be separated by at least 9.0m and can be reduced to 2.0m in the case of two one-way driveways. On lots that abut more than one roadway, these provisions apply to each frontage separately.
 - The site’s frontage on Hunt Club Road and on Sieveright Avenue is approximately 81m and 130m, respectively, therefore the single two-way private approach on each roadway is compliant with the by-law. ✓

- Distance from Property Line: Private approaches must be at least 3.0m from the abutting property line, however this requirement can be reduced to 0.3m provided that the access is a safe distance from the access serving the adjacent property, sight lines are adequate and that it does not create a traffic hazard.
 - Both private approaches are more than 3.0m from the property line. ✓
- Distance from Nearest Intersecting Street Line: For a development with 20 to 99 parking spaces located on a parcel adjacent to or within 46m of an arterial or major collector, all private approaches must be a minimum of 18m from the nearest intersecting street line.
 - The private approach on Hunt Club Road is approximately 170m from the nearest intersecting street line. ✓
 - The private approach on Sieveright Avenue forms a four-way intersection with Sieveright Avenue and Apple Hill Drive and therefore is exempt from this requirement. ✓
- Distance from Any Other Private Approach: For a development with 20 to 99 parking spaces located on a parcel adjacent to or within 46m of an arterial or major collector, all two-way private approaches must be a minimum of 15m from the any other private approach.
 - The private approach on Hunt Club Road is more than 15m from the private approach to the property to the west. ✓
 - The private approach on Sieveright Avenue forms a four-way intersection with Sieveright Avenue and Apple Hill Drive and therefore is exempt from this requirement. ✓

5.4.2 Access Intersection Control

It is expected that the site access intersections will operate acceptably as unsignalized intersections.

5.4.3 Access Intersection Design (MMLOS)

Not Applicable – The site access driveways will be unsignalized, therefore MMLOS analysis are not required for these intersections.

5.5 Transportation Demand Management (TDM)

The City of Ottawa is committed to implementing Transportation Demand Management (TDM) measures on a City-wide basis in an effort to reduce automobile dependence, particularly during the weekday peak travel periods. TDM initiatives are aimed at encouraging individuals to use non-auto modes of travel during the peak periods.

5.5.1 Context for TDM

As discussed previously, the proposed development is located adjacent to Hunt Club Road, a spine cycling route and transit priority corridor (continuous lanes). The proposed mode share targets for the subject development were calculated based on a blended mode share distribution of the Hunt Club Traffic Assessment Zone (TAZ) in which the development is located. The development is well located with access to transit within a short walking distance and access to sidewalks. The majority of site-generated traffic will be generated by employees of the facility. Residents will not have access to private vehicles and are expected to primarily use active transportation (i.e. taxis, transit, walk, bicycle).

5.5.2 Need and Opportunity

The surrounding transportation networks (vehicle, transit, pedestrian and cycling) immediately adjacent to the proposed development are not expected to undergo significant changes within the timeframe of this study. Outside the study area, however, roadway widenings (Airport Parkway and Lester Road), the extension of the O-Train Trillium Line and on-street bus lanes on Hunt Club Road will provide additional vehicular and transit capacity. Given the existing high auto mode share of the Hunt Club TAZ, it is not expected that the planned network improvements will result in a significant increase in auto mode share and may in fact result in a shift towards transit. As such, attaining the proposed mode share targets is likely to be easily achieved.

5.5.3 TDM Program

The proposed development conforms to the City's TDM principles by providing convenient and direct connections to adjacent pedestrian and transit facilities. The City of Ottawa's TDM Measures Checklist was completed for the proposed development and provided in **Appendix G**. This checklist indicates measures that are being contemplated as part of this development. Notable measures that are being considered include:

- Ensuring maps and OC Transpo brochures are available for residents;
- Providing shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand;
 - Provide for employees as needed (e.g. during COVID-19);
 - Provide for residents to various cultural events; and
- Providing on-site amenities/services to minimize mid-day or mid-commute errands such as hot lunch available for all staff.

5.6 Neighbourhood Traffic Management

5.6.1 Adjacent Neighbourhoods

The proposed development is dependent on a local road (Sieveright Avenue) for access. Based on the TIA Guidelines, local roads have a maximum threshold of 120 vehicles during the peak hour. Volumes in excess of this threshold may impact resident comfort but do not necessarily indicate that the roadway cannot accommodate this level of traffic.

Based on the turning movement counts provided by the City of Ottawa, Sieveright Avenue currently already exceeds the threshold for local roads with volumes approaching 210 and 250 vehicles during the weekday morning and afternoon peak hours, respectively. The proposed development is anticipated to contribute an additional 8 to 13 vehicles during the peak hours, representing a negligible increase in volumes. The impact of the proposed development will therefore be minimal. The secondary access is also required for access to this site.

The proposed development also presents an attractive cut-through route for vehicles travelling to/from the east for the adjacent communities and for traffic coming from the south via Bank Street and going to the east via Hunt Club Road. In order to eliminate the potential for cut-through traffic, it is recommended that the access on Sieveright Avenue be gate controlled and 'no through traffic' signage will be placed at the entrances. The adjacent site to the west has attempted to address the potential for cut-through traffic through the installation of a gate as well.

5.7 Transit

5.7.1 Route Capacity

The estimated future site-generated transit demand was provided in the Forecasting component of this study. The results have been summarized in **Table 14** below.

Table 14 – Development Generated Transit Demand

PERIOD	PEAK PERIOD DEMAND	
	IN	OUT
AM	8	3
PM	5	9

As indicated in **Table 14** above, site-generated two-way transit ridership volumes of 11-14 passengers per hour are expected during the weekday morning and afternoon peak hours, respectively. Given these small volumes, no additional transit capacity will be required to accommodate the proposed development. Outside the peak hours, transit-trips generated by residents may exceed the volumes shown above, however, as these will occur outside of the peak hours the background transit demand should be lower and therefore sufficient capacity should exist to accommodate the demand.

5.7.1 Transit Priority Measures

The expected increase in transit ridership associated with the proposed development is not expected to trigger the need for any isolated transit priority measures to offset any transit delays.

5.8 Review of Network Concept

Not Applicable: As discussed in 4.1.2.2, the person-trip generation of the site is not expected to exceed 200 person-trips during the peak hours therefore screenline capacity analysis is not required.

5.9 Intersection Design

The following sections summarize the methodology and results of the multi-modal intersection capacity analysis conducted within the study area.

5.9.1 Intersection Control

The following section evaluates the need to conduct traffic signal warrant analyses and roundabout analyses at any applicable study area intersections.

5.9.1.1 Traffic Signal Warrants

Traffic signal warrant analysis was completed for the Bank Street & Sieveright Avenue intersection under Existing (2021) Traffic and Future (2027) Total Traffic conditions. The results of the analysis indicate that the intersection does not warrant signalization. Details of the signal warrant analysis are provided in **Appendix I**.

5.9.1.2 Roundabout Analysis

Not Applicable - As per the City’s Roundabout Implementation Policy, intersections that satisfy any of the following criteria should be screened utilizing the Roundabout Initial Feasibility Screening Tool:

- At any new City intersection;
- Where traffic signals are warranted; or
- At intersections where capacity or safety problems are being experienced.

As the Bank Street & Sieveright Avenue intersection is shown to be experiencing capacity issues under Existing (2021) Traffic conditions, the Roundabout Initial Feasibility Screening Tool was completed for this intersection. Based on the results of the feasibility screening analysis, a roundabout would not be suitable at this location, therefore no roundabout analysis is required for this study.

5.9.2 Intersection Analysis Criteria (Automobile)

The following section outlines the City of Ottawa’s methodology for determining motor vehicle Level-of-Service (LOS) at signalized and unsignalized intersections.

5.9.2.1 Signalized Intersections

In qualitative terms, the Level-of-Service (LOS) defines operational conditions within a traffic stream and their perception by motorists. A LOS definition generally describes these conditions in terms of such factors as delay, speed and travel time, freedom to manoeuvre, traffic interruptions, safety, comfort and convenience. LOS can also be related to the ratio of the volume to capacity (v/c) which is simply the relationship of the traffic volume (either measured or forecast) to the capability of the intersection or road section to accommodate a given traffic volume. This capability varies depending on the factors described above. LOS are given letter designations from ‘A’ to ‘F’. LOS ‘A’ represents the best operating conditions and LOS ‘E’ represents the level at which the intersection or an approach to the intersection is carrying the maximum traffic volume that can, practicably, be accommodated. LOS ‘F’ indicates that the intersection is operating beyond its theoretical capacity.

The City of Ottawa has developed criteria as part of the Transportation Impact Assessment Guidelines, which directly relate the volume to capacity (v/c) ratio of a signalized intersection to a LOS designation. These criteria are presented in **Table 15** as follows:

Table 15 - LOS Criteria for Signalized Intersections

LOS	VOLUME TO CAPACITY RATIO (v/c)
A	0 to 0.60
B	0.61 to 0.70
C	0.71 to 0.80
D	0.81 to 0.90
E	0.91 to 1.00
F	> 1.00

The intersection capacity analysis technique provides an indication of the LOS for each movement at the intersection under consideration and for the intersection as a whole. The overall v/c ratio for an intersection is defined as the sum of equivalent volumes for all critical movements at the intersection divided by the sum of capacities for all critical movements.

The Level of Service calculation is based on locally-specific parameters as described in the TIA Guidelines and incorporates existing signal timing plans obtained from the City of Ottawa. The analysis existing conditions utilized a Peak Hour Factor (PHF) of 0.90, while future conditions considers optimized signal timing plans and use of a Peak Hour Factor (PHF) of 1.0 to recognize peak spreading beyond a 15-minute period in congested conditions.

5.9.2.2 Unsignalized Intersections

The capacity of an unsignalized intersection can also be expressed in terms of the LOS it provides. For an unsignalized intersection, the Level of Service is defined in terms of the average movement delays at the intersection. This is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line; this includes the time required for a vehicle to travel from the last-in-queue position to the first-in-queue position. The average delay for any particular minor movement at the un-signalized intersection is a function of the capacity of the approach and the degree of saturation.

The Highway Capacity Manual 2010 (HCM), prepared by the Transportation Research Board, includes the following Levels of Service criteria for un-signalized intersections, related to average movement delays at the intersection, as indicated in **Table 16** below.

Table 16 - LOS Criteria for Unsignalized Intersections

LOS	DELAY (seconds)
A	<10
B	>10 and <15
C	>15 and <25
D	>25 and <35
E	>35 and <50
F	>50

The unsignalized intersection capacity analysis technique included in the HCM and used in the current study provides an indication of the Level of Service for each movement of the intersection under consideration. By this technique, the performance of the unsignalized intersection can be compared under varying traffic scenarios, using the Level of Service concept in a qualitative sense. One unsignalized intersection can be compared with another unsignalized intersection using this concept. Level of Service 'E' represents the capacity of the movement under consideration and generally, in large urban areas, Level of Service 'D' is considered to represent an acceptable operating condition. Level of Service 'E' is considered an acceptable operating condition for planning purposes for intersections located within Ottawa's Urban Core (the downtown and its vicinity). Level of Service 'F' indicates that the movement is operating beyond its design capacity.

5.9.3 Intersection Capacity Analysis

Following the established intersection capacity analysis criteria described above, the existing and future conditions are analyzed during the weekday peak hour traffic volumes derived in this study.

The following section presents the results of the intersection capacity analysis. All tables summarize study area intersection LOS results during the weekday morning and afternoon peak hour periods.

The Synchro output files have been provided in **Appendix K**.

5.9.3.1 Existing (2021) Traffic

An intersection capacity analysis has been undertaken using the Existing (2021) Traffic volumes presented in **Exhibit 3**.

Table 17 below summarizes the results of the intersection capacity analysis.

Table 17 - Intersection Capacity Analysis: Existing (2021) Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)
Hunt Club Rd & Albion Rd S	Signalized	A (0.57)	NBTR (0.93)	D (0.90)	WBL (1.02)
	Signalized ²	A (0.57)	NBTR (0.89)	E (0.91)	WBL (0.92)
Hunt Club Rd & Cahill Dr	Signalized	A (0.48)	SBL (0.54)	A (0.58)	EBT (0.58)
Hunt Club Rd & Lorry Greenberg Dr / Sable Ridge Dr	Signalized	A (0.59)	EBL (1.29)	C (0.71)	EBL (1.38)
	Signalized ²	B (0.61)	EBL (0.76)	C (0.74)	EBL (0.89)
Bank St & Albion Rd S	Signalized	B (0.67)	NBL (1.25)	B (0.65)	NBL (0.80)
	Signalized ²	C (0.71)	NBL (0.88)	B (0.65)	NBL (0.80)
Bank St & Sieveright Ave ¹	Unsignalized	F (55.2s)	SBL (55.2s)	E (50.0s)	SBL (50.0s)

Notes:

¹ – For the purposes of traffic analysis, Bank Street is considered to be oriented east-west and Sieveright Avenue is considered to be oriented north-south.

² – Optimized signal timing plan.

Based on the results of the analysis above, all signalized intersections within the study area are operating at an acceptable overall Level of Service (i.e. LOS ‘D’ or better), however, several movements are operating at or above their theoretical capacity. Signal timing optimization is shown to address these capacity issues, with the exception of the Hunt Club Road & Albion Road South intersection during the afternoon peak hour which can only be improved to LOS ‘E’. As demonstrated in subsequent sections, the effects of peak spreading under future traffic conditions are anticipated to improve traffic operations at that intersection.

The intersection of Bank Street & Sieveright Avenue is also experiencing capacity issues on the southbound left-turn movement with delays exceeding 50s to 55s per vehicle (i.e. LOS ‘E’ to ‘F’). The 95th percentile queues on the southbound approach are only expected to extend up to 1-2 vehicles in length and therefore queue spillback is not expected. As there are currently no known

plans to signalize the intersection and the intersection does not meet the traffic signal warrants, it is assumed that the intersection will remain unsignalized within the timeframe of this study.

5.9.3.2 Future (2022) Background Traffic

An intersection capacity analysis has been undertaken using the Future (2022) Background Traffic volumes presented in **Exhibit 6**, yielding the following results:

Table 18 - Intersection Capacity Analysis: Future (2022) Background Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)
Hunt Club Rd & Albion Rd S	Signalized	A (0.51)	NBTR (0.86)	C (0.80)	NBTR (0.88)
Hunt Club Rd & Cahill Dr	Signalized	A (0.43)	SBL (0.51)	A (0.51)	SBL (0.54)
Hunt Club Rd & Lorry Greenberg Dr / Sable Ridge Dr	Signalized	A (0.55)	EBL (0.72)	B (0.67)	EBL (0.84)
Bank St & Albion Rd S	Signalized	B (0.61)	NBL (0.80)	A (0.59)	SBTR (0.77)
Bank St & Sieveright Ave ¹	Unsignalized	E (40.5s)	SBL (40.5s)	E (37.6s)	SBL (37.6s)

Notes:

¹ – For the purposes of traffic analysis, Bank Street is considered to be oriented east-west and Sieveright Avenue is considered to be oriented north-south.

Based on the results of the analysis above, traffic operations at all intersections are expected to improve relative to Existing (2021) Traffic conditions as a result of the effects of peak spreading (i.e. PHF of 1.0 rather than 0.9) and signal timing optimization. The intersection of Bank Street & Sieveright Avenue is expected to be approaching its theoretical capacity (i.e. LOS 'E') under these traffic conditions.

5.9.3.3 Future (2027) Background Traffic

An intersection capacity analysis has been undertaken using the Future (2027) Background Traffic volumes presented in **Exhibit 7**, yielding the following results:

Table 19 - Intersection Capacity Analysis: Future (2027) Background Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)
Hunt Club Rd & Albion Rd S	Signalized	A (0.52)	NBTR (0.86)	D (0.82)	NBTR (0.88)
Hunt Club Rd & Cahill Dr	Signalized	A (0.44)	SBL (0.51)	A (0.52)	SBL (0.54)
Hunt Club Rd & Lorry Greenberg Dr / Sable Ridge Dr	Signalized	A (0.56)	EBL (0.72)	B (0.67)	EBL (0.84)
Bank St & Albion Rd S	Signalized	B (0.62)	NBL (0.80)	A (0.60)	SBTR (0.77)
Bank St & Sieveright Ave ¹	Unsignalized	E (43.1s)	SBL (43.1s)	E (39.5s)	SBL (39.5s)

Notes:

¹ – For the purposes of traffic analysis, Bank Street is considered to be oriented east-west and Sieveright Avenue is considered to be oriented north-south.

By 2027, all study area intersections are expected to continue operating at an acceptable overall Level of Service (i.e. LOS 'D' or better) under background traffic conditions. The exception is the Bank Street & Sieveright Avenue intersection which is expected to be approaching its theoretical capacity at the horizon year of this study.

5.9.3.4 Future (2022) Total Traffic

An intersection capacity analysis has been undertaken using the Future (2022) Total Traffic volumes presented in **Exhibit 8**, yielding the following results:

Table 20 - Intersection Capacity Analysis: Future (2022) Total Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)
Hunt Club Rd & Albion Rd S	Signalized	A (0.51)	NBTR (0.86)	D (0.81)	NBTR (0.88)
Hunt Club Rd & Cahill Dr	Signalized	A (0.44)	SBL (0.51)	A (0.51)	SBL (0.54)
Hunt Club Rd & Lorry Greenberg Dr / Sable Ridge Dr	Signalized	A (0.55)	EBL (0.72)	B (0.67)	EBL (0.84)
Bank St & Albion Rd S	Signalized	B (0.61)	NBL (0.80)	A (0.59)	SBTR (0.77)
Bank St & Sieveright Ave ¹	Unsignalized	E (41.5s)	SBL (41.5s)	E (39.2s)	SBL (39.2s)
Hunt Club Rd & Right-in/Right-out Access	Unsignalized	B (12.7s)	NBR (12.7s)	C (16.6s)	NBR (16.6s)

Notes:

¹ – For the purposes of traffic analysis, Bank Street is considered to be oriented east-west and Sieveright Avenue is considered to be oriented north-south.

With the addition of site-generated traffic, all signalized intersections as well as the new right-in/right-out access on Hunt Club are expected to operate at an acceptable overall Level of Service (i.e. LOS 'D' or better). The impact of site-generated traffic on the Bank Street & Sieveright Avenue intersection are negligible and the intersection is expected to continue operating at LOS 'E'.

5.9.3.5 Future (2027) Total Traffic

An intersection capacity analysis has been undertaken using the Future (2027) Total Traffic volumes presented in **Exhibit 9**, yielding the following results:

Table 21 - Intersection Capacity Analysis: Future (2027) Total Traffic

INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
		OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)	OVERALL LOS (V/C OR DELAY)	CRITICAL MOVEMENTS (V/C OR DELAY)
Hunt Club Rd & Albion Rd S	Signalized	A (0.52)	NBTR (0.86)	D (0.83)	NBTR (0.88)
Hunt Club Rd & Cahill Dr	Signalized	A (0.45)	SBL (0.51)	A (0.52)	SBL (0.54)
Hunt Club Rd & Lorry Greenberg Dr / Sable Ridge Dr	Signalized	A (0.56)	EBL (0.72)	B (0.68)	EBL (0.84)
Bank St & Albion Rd S	Signalized	B (0.62)	NBL (0.80)	A (0.60)	SBTR (0.77)
Bank St & Sieveright Ave ¹	Unsignalized	E (43.9s)	SBL (43.9s)	E (41.2s)	SBL (41.2s)
Hunt Club Rd & Right-in/Right-out Access	Unsignalized	B (12.8s)	NBR (12.8s)	C (17.0s)	NBR (17.0s)

Notes:

¹ – For the purposes of traffic analysis, Bank Street is considered to be oriented east-west and Sieveright Avenue is considered to be oriented north-south.

By the horizon year of this study, all study area intersections, with the exception of the Bank Street & Sieveright Avenue intersection, are expected to operate at an acceptable Level of Service (LOS 'D' or better). Delays at the Bank Street & Sieveright Avenue intersection are anticipated to be high but the intersection is not expected to exceed its theoretical capacity.

5.9.4 Intersection Design (MMLOS)

5.9.4.1 Intersection MMLOS Methodology

The analysis criteria for each of the four non-auto modes are briefly described as follows:

Intersection Pedestrian Level of Service (PLOS)

The PLOS at intersections is based on several factors including the number of traffic lanes that pedestrians must cross, corner radii, and whether the crossing allows for permissive or protective right or left turns, among others. The City of Ottawa target for PLOS along an arterial main street and within the general urban area is 'C'.

Intersection Bicycle Level of Service (BLOS)

The BLOS at intersections is dependent on a few key factors: the number of lanes that the cyclist is required to cross to make a left-turn; the presence of a dedicated right-turn lane on the approach; and the operating speed of each approach. The City target for BLOS is ‘C’ for a spine route on an arterial main street and on an arterial road within the general urban area, ‘B’ for a local route on a collector road within the general urban area and ‘D’ elsewhere.

Intersection Transit Level of Service (TLOS)

Intersection TLOS is based on the average signal delay experienced by transit vehicles at each intersection. The City target for TLOS is ‘C’ for a transit priority route (continuous lanes) within the general urban area. There is no TLOS target for roadways that are not part of the rapid transit and transit priority network.

Intersection Truck Level of Service (TkLOS)

The Truck LOS (TkLOS) is based on the right-turn radii, as well as the number of receiving lanes for vehicles making a right-turn from the traffic lane being analyzed. The City target for TkLOS is ‘D’ for a truck route along an arterial main street or arterial roadway within the general urban area. There is no TkLOS target for collector or local roads.

5.9.4.2 Intersection MMLOS Results

An analysis of the existing and future conditions for each mode has been conducted based on the methodology prescribed in the City of Ottawa Multi-Modal Level of Service (MMLOS) Guidelines. The Level of Service (LOS) for each mode has been calculated for each intersection where traffic signals exist or are anticipated. The intersection MMLOS results have been summarized in **Table 22** below. Detailed intersection MMLOS analysis results are provided **Appendix H**.

Table 22 - Intersection MMLOS

LOCATION	LEVEL OF SERVICE BY MODE			
	PEDESTRIAN (PLOS)	BICYCLE (BLOS)	TRANSIT (TLOS)	TRUCK (TKLOS)
EXISTING CONDITIONS				
Hunt Club Road & Albion Road South	F (Target: C)	F (Target: B)	F (Target: D)	N/A ¹ (Target: D)
Bank Street & Albion Road South	F (Target: C)	F (Target: B)	N/A ² (Target: N/A ³)	N/A ¹ (Target: D)
Hunt Club Road & Cahill Drive	E (Target: C)	F (Target: C)	F (Target: N/A ⁴)	N/A ¹ (Target: D)
Hunt Club Road & Lorry Greenberg Drive / Sable Ridge Drive	F (Target: C)	F (Target: C)	F (Target: N/A ⁴)	N/A ¹ (Target: D)

Notes:

¹ – Side streets are not designated truck routes and therefore trucks are not expected to turn at the intersection.

² – There are no transit routes that pass through this intersection.

³ – Neither Bank Street nor Albion Road South are designated part of the rapid transit and transit priority network. Therefore, there is no TLOS targets for this intersection.

⁴ – Hunt Club Road is only designated a transit priority route (continuous lanes) up to Albion Road South. East of Albion Road South it is not part of the rapid transit and transit priority network.

5.9.4.3 Summary of Potential Improvements

Based on the MMLOS results outlined in **Table 17**, the following measures have been identified that could improve conditions for each travel mode:

Pedestrians

- The PLOS is based on two components: pedestrian exposure to traffic LOS and pedestrian delay LOS. At all study area intersections, the east and west legs have the most exposure to traffic and pedestrian delay due to the width of the roadway and short walk times. The PLOS could be improved to 'D' if the following were implemented:
 - Median refuges for the east/west crosswalks along Hunt Club Road;
 - Removal of channelized right-turn lanes as well as the auxiliary right-turn lanes;
 - High-visibility crosswalk markings;
 - Leading pedestrian intervals for the east/west crosswalks;
 - Prohibiting right turn on red on the eastbound and westbound approaches; and
 - Increasing the effective walk time for the east/west crosswalks.

Achieving the target PLOS of 'C' is not possible for a 4-lane divided roadway.

Cyclists

- Based on the analysis, none of the study area intersections are meeting their BLOS target due to a lack of cycling facilities (i.e. mixed traffic) and due to the number of traffic lanes they must cross to turn left at intersections. Implementing a protected intersection design at all intersections or cycle tracks paired with two-stage left-turn bike boxes would allow the intersections to meet or exceed the BLOS target.

Transit

- Only the Hunt Club Road & Albion Road South intersection is located on a rapid transit or transit priority corridor and as such is the only intersection with a TLOS target. It is recommended that the City consider implementing transit signal priority measures such as traffic signal pre-emption in order to reduce delays for transit vehicles given the long delays anticipated on the southbound approach.

Truck

- As none of the side streets are designated as truck routes, there is no requirement to meet the TkLOS targets at any of the study area intersection.

The recommended measures listed above are intended only as suggestions to the City on how the MMLOS within the study area could be improved and do not identify measures to be implemented as a direct consequence of this development. The MMLOS analysis identifies existing deficiencies in the study area and these deficiencies are not expected to be exacerbated by the proposed development.

5.10 Geometric Review

The following section reviews all geometric requirements for the study area intersections.

5.10.1 Sight Distance and Corner Clearances

The proposed site access on Hunt Club Road is located on the outside of a gradual horizontal curve which affords excellent sightlines towards the west for vehicles exiting the site. Based on the sight distance requirements from the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads and assuming a 70 km/h design speed, sufficient sight distance is available for a heavy vehicle to turn right from this access.

The proposed site access on Sieveright Avenue will form the fourth leg of an all-way stop-controlled intersection. All approaches will be easily visible for a vehicle stopped at the stop bar on the site access thereby meeting the sight distance requirements for this access.

The TAC Geometric Design Guide for Canadian Roads also indicates that a minimum corner clearance of 70m should be maintained between the private approach on Hunt Club Road and any downstream intersection. As discussed previously in Section 5.4.1, there is approximately 170m of distance between the site access and Cahill Drive and therefore the minimum corner clearance requirements are met.

5.10.2 Auxiliary Lane Analysis

Auxiliary turning lane requirements for all intersections within the study area are described as below. The minimum storage requirements do not include deceleration or taper.

5.10.2.1 Auxiliary Left-Turn Lane Requirements (Unsignalized Intersections)

Left-turn lane warrant analysis was completed for the Bank Street & Sieverigth Avenue intersection under Future (2027) Total Traffic conditions. The design speed for the analysis was assumed to be 70 km/h, representing 10 km/h above the posted speed limit.

The results of the left-turn lane warrant analyses indicate that this intersection warrants 25m of storage for the eastbound left-turn movement. The existing left-turn lane provides approximately 60m of storage and therefore exceeds the left-turn warrant requirements. Relevant extracts from the MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads have been provided in **Appendix L**.

5.10.2.2 Auxiliary Left-Turn Requirements (Signalized Intersections)

A review of auxiliary left-turn lane storage requirements was completed at all signalized intersections within the study area under Future (2027) Total Traffic conditions. The review compared the projected 95th percentile queue lengths from Synchro operational results, and the standard queue length calculation based on the following equation:

$$\text{Storage Length} = \frac{NL}{C} \times 1.5$$

Where:

N = number of vehicles per hour

L = Length occupied by a vehicle in the queue = 7 m

C = number of traffic signal cycles per hour

The results of the auxiliary left-turn lane analysis are summarized below in **Table 23** below.

Table 23 - Auxiliary Left-Turn Storage Analysis at Signalized Intersections

INTERSECTION	APPROACH	95TH %ILE QUEUE LENGTH / CALCULATED QUEUE (M)		EXISTING PARALLEL LANE LENGTH (M)	STORAGE DEFICIENCY (M)
		AM PEAK HR	PM PEAK HR		
Hunt Club Road & Albion Road South	NB	m4.7 / 1.4	m4.1 / 1.6	40	-
	SB	#23.6 / 9.8	#30.7 / 11.4	30	5
	EB	8.4 / 13.5	16.9 / 27.5	70	-
	WB	7.6 / 40.1	#93.8 / 72.3	95	-
Hunt Club Road & Cahill Drive	SB	31.9 / 18.0	34.1 / 19.6	35	-
	EB	m4.8 / 3.5	m0.3 / 13.8	100	-
Hunt Club Road & Lorry Greenberg Drive / Sable Ridge Drive	NB	13.3 / 5.4	10 / 3.5	25	-
	SB	31.1 / 17.3	25.7 / 13.3	45	-
	EB	54.4 / 33.4	#90.5 / 57.9	100	-
	WB	15.4 / 4.4	#34.7 / 14.2	100	-
Bank Street & Albion Road South	NB	69.7 / 69.5	39.3 / 36.9	45	25
	SB	m14.8 / 6.3	m57.5 / 41.3	45	15
	EB	13.3 / 4.7	29.9 / 16.1	35	-
	WB	16.9 / 7.0	21.7 / 10.5	60	-

The results of the queue length analysis above indicate that there are storage deficiencies at both the Hunt Club Road & Albion Road South and Bank Street & Albion Road South intersections.

As there is sufficient pavement width, the left-turn lane deficiencies at these two intersections can be easily addressed by adjusting the lane markings delineating the left-turn lanes and it is suggested that the City of Ottawa consider doing so the next time the pavement markings are renewed.

5.10.2.3 Auxiliary Right-Turn Lane Requirements (Unsignalized Intersections)

The Transportation Association of Canada (TAC) suggests that auxiliary right-turn lanes be considered “when the volume of decelerating or accelerating vehicles compared with through vehicles causes undue hazard.” Consideration for auxiliary right-turn lanes is typically given when the right-turning traffic exceeds 10% of the approach volume and is at least 60 vehicles per hour, particularly on high-speed arterial roads.

The eastbound right-turn volumes at the right-in/right-out access on Hunt Club Road and the westbound right-turn volumes at the Bank Street & Sieveright Avenue intersection during the weekday morning and afternoon peak hour are not expected to exceed 60 vehicles per hour under Future (2027) Total Traffic conditions. As such, auxiliary right-turn lanes are not warranted at either of the site access intersections.

5.10.2.4 Auxiliary Right-Turn Lane Requirements (Signalized Intersections)

Similarly for signalized intersections, Section 9.14 of TAC suggests that auxiliary right-turn lanes shall be considered when more than 10% of vehicles on an approach are turning right and when

the peak hour demand exceeds 60 vehicles. The purpose of this guideline is to mitigate operational impacts to through-traffic, particularly on high-speed arterial roadways, and may not be applicable in all circumstances.

The results of the auxiliary right-turn lane analysis are summarized below in **Table 24** below:

Table 24 – Auxiliary Right-Turn Lane Storage Analysis at Signalized Intersections

INTERSECTION	APPROACH	NUMBER OF RIGHT-TURNS / % RIGHT-TURNS		95TH %ILE QUEUE (M) AM / PM ¹	EXISTING PARALLEL LANE LENGTH (M)	STORAGE DEFICIENCY (M)
		AM PEAK HOUR	PM PEAK HOUR			
Hunt Club Road & Albion Road South	NB	213 / 69%	237 / 66%	77.2 / #93.3	-	-. ²
	SB	69 / 35%	52 / 22%	44.5 / 55.4	-	-. ²
	EB	8 / 1%	23 / 2%	0.0 / 0.0	45	-
	WB	79 / 6%	65 / 5%	0.4 / 14.8	60	-
Hunt Club Road & Cahill Drive	SB	46 / 37%	30 / 26%	10.8 / 8.7	-	-
	WB	54 / 4%	103 / 7%	m0.0 / m8.1	45	-
Hunt Club Road & Lorry Greenberg Drive / Sable Ridge Drive	NB	71 / 63%	34 / 51%	18.4 / 15.5	-	-. ²
	SB	190 / 70%	160 / 68%	22.5 / 25.3	-	-. ²
	EB	12 / 1%	31 / 2%	90.3 / 160.1	-	-
	WB	37 / 3%	41 / 3%	0.0 / 0.0	125	-
Bank Street & Albion Road South	NB	31 / 6%	45 / 12%	56.2 / 51.7	-	-. ²
	SB	100 / 39%	47 / 10%	69.6 / m94.0	-	-. ²
	EB	95 / 19%	279 / 21%	6.4 / 17.0	105	-
	WB	117 / 10%	145 / 18%	10.7 / 13.5	85	-

Notes:

1. Shared through-right queue length results reported where there is no auxiliary right-turn lane on the approach
2. Technically meets right-turn criteria, however, these are sidestreet approaches and the intersection capacity analysis does not indicate that a right-turn lane is operationally required.

Based on the results of the analysis above, the right-turn lanes on Hunt Club Road and Bank Street have sufficient storage length to accommodate the projected queues. Many of the sidestreet approaches meet the technical warrants for right-turn lanes, however, additional right-turn lanes are not recommended as the intersection capacity analysis indicates that such lanes are not operationally required.

5.11 Summary of Recommended Modifications

The Hunt Club Road & Albion Road South intersection, the Hunt Club Road & Lorry Greenberg Drive / Sable Ridge Drive intersection and the Bank Street & Albion Road South intersection are shown to currently operate at an acceptable overall Level of Service (i.e. LOS 'D' or better) but with some movements approaching or exceeding their theoretical capacity. It is therefore recommended that the City of Ottawa optimize the signal timing plans for those three intersections. Combined with the effects of peak spreading, these improvements are shown to allow all movements to operate at an acceptable Level of Service within the timeframe of this study.

The unsignalized intersection of Bank Street & Sieveright Avenue is also shown to be currently experiencing capacity problems on the southbound approach. In particular, the southbound left-turn movement is currently exceeding its theoretical capacity during the morning peak hour and is approaching its theoretical capacity during the afternoon peak hour. The effects of peak spreading are expected to improve traffic operations on this approach such that it by 2022 it operates at LOS 'E' during both peak hours. The intersection is expected to continue operating at LOS 'E' by 2027, even with the addition of site-generated traffic. As there are currently no known plans to signalize the intersection and the intersection does not meet the traffic signal warrants, it is assumed that the intersection will remain unsignalized within the timeframe of this study.

Auxiliary lane analyses were also completed for all study area intersections. Left-turn lane deficiencies were noted on the southbound approach of the Hunt Club Road & Albion Road South intersection and the northbound and southbound approach of the Bank Street & Albion Road South intersection. As there is sufficient pavement width on those approaches, it was recommended that the City of Ottawa consider adjusting the pavement markings to increase the storage space available.

Historical collision analyses and Multi-Modal Level of Service (MMLOS) analyses were completed for all study area intersection and the roadway segments adjacent to the site. A number of existing deficiencies were identified with respect to safety and user comfort, and potential mitigation measures were identified for consideration by the City of Ottawa. It should be noted that these are existing deficiencies and are not expected to be exacerbated by the proposed development nor are the potential mitigation measures identified required to safely accommodate the proposed development.

6 Conclusion

The proposed medical boarding home development at 1470 Hunt Club Road is expected to generate up to 60 and 78 two-way vehicular trips during the weekday morning and afternoon peak hours, respectively. Site-generated traffic was assigned to the adjacent road network based on the morning peak period commuter travel patterns for the Hunt Club Traffic Assessment Zone (TAZ) from the 2011 TRANS Origin-Destination Survey as well as the distribution of residential land uses within the TAZ.

A multi-modal analysis of each study area intersection and adjacent roadway segment identified deficiencies in the existing road network and potential remediation measures have been suggested in which the City could consider in order to meet the prescribed targets. These remediation measures would improve mobility and comfort for all transportation modes but are not required to safely accommodate the proposed development.

Historical collision analysis has also been completed for each study area intersection and roadway to identify existing safety issues. A number of collision patterns were observed, and potential remediation measures have been suggested to address these issues. It should be noted that these recommendations are based on existing safety issues within the study area and are not a direct consequence of the proposed development.

Neighbourhood traffic impacts were assessed for Sieveright Avenue as the proposed development depends on this local road for access. Based on the turning movement counts provided by the City of Ottawa, this local road was shown to be currently exceeding its livability threshold. The proposed development is expected to contribute a negligible volume of traffic to this roadway and should therefore have minimal impact.

It was also noted that the proposed development also presents an attractive cut-through route to avoid congestion on Hunt Club Road and Bank Street. In order to eliminate the potential for cut-through traffic, the access on Sieveright Avenue is recommended to be gate controlled with 'no through traffic' signage installed at the entrances.

All signalized study area intersections were shown to operate at an acceptable Level of Service (i.e. LOS 'D' or better) within the timeframe of this study, provided the signal timing plans of the Hunt Club Road & Albion Road South intersection, the Hunt Club Road & Lorry Greenberg Drive / Sable Ridge Drive intersection and the Bank Street & Albion Road South intersection are optimized to provide additional green time to critical movements.

The Bank Street & Sieveright Avenue is currently approaching or exceeding its theoretical capacity under Existing (2021) Traffic conditions but the effects of peak spreading are expected to improve the Level of Service to LOS 'E' and the intersection is anticipated to continue operating at that Level of Service in 2027. Traffic generated by the proposed development is shown to have a negligible impact on the future operation of this intersection.

Auxiliary lane analysis was completed for all study area intersections which identified that the southbound left-turn lane at the Hunt Club Road & Albion Road South intersection and the northbound and southbound left-turn lanes at the Bank Street & Albion Road South intersection have storage deficiencies. These deficiencies can easily be addressed with modifications to the pavement markings delineating the left-turn lanes and it is recommended that the City give consideration to modifying these pavement markings when they are next renewed.

As all intersections were shown to operate well under their theoretical capacities within the timeframe of this study and no operational issues were identified from the queuing analysis, a post-development monitoring plan is therefore not a requirement of this study. Further, the analysis conducted indicated that no off-site intersection improvements are necessary to

accommodate the projected travel demands of the proposed development, and as such an RMA will not be required.

Based on the findings of this study, it is the overall opinion of IBI Group that the proposed development will integrate well with and can be safely accommodated by the adjacent transportation network. Consideration should be given by the City of Ottawa of the recommendations provided in order to address the existing issues identified.

Appendix A – City Circulation Comments

Step 1 Submission (TIA Screening) Pre-Application Consultation Meeting – Comments

Meeting Held: September 24, 2020

Comments Received: July 7, 2021

Note: The following represent only relevant transportation comments and do not constitute the complete set of comments resulting from the pre-application consultation meeting.

Policies/Designations of the site

- Official Plan – designated General Urban Area (Section 3.6.1)
- Community Design Plan – The site is subject to the South Keys to Blossom Park – Bank Street Community Design Plan
 - A portion of the site abutting Hunt Club Road is designated General Mixed Use (building height of 6 stories permitted)
 - A portion of the site abutting Sieveright Avenue is designated Future Land Use Study (height limit varies as per existing zone)
- Secondary Plan – The site is subject to the South Keys to Blossom Park – Bank Street Secondary Plan. The land use designations and height limits are the same as those imposed by the CDP.
- Zoning:
 - A portion of the site abutting Hunt Club Road is zoned GM16[2294]
 - A portion of the site abutting Sieveright Avenue is zoned IL2H(14)
 - Required Parking rates are as per Area C (Suburban)
 - Bicycle Parking Rates as per Section 111 of the Zoning By-law, calculations are to be broken down by land use
 - Zoning By-law provisions for Rooming Houses apply, see Part 5, Section 132

Planning

- This is a site that is well-located in respect to transit and existing community amenities, please ensure there are good opportunities for pedestrian circulation provided on the site and that there are walkway connections to existing sidewalks.
- At time of site plan submission, please provide the following on the plan:
 - Please provide accessible parking spaces as per AODA guidelines

Urban Design

- With respect to the public realm, please consider the following:
 - Supporting the transformation of Sieveright into a more pedestrian friendly environment through the provision of sidewalk, street trees and appropriate design of the building.
- With respect to site organization:
 - Considerations should be given to the location of vehicular entrances to avoid potential through traffic. One possibility is to locate the south entrance to the east side of the site, potentially aligned with Apple Hill.
 - Consideration should also be given to incorporate a pedestrian/multi-use pathway through the site connecting Hunt Club Road and the neighbourhood through an easement.

Transportation

- Proceed to Step 2 (and eventually Step 3 forecasting) of the TIA prior to application.

- The access on Hunt Club will be a right-in/right-out and may require a right-turn auxiliary lane – this requirement may be based on volume and/or operating speeds and must be analyzed in the TIA.
- Current throat length at this site is significantly below standard – refer to TAC guidelines for appropriate length. No queueing of any kind will be permitted on Hunt Club.
- A noise study will be required.

Step 2 Submission (Scoping) – Circulation Comments & Response

Report Submitted: July 8, 2021

Comments Received: July 14, 2021

Transportation Project Manager: Patrick McMahon

- 1) Section 3.1.2 Land Use Details: Include number of bicycle parking spaces.
 - **IBI Response:** The number of bicycle parking spaces remains to be determined, however, will be confirmed prior to submission of Step 4.

- 2) Section 3.2.1.3 Intersections: Note that trucks are not allowed to enter the north legs of Hunt Club/Cahill and Hunt Club/Albion intersections. Note the cycling facilities at Hunt Club/Lorry Greenberg, and the westbound on-street bike lane ends at the intersection of Bank/Sieveright.
 - **IBI Response:** Noted, Section 3.2.1.3 of the TIA has been updated accordingly. The cycling facilities on Hunt Club Road and Bank Street are discussed in Section 3.2.2.

- 3) Section 3.3.1.3 Future Cycling and Pedestrian Facilities: Albion Road is also a local cycling route.
 - **IBI Response:** Noted, Section 3.3.1.3 of the TIA has been updated accordingly.

Step 3 Submission (Forecasting) – Circulation Comments & Response

Report Submitted: August 30, 2021

Comments Received: September 29, 2021

Transportation Project Manager: Patrick McMahon

- 1) Section 4.1.2.1 Vehicle Trip Generation: Consider using beds as opposed to occupied beds as the independent variable. Beds has a higher trip generation rate and will capture some of the unknown trips made by residents.
 - **IBI Response:** The trip generation estimates for the proposed development have been updated to use the trip generation rates for ‘beds’ rather than ‘occupied beds’ as requested.

- 2) Section 4.4.1 Future Background Traffic Volumes: Remove the mention of Campeau Drive.
 - **IBI Response:** The mention of Campeau Drive has been removed from Section 4.4.1.

Appendix B – Screening Form

2. Trip Generation Trigger

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

Land Use Type	Minimum Development Size
Single-family homes	40 units
Townhomes or apartments	90 units
Office	3,500 m ²
Industrial	5,000 m ²
Fast-food restaurant or coffee shop	100 m ²
Destination retail	1,000 m ²
Gas station or convenience market	75 m ²

** If the development has a land use type other than what is presented in the table above, estimates of person-trip generation may be made based on average trip generation characteristics represented in the current edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual.*

The land use type for the proposed development does not fall into any of the categories shown in the table above, therefore a preliminary trip generation exercise was undertaken to determine if the proposed development would be expected to exceed the 60 person-trip generation threshold prescribed in the TIA Guidelines. Based on a review of similar land uses from the Institute of Transportation Engineers' (ITE) Trip Generation Manual (10th Edition), the 'Assisted Living' land use (Code: 254) was determined to be the most closely-related land use suitable for this trip generation exercise. Applying the 'Assisted Living' land use, the proposed development is expected to generate 85 and 116 two-way person-trips during the weekday morning and afternoon peak hours, respectively. As such, the proposed development exceeds the 60 person-trip Trip Generation Trigger threshold.

➤ **Based on the results above, the Trip Generation Trigger is satisfied.**

3. Location Triggers

	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?	✓	
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?*		✓

**DPA and TOD are identified in the City of Ottawa Official Plan (DPA in Section 2.5.1 and Schedules A and B; TOD in Annex 6). See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA).*

➤ **Based on the results above, the Location Trigger is satisfied.**

4. Safety Triggers

	Yes	No
Are posted speed limits on a boundary street are 80 km/hr or greater?		<input checked="" type="checkbox"/>
Are there any horizontal/vertical curvatures on a boundary street that limits sight lines at a proposed driveway?		<input checked="" type="checkbox"/>
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?		<input checked="" type="checkbox"/>
Is the proposed driveway within auxiliary lanes of an intersection?		<input checked="" type="checkbox"/>
Does the proposed driveway make use of an existing median break that serves an existing site?		<input checked="" type="checkbox"/>
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?		<input checked="" type="checkbox"/>
Does the development include a drive-thru facility?		<input checked="" type="checkbox"/>

➤ **Based on the results above, the Safety Trigger is not satisfied.**

5. Summary

	Yes	No
Does the development satisfy the Trip Generation Trigger?	<input checked="" type="checkbox"/>	
Does the development satisfy the Location Trigger?	<input checked="" type="checkbox"/>	
Does the development satisfy the Safety Trigger?		<input checked="" type="checkbox"/>

CONCLUSION: The Trip Generation and Location Triggers are satisfied, therefore a TIA is required.

Appendix C – OC Transpo Routes



Rapid^e

HAWTHORNE HURDMAN

7 days a week / 7 jours par semaine

All day service

Service toute la journée

HURDMAN



Hurdman



Lycée Claudel

Smyth

Riverside **H**

Pleasant Park

BILLINGS
BRIDGE
PLAZA

Billings Bridge

Heron

Walkley

HAWTHORNE

Greenboro



South
Keys

Cahill

Lorry Greenberg

Johnston

Karsh

Blohm

Hunt Club

Hawthorne



Transitway & Station



Park & Ride | Parc-o-bus



Timepoint | Heures de passage

2020.04



Schedule / Horaire.....613-560-1000

Text / Texto560560

plus your four digit bus stop number / plus votre numéro d'arrêt à quatre chiffres

Customer Service

Service à la clientèle **613-741-4390**

Lost and Found / Objets perdus..... **613-563-4011**

Security / Sécurité **613-741-2478**

Effective May 3, 2020

En vigueur 3 mai 2020



INFO 613-741-4390
octranspo.com

Appendix D – Collision Data



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: ALBION RD @ BANK ST

Traffic Control: Traffic signal

Total Collisions: 39

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Jan-09, Fri,17:06	Snow	Rear end	P.D. only	Loose snow	North	Slowing or stopping	Automobile, station wagon	Skidding/sliding	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2015-Jun-05, Fri,14:18	Clear	Rear end	P.D. only	Dry	East	Turning right	Pick-up truck	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2015-Aug-01, Sat,14:14	Clear	Rear end	P.D. only	Dry	East	Turning right	Pick-up truck	Other motor vehicle	0
					East	Turning right	Pick-up truck	Other motor vehicle	
2015-Aug-24, Mon,13:31	Clear	Angle	Non-fatal injury	Wet	East	Going ahead	Bicycle	Other motor vehicle	0
					North	Going ahead	Pick-up truck	Cyclist	
2015-Sep-05, Sat,12:09	Clear	Turning movement	P.D. only	Dry	North	Turning left	Pick-up truck	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Sep-17, Thu,15:13	Clear	SMV other	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Pedestrian	1
2015-Sep-19, Sat,14:47	Clear	Rear end	Non-fatal injury	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Dec-14, Mon,13:14	Clear	Angle	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Feb-21, Sun,16:46	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Passenger van	Other motor vehicle	
2016-May-04, Wed,19:00	Clear	Rear end	P.D. only	Dry	South	Going ahead	Unknown	Other motor vehicle	0
					South	Slowing or stopping	Passenger van	Other motor vehicle	
2016-May-09, Mon,21:35	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: ALBION RD @ BANK ST

Traffic Control: Traffic signal

Total Collisions: 39

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Jun-18, Sat,19:37	Clear	Angle	Non-fatal injury	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Oct-31, Mon,13:03	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2016-Dec-07, Wed,19:29	Clear	Rear end	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Dec-15, Thu,17:32	Clear	Turning movement	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Dec-22, Thu,07:56	Snow	Rear end	P.D. only	Loose snow	West	Slowing or stopping	Automobile, station wagon	Skidding/sliding	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Jan-12, Thu,17:34	Rain	Rear end	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2017-Feb-14, Tue,08:39	Clear	Rear end	P.D. only	Slush	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2017-Mar-16, Thu,13:10	Clear	Angle	P.D. only	Wet	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Delivery van	Other motor vehicle	
2017-Apr-13, Thu,16:10	Clear	Turning movement	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Pick-up truck	Other motor vehicle	
2017-Apr-13, Thu,17:55	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	
					South	Stopped	Pick-up truck	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: ALBION RD @ BANK ST

Traffic Control: Traffic signal

Total Collisions: 39

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2017-Jun-12, Mon,17:48	Clear	Angle	Non-fatal injury	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Slowing or stopping	Pick-up truck	Other motor vehicle	
2017-Jul-22, Sat,11:11	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Nov-19, Sun,17:27	Clear	Angle	P.D. only	Dry	South	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jan-20, Sat,12:52	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jan-30, Tue,08:04	Snow	Rear end	P.D. only	Wet	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Mar-27, Tue,14:52	Clear	Rear end	P.D. only	Dry	North	Turning right	Pick-up truck	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2018-Jun-08, Fri,22:31	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-23, Sat,03:26	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jul-07, Sat,23:00	Clear	Turning movement	P.D. only	Dry	North	Turning left	Passenger van	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-09, Fri,14:05	Snow	Sideswipe	P.D. only	Wet	South	Changing lanes	Truck - closed	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: ALBION RD @ BANK ST

Traffic Control: Traffic signal

Total Collisions: 39

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2018-Nov-17, Sat,20:00	Clear	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Dec-11, Tue,10:31	Clear	Rear end	P.D. only	Slush	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Truck - closed	Other motor vehicle	
2019-Feb-13, Wed,12:10	Snow	SMV unattended vehicle	P.D. only	Loose snow	North	Turning right	Pick-up truck	Unattended vehicle	0
2019-Mar-31, Sun,23:20	Clear	Sideswipe	P.D. only	Dry	South	Unknown	Unknown	Other motor vehicle	0
					South	Changing lanes	Automobile, station wagon	Other motor vehicle	
2019-Aug-09, Fri,09:02	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Oct-15, Tue,13:00	Clear	Sideswipe	P.D. only	Dry	North	Unknown	Automobile, station wagon	Other motor vehicle	0
					North	Unknown	Automobile, station wagon	Other motor vehicle	
2019-Nov-09, Sat,16:04	Clear	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Dec-17, Tue,14:38	Clear	SMV other	Non-fatal injury	Wet	North	Going ahead	Automobile, station wagon	Pedestrian	1

Location: ALBION RD @ HUNT CLUB RD

Traffic Control: Traffic signal

Total Collisions: 67

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Jan-08, Thu,16:30	Clear	Turning movement	Non-fatal injury	Ice	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: ALBION RD @ HUNT CLUB RD

Traffic Control: Traffic signal

Total Collisions: 67

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Feb-01, Sun,17:08	Clear	Turning movement	Non-fatal injury	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
2015-Feb-02, Mon,11:20	Snow	Rear end	P.D. only	Loose snow	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Feb-15, Sun,08:01	Clear	Rear end	P.D. only	Ice	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Mar-04, Wed,21:26	Clear	Turning movement	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2015-Mar-17, Tue,20:09	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Mar-20, Fri,15:00	Clear	Rear end	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Jul-07, Tue,09:00	Clear	Rear end	P.D. only	Dry	North	Turning right	Passenger van	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2015-Aug-31, Mon,20:43	Clear	Turning movement	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2015-Oct-19, Mon,19:45	Clear	Turning movement	Non-fatal injury	Wet	East	Turning left	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Oct-28, Wed,08:10	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Nov-25, Wed,18:33	Clear	Rear end	P.D. only	Dry	North	Turning right	Pick-up truck	Other motor vehicle	0
					North	Turning right	Pick-up truck	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: ALBION RD @ HUNT CLUB RD

Traffic Control: Traffic signal

Total Collisions: 67

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Nov-30, Mon,16:55	Clear	Turning movement	P.D. only	Dry	West	Turning left	Passenger van	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2015-Dec-04, Fri,09:15	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Dec-20, Sun,18:43	Clear	Rear end	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Jan-18, Mon,18:58	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Jan-31, Sun,23:05	Clear	Angle	P.D. only	Wet	East	Turning left	Municipal transit bus	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Mar-10, Thu,22:06	Fog, mist, smoke, dust	Turning movement	Non-fatal injury	Wet	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2016-Mar-26, Sat,13:15	Rain	Rear end	P.D. only	Wet	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Apr-09, Sat,09:26	Clear	Rear end	P.D. only	Dry	North	Turning right	Pick-up truck	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2016-May-16, Mon,10:08	Clear	Rear end	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2016-May-24, Tue,18:26	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Passenger van	Other motor vehicle	
2016-Jul-08, Fri,15:49	Clear	Rear end	Non-fatal injury	Dry	East	Turning right	Passenger van	Other motor vehicle	0
					East	Turning right	Passenger van	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: ALBION RD @ HUNT CLUB RD

Traffic Control: Traffic signal

Total Collisions: 67

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-Aug-19, Fri,06:46	Clear	Angle	P.D. only	Dry	South	Going ahead	Passenger van	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2016-Oct-06, Thu,20:17	Clear	Rear end	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2016-Oct-07, Fri,23:50	Clear	Rear end	P.D. only	Dry	North	Turning right	Unknown	Other motor vehicle	0
					North	Turning right	Passenger van	Other motor vehicle	
2016-Oct-21, Fri,20:08	Rain	Rear end	P.D. only	Wet	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Pick-up truck	Other motor vehicle	
2016-Dec-05, Mon,15:33	Clear	Angle	P.D. only	Dry	West	Unknown	Unknown	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Mar-18, Sat,17:24	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2017-Apr-20, Thu,18:45	Clear	Angle	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-May-18, Thu,09:04	Clear	Angle	P.D. only	Dry	West	Going ahead	Passenger van	Other motor vehicle	0
					South	Going ahead	Passenger van	Other motor vehicle	
2017-Jun-04, Sun,10:05	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2017-Jun-08, Thu,17:25	Clear	Rear end	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2017-Dec-12, Tue,18:10	Snow	Rear end	P.D. only	Loose snow	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2018-Feb-07, Wed,09:48	Snow	Angle	Non-fatal injury	Loose snow	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: ALBION RD @ HUNT CLUB RD

Traffic Control: Traffic signal

Total Collisions: 67

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2018-Feb-10, Sat, 19:20	Snow	Turning movement	P.D. only	Packed snow	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Passenger van	Other motor vehicle	
					South	Stopped	Pick-up truck	Other motor vehicle	
2018-Feb-22, Thu, 19:00	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Apr-06, Fri, 19:40	Rain	Rear end	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jun-04, Mon, 08:37	Rain	Turning movement	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-05, Tue, 16:40	Rain	Turning movement	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-18, Mon, 14:45	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-26, Tue, 09:35	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Passenger van	Other motor vehicle	
2018-Aug-21, Tue, 23:55	Rain	SMV other	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Pole (utility, power)	0
2018-Oct-12, Fri, 18:48	Clear	Turning movement	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2018-Oct-19, Fri, 14:08	Clear	Rear end	Non-fatal injury	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Passenger van	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: ALBION RD @ HUNT CLUB RD

Traffic Control: Traffic signal

Total Collisions: 67

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2018-Oct-27, Sat,11:49	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Oct-30, Tue,12:30	Clear	Rear end	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2018-Nov-09, Fri,07:18	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Nov-26, Mon,09:50	Rain	Turning movement	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Dec-14, Fri,20:33	Freezing Rain	Angle	P.D. only	Ice	South	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jan-17, Thu,15:21	Clear	Turning movement	Non-fatal injury	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Jan-19, Sat,14:17	Clear	Rear end	P.D. only	Wet	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Feb-02, Sat,11:30	Snow	Rear end	P.D. only	Packed snow	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Feb-07, Thu,19:30	Clear	Rear end	Non-fatal injury	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Mar-01, Fri,11:58	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Mar-02, Sat,11:26	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: ALBION RD @ HUNT CLUB RD

Traffic Control: Traffic signal

Total Collisions: 67

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2019-Mar-27, Wed,11:03	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-May-15, Wed,14:04	Rain	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jun-07, Fri,18:00	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Jun-27, Thu,17:35	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Nov-01, Fri,10:30	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Passenger van	Other motor vehicle	
2019-Nov-15, Fri,18:00	Clear	Rear end	P.D. only	Dry	North	Turning right	Unknown	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Nov-23, Sat,14:46	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Nov-29, Fri,18:35	Clear	Turning movement	P.D. only	Dry	East	Making "U" turn	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Nov-30, Sat,15:37	Clear	Turning movement	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	1
					West	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Turning left	Municipal transit bus	Other motor vehicle	
2019-Dec-10, Tue,18:51	Clear	Rear end	P.D. only	Dry	North	Stopped	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Dec-21, Sat,17:57	Clear	Angle	Non-fatal injury	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: BANK ST @ SIEVERIGHT AVE

Traffic Control: Stop sign

Total Collisions: 7

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Oct-31, Sat,19:26	Clear	Angle	Non-fatal injury	Dry	West	Turning left	Passenger van	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Feb-17, Fri,17:54	Clear	Angle	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Nov-11, Sat,11:01	Clear	Angle	Non-fatal injury	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Feb-26, Tue,09:45	Clear	Angle	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Apr-26, Fri,20:19	Rain	SMV other	Non-fatal injury	Wet	West	Turning right	Automobile, station wagon	Pedestrian	1
2019-May-29, Wed,17:30	Clear	Angle	Non-fatal injury	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Oct-10, Thu,21:00	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: BANK ST btwn ALBION RD & SIEVERIGHT AVE

Traffic Control: No control

Total Collisions: 15

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Oct-07, Wed,17:15	Clear	Angle	P.D. only	Dry	West	Reversing	Pick-up truck	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2016-Apr-21, Thu,20:25	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2016-Jun-25, Sat,05:56	Clear	SMV other	Non-fatal injury	Dry	North	Going ahead	Automobile, station wagon	Ran off road	1
2017-Feb-17, Fri,14:04	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: BANK ST btwn ALBION RD & SIEVERIGHT AVE

Traffic Control: No control

Total Collisions: 15

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Feb-28, Tue,18:29	Clear	Angle	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Apr-09, Sun,17:09	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Pick-up truck	Other motor vehicle	
2018-Mar-28, Wed,16:40	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-Jun-15, Fri,23:06	Clear	Angle	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Unknown	Other motor vehicle	
2018-Nov-02, Fri,07:55	Rain	Turning movement	Non-fatal injury	Wet	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jan-06, Sun,17:30	Clear	Rear end	P.D. only	Ice	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Feb-28, Thu,07:57	Clear	Angle	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Passenger van	Other motor vehicle	
2019-Apr-06, Sat,20:17	Clear	Sideswipe	Non-fatal injury	Dry	South	Changing lanes	Pick-up truck	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-May-29, Wed,19:30	Clear	SMV unattended vehicle	P.D. only	Dry	North	Changing lanes	Ambulance	Unattended vehicle	0
2019-Nov-14, Thu,12:09	Clear	SMV other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Animal - wild	0
2019-Dec-28, Sat,17:20	Clear	Angle	P.D. only	Dry	East	Going ahead	Tow truck	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: CAHILL DR @ HUNT CLUB RD

Traffic Control: Traffic signal

Total Collisions: 37

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Jan-20, Tue,14:15	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Slowing or stopping	Pick-up truck	Other motor vehicle	
2015-Mar-17, Tue,07:10	Rain	Other	P.D. only	Wet	North	Reversing	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Jun-18, Thu,17:02	Clear	Angle	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Jan-03, Sun,09:13	Snow	Sideswipe	P.D. only	Loose snow	East	Changing lanes	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Delivery van	Other motor vehicle	
2016-Feb-17, Wed,19:19	Snow	Angle	P.D. only	Ice	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Mar-10, Thu,10:20	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2016-May-24, Tue,23:46	Clear	Angle	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Jun-09, Thu,12:22	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Jun-12, Sun,16:08	Clear	Angle	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Jul-16, Sat,06:59	Clear	Angle	P.D. only	Dry	West	Going ahead	Truck and trailer	Other motor vehicle	0
					South	Going ahead	Pick-up truck	Other motor vehicle	
2016-Jul-20, Wed,09:30	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Bicycle	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Cyclist	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: CAHILL DR @ HUNT CLUB RD

Traffic Control: Traffic signal

Total Collisions: 37

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-Jul-22, Fri,13:33	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
2016-Aug-09, Tue,17:46	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Sep-17, Sat,23:09	Rain	Rear end	Non-fatal injury	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Oct-10, Mon,16:21	Clear	Rear end	Non-fatal injury	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Dec-09, Fri,17:36	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Dec-14, Wed,17:41	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Feb-13, Mon,13:05	Clear	Angle	P.D. only	Wet	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Sep-17, Sun,11:59	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Oct-25, Wed,07:22	Clear	Rear end	P.D. only	Dry	East	Unknown	Unknown	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Nov-01, Wed,17:29	Rain	Turning movement	Non-fatal injury	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: CAHILL DR @ HUNT CLUB RD

Traffic Control: Traffic signal

Total Collisions: 37

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2017-Dec-11, Mon,08:16	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Dec-23, Sat,14:59	Snow	Rear end	P.D. only	Packed snow	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jan-15, Mon,12:20	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Passenger van	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-12, Tue,20:35	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Aug-02, Thu,10:39	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Pick-up truck	Other motor vehicle	
2018-Sep-22, Sat,16:37	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Passenger van	Other motor vehicle	0
					South	Turning left	Pick-up truck	Other motor vehicle	
2018-Sep-23, Sun,15:55	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-30, Fri,09:10	Clear	Rear end	P.D. only	Dry	West	Unknown	Unknown	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Jan-14, Mon,10:30	Clear	Angle	P.D. only	Dry	South	Turning right	Unknown	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jan-14, Mon,10:37	Clear	Angle	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: CAHILL DR @ HUNT CLUB RD

Traffic Control: Traffic signal

Total Collisions: 37

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Jan-26, Sat,17:06	Clear	Rear end	Non-fatal injury	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-May-27, Mon,14:50	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Truck - closed	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Aug-17, Sat,14:06	Rain	Rear end	P.D. only	Wet	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Aug-19, Mon,15:25	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2019-Aug-24, Sat,11:46	Clear	Angle	P.D. only	Dry	West	Turning right	Unknown	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Dec-24, Tue,19:42	Clear	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	

Location: HUNT CLUB RD @ LORRY GREENBERG DR/SABLE RIDGE

Traffic Control: Traffic signal

Total Collisions: 54

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Jan-02, Fri,14:09	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2015-Jan-12, Mon,08:00	Rain	Rear end	P.D. only	Ice	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Delivery van	Other motor vehicle	
2015-Jan-22, Thu,17:20	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: HUNT CLUB RD @ LORRY GREENBERG DR/SABLE RIDGE

Traffic Control: Traffic signal

Total Collisions: 54

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Jan-31, Sat,14:29	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
2015-Feb-17, Tue,16:50	Clear	Rear end	P.D. only	Wet	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Feb-21, Sat,10:09	Snow	Rear end	Non-fatal injury	Loose snow	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Pick-up truck	Other motor vehicle	
2015-Apr-20, Mon,20:03	Rain	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2015-Aug-11, Tue,21:39	Rain	Rear end	P.D. only	Wet	East	Slowing or stopping	Unknown	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Oct-11, Sun,17:11	Clear	Rear end	Non-fatal injury	Dry	South	Turning right	Passenger van	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2015-Oct-17, Sat,16:30	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Pick-up truck	Other motor vehicle	
2015-Nov-19, Thu,17:32	Rain	Angle	P.D. only	Wet	West	Turning right	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Dec-23, Wed,17:56	Rain	Turning movement	Non-fatal injury	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Feb-25, Thu,16:00	Snow	Rear end	P.D. only	Slush	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2016-Apr-05, Tue,09:01	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Pick-up truck	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, 2015 To: December 31, 2019

Location: HUNT CLUB RD @ LORRY GREENBERG DR/SABLE RIDGE

Traffic Control: Traffic signal

Total Collisions: 54

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-May-30, Mon,13:52	Clear	Rear end	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Jun-16, Thu,12:59	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Sep-22, Thu,21:32	Rain	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
2016-Oct-17, Mon,17:58	Rain	Rear end	Non-fatal injury	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Oct-18, Tue,20:41	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2016-Oct-20, Thu,14:34	Rain	Rear end	P.D. only	Wet	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Nov-23, Wed,07:20	Clear	Rear end	P.D. only	Slush	West	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2017-Jan-13, Fri,15:39	Clear	Turning movement	P.D. only	Dry	West	Making "U" turn	Automobile, station wagon	Other motor vehicle	0
					West	Turning right	Pick-up truck	Other motor vehicle	
2017-Feb-08, Wed,07:35	Freezing Rain	SMV other	P.D. only	Slush	West	Going ahead	Automobile, station wagon	Curb	0
2017-Feb-08, Wed,09:03	Snow	Turning movement	P.D. only	Slush	West	Making "U" turn	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2017-Jun-14, Wed,16:45	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Jun-14, Wed,17:21	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Slowing or stopping	Passenger van	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: HUNT CLUB RD @ LORRY GREENBERG DR/SABLE RIDGE

Traffic Control: Traffic signal

Total Collisions: 54

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2017-Jun-30, Fri,07:54	Clear	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	
2017-Jul-15, Sat,14:20	Clear	Turning movement	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2017-Sep-07, Thu,18:13	Rain	Turning movement	Non-fatal injury	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Sep-20, Wed,08:37	Clear	Turning movement	P.D. only	Dry	East	Turning left	Passenger van	Other motor vehicle	0
					West	Going ahead	Municipal transit bus	Other motor vehicle	
2017-Dec-13, Wed,14:58	Snow	Turning movement	Non-fatal injury	Slush	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jan-13, Sat,14:45	Drifting Snow	Angle	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jan-15, Mon,10:07	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2018-Feb-20, Tue,15:09	Rain	Rear end	P.D. only	Wet	East	Going ahead	Delivery van	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2018-Apr-25, Wed,18:11	Rain	Rear end	P.D. only	Wet	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jun-09, Sat,15:14	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-17, Sun,06:42	Clear	Angle	P.D. only	Dry	South	Turning left	Passenger van	Other motor vehicle	0
					West	Going ahead	Passenger van	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: HUNT CLUB RD @ LORRY GREENBERG DR/SABLE RIDGE

Traffic Control: Traffic signal

Total Collisions: 54

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2018-Sep-10, Mon,07:52	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Oct-29, Mon,22:15	Rain	Turning movement	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2018-Nov-03, Sat,17:59	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Nov-17, Sat,15:44	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2018-Nov-28, Wed,09:55	Snow	Rear end	P.D. only	Ice	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Dec-11, Tue,19:21	Snow	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Dec-13, Thu,00:00	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
					East	Slowing or stopping	Unknown	Other motor vehicle	
					East	Slowing or stopping	Unknown	Other motor vehicle	
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Slowing or stopping	Unknown	Other motor vehicle	
					East	Slowing or stopping	Unknown	Other motor vehicle	
2019-Feb-22, Fri,07:45	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Farm tractor	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Farm tractor	
2019-Apr-05, Fri,11:05	Clear	Rear end	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: HUNT CLUB RD @ LORRY GREENBERG DR/SABLE RIDGE

Traffic Control: Traffic signal

Total Collisions: 54

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2019-Apr-16, Tue,10:47	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Apr-30, Tue,22:05	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Jun-11, Tue,10:50	Clear	Angle	P.D. only	Dry	East	Reversing	Truck - tank	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Sep-28, Sat,14:02	Clear	Rear end	P.D. only	Wet	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2019-Oct-17, Thu,10:55	Rain	Turning movement	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Oct-21, Mon,07:56	Clear	Rear end	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Dec-10, Tue,22:14	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Dec-13, Fri,10:19	Clear	Rear end	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	

Location: HUNT CLUB RD btwn CAHILL DR & LORRY GREENBERG DR

Traffic Control: No control

Total Collisions: 12

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Feb-13, Fri,15:18	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Pick-up truck	Other motor vehicle	
2015-Apr-08, Wed,20:04	Snow	Rear end	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: HUNT CLUB RD btwn CAHILL DR & LORRY GREENBERG DR

Traffic Control: No control

Total Collisions: 12

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Apr-08, Wed,20:27	Snow	SMV unattended vehicle	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Unattended vehicle	0
2016-Feb-17, Wed,19:23	Clear	SMV other	P.D. only	Ice	East	Going ahead	Delivery van	Ran off road	0
2016-Apr-06, Wed,23:15	Snow	Rear end	P.D. only	Loose snow	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Sep-03, Sat,01:23	Clear	SMV other	P.D. only	Dry	West	Going ahead	Pick-up truck	Curb	0
2016-Dec-29, Thu,20:50	Snow	Sideswipe	Non-fatal injury	Packed snow	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Pulling away from shoulder or curb	Municipal transit bus	Other motor vehicle	
2017-Jan-05, Thu,12:15	Clear	Sideswipe	P.D. only	Ice	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2017-Feb-20, Mon,14:14	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Jun-27, Tue,12:23	Clear	Sideswipe	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Changing lanes	Automobile, station wagon	Other motor vehicle	
2018-Apr-17, Tue,10:00	Rain	SMV unattended vehicle	P.D. only	Wet	West	Going ahead	Unknown	Unattended vehicle	0
2018-Sep-28, Fri,11:00	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: HUNT CLUB RD btwn DUNSTON TER & CAHILL DR

Traffic Control: No control

Total Collisions: 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Apr-15, Wed,08:11	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: HUNT CLUB RD btwn DUNSTON TER & CAHILL DR

Traffic Control: No control

Total Collisions: 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-May-21, Sat,15:05	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2016-Jul-17, Sun,09:59	Clear	Sideswipe	P.D. only	Dry	East	Overtaking	Unknown	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2018-Feb-02, Fri,16:23	Clear	Rear end	P.D. only	Wet	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-May-05, Sat,18:21	Clear	Rear end	Non-fatal injury	Dry	East	Slowing or stopping	Motorcycle	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	

Location: HUNT CLUB RD EB btwn ALBION RD & DUNSTON TER

Traffic Control: No control

Total Collisions: 7

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-Sep-17, Sat,17:11	Rain	Rear end	P.D. only	Wet	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Slowing or stopping	Passenger van	Other motor vehicle	
2018-Jan-29, Mon,18:53	Clear	Rear end	P.D. only	Dry	North	Going ahead	Passenger van	Other motor vehicle	0
					North	Merging	Pick-up truck	Other motor vehicle	
2018-May-02, Wed,03:48	Clear	Other	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Curb	0
					West	Going ahead	Truck - closed	Other motor vehicle	
2018-Jun-15, Fri,14:10	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-15, Fri,14:34	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: HUNT CLUB RD EB btwn ALBION RD & DUNSTON TER

Traffic Control: No control

Total Collisions: 7

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Feb-07, Thu,17:00	Clear	Sideswipe	P.D. only	Wet	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2019-Feb-28, Thu,12:40	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Passenger van	Other motor vehicle	

Appendix E – Turning Movement Counts

Turning Movement Count - Peak Hour Diagram

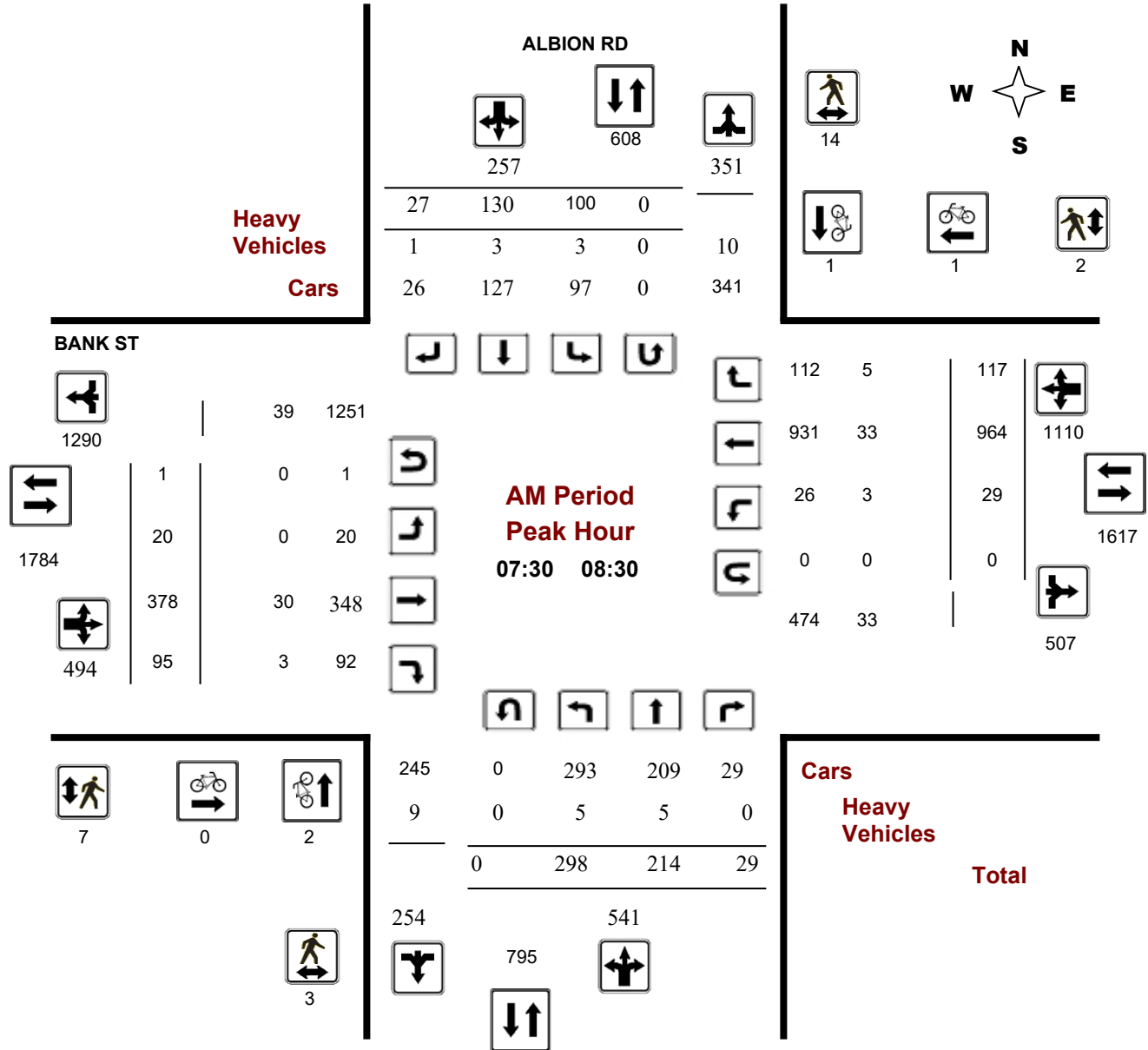
ALBION RD @ BANK ST

Survey Date: Thursday, June 20, 2019

Start Time: 07:00

WO No: 38667

Device: Miovision



Turning Movement Count - Peak Hour Diagram

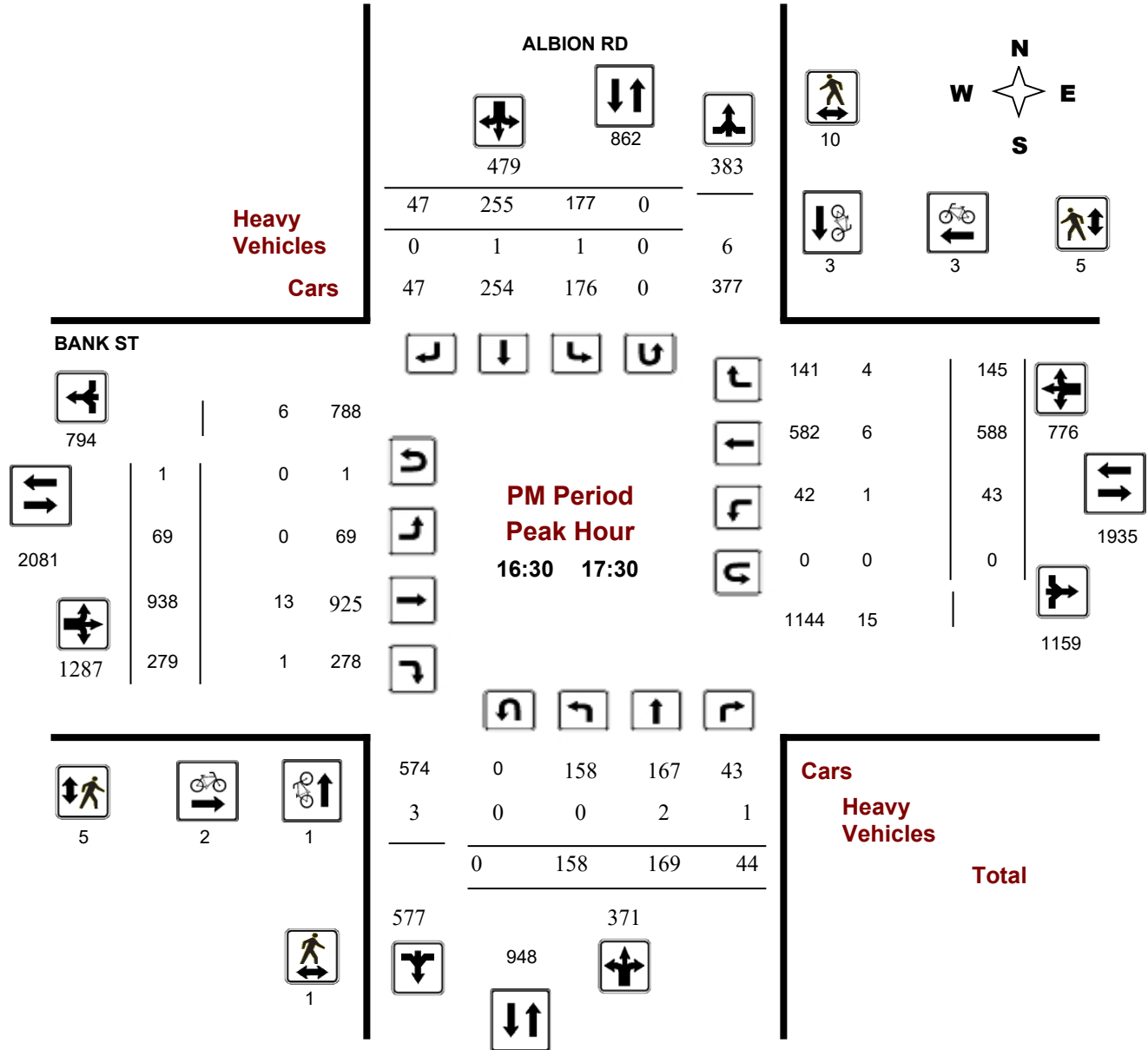
ALBION RD @ BANK ST

Survey Date: Thursday, June 20, 2019

Start Time: 07:00

WO No: 38667

Device: Miovision



Turning Movement Count - Peak Hour Diagram

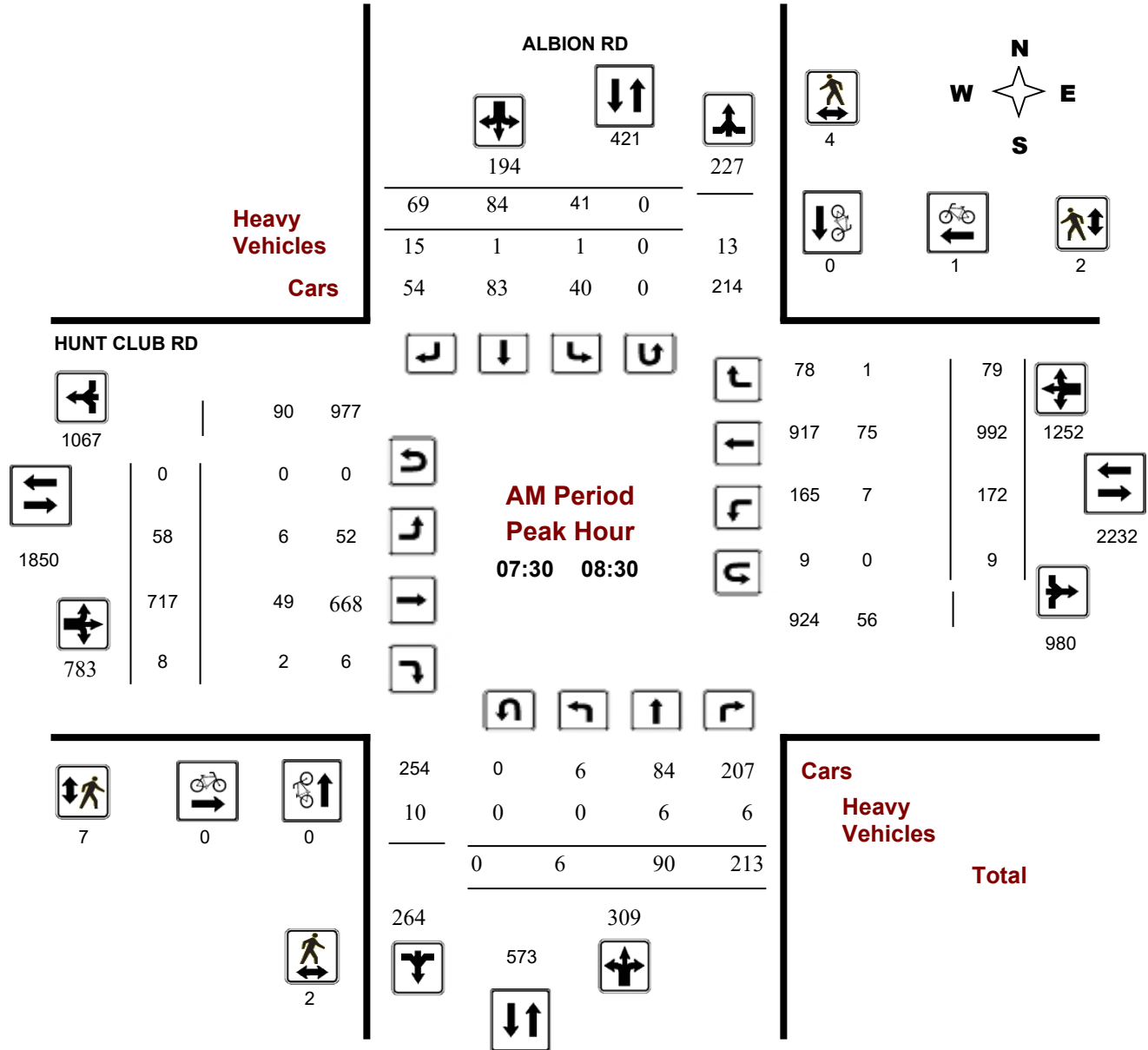
ALBION RD @ HUNT CLUB RD

Survey Date: Thursday, April 05, 2018

Start Time: 07:00

WO No: 37697

Device: Miovision



Turning Movement Count - Peak Hour Diagram

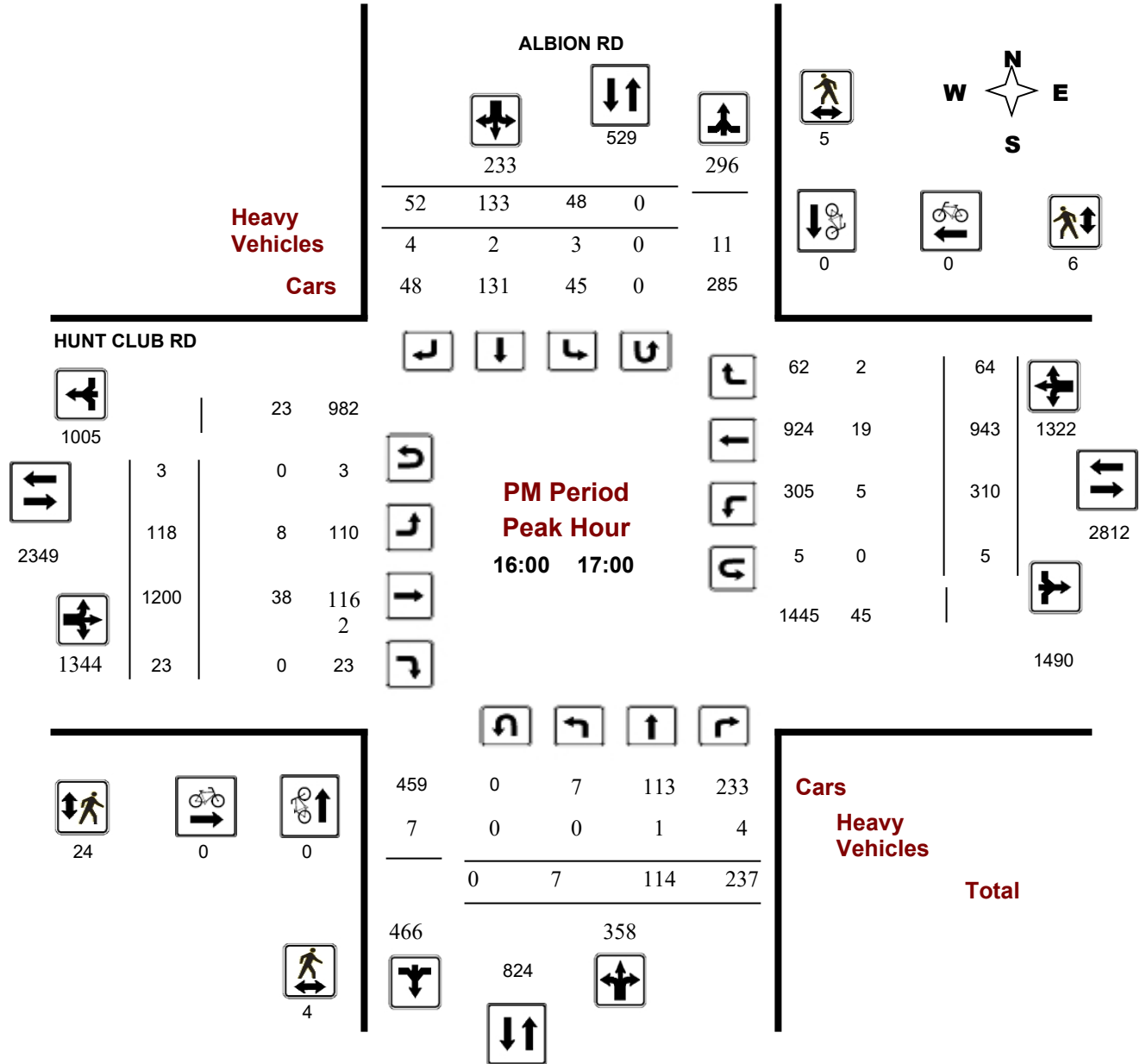
ALBION RD @ HUNT CLUB RD

Survey Date: Thursday, April 05, 2018

Start Time: 07:00

WO No: 37697

Device: Miovision



Turning Movement Count - Peak Hour Diagram

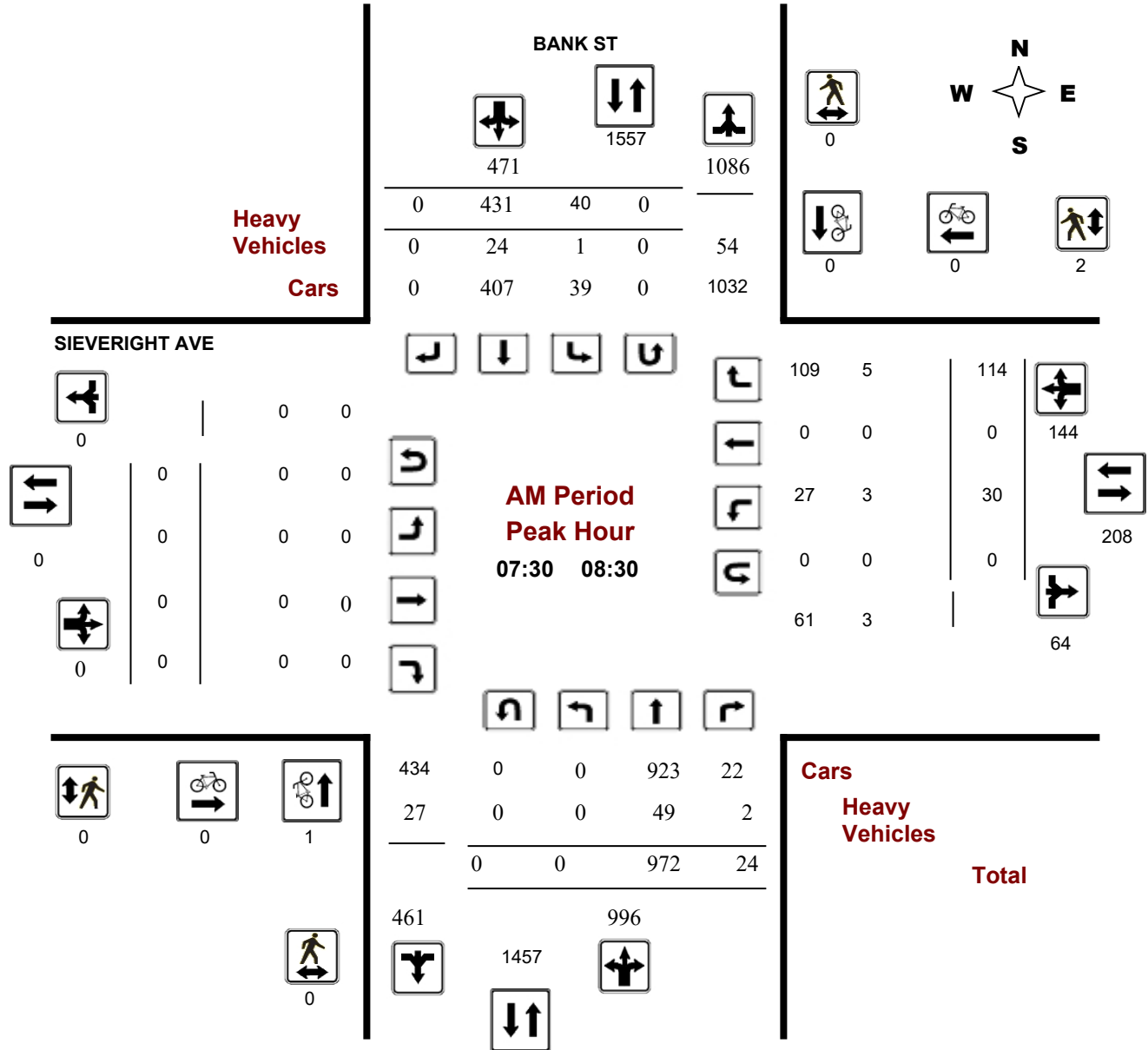
BANK ST @ SIEVERIGHT AVE

Survey Date: Thursday, November 30, 2017

Start Time: 07:00

WO No: 37353

Device: Miovision



Turning Movement Count - Peak Hour Diagram

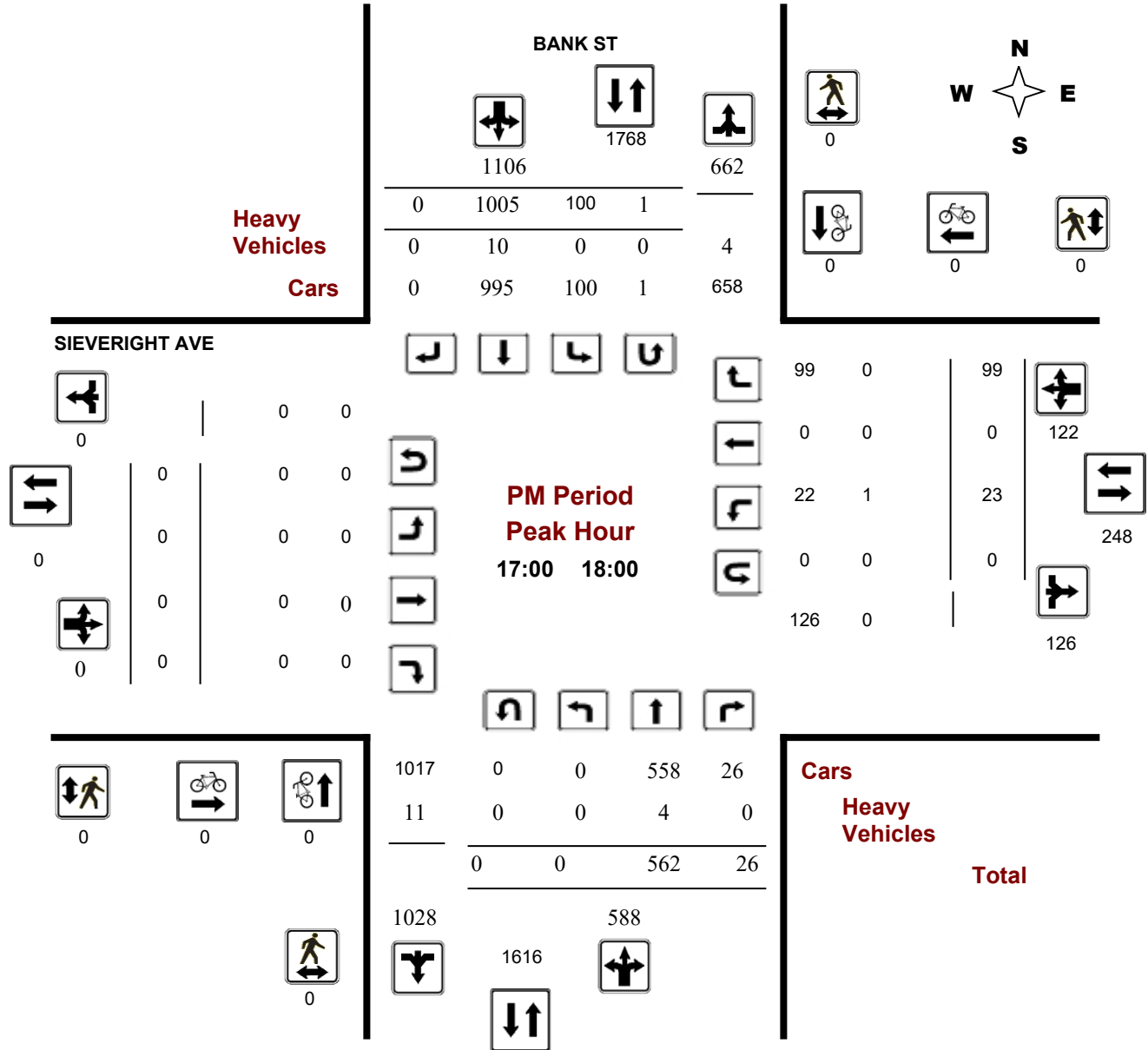
BANK ST @ SIEVERIGHT AVE

Survey Date: Thursday, November 30, 2017

Start Time: 07:00

WO No: 37353

Device: Miovision



Comments



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

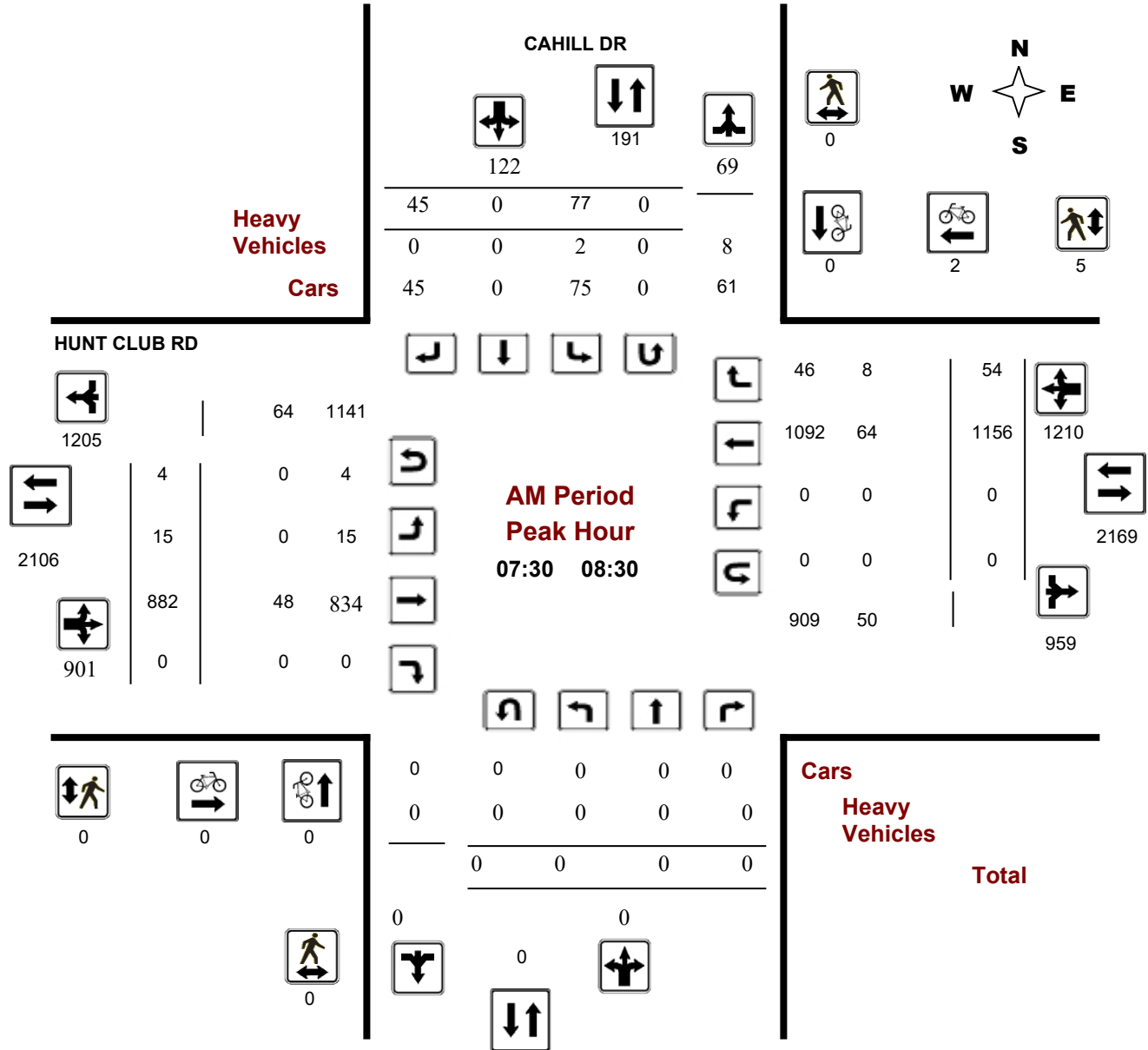
CAHILL DR @ HUNT CLUB RD

Survey Date: Thursday, August 11, 2016

Start Time: 07:00

WO No: 36180

Device: Miovision



Turning Movement Count - Peak Hour Diagram

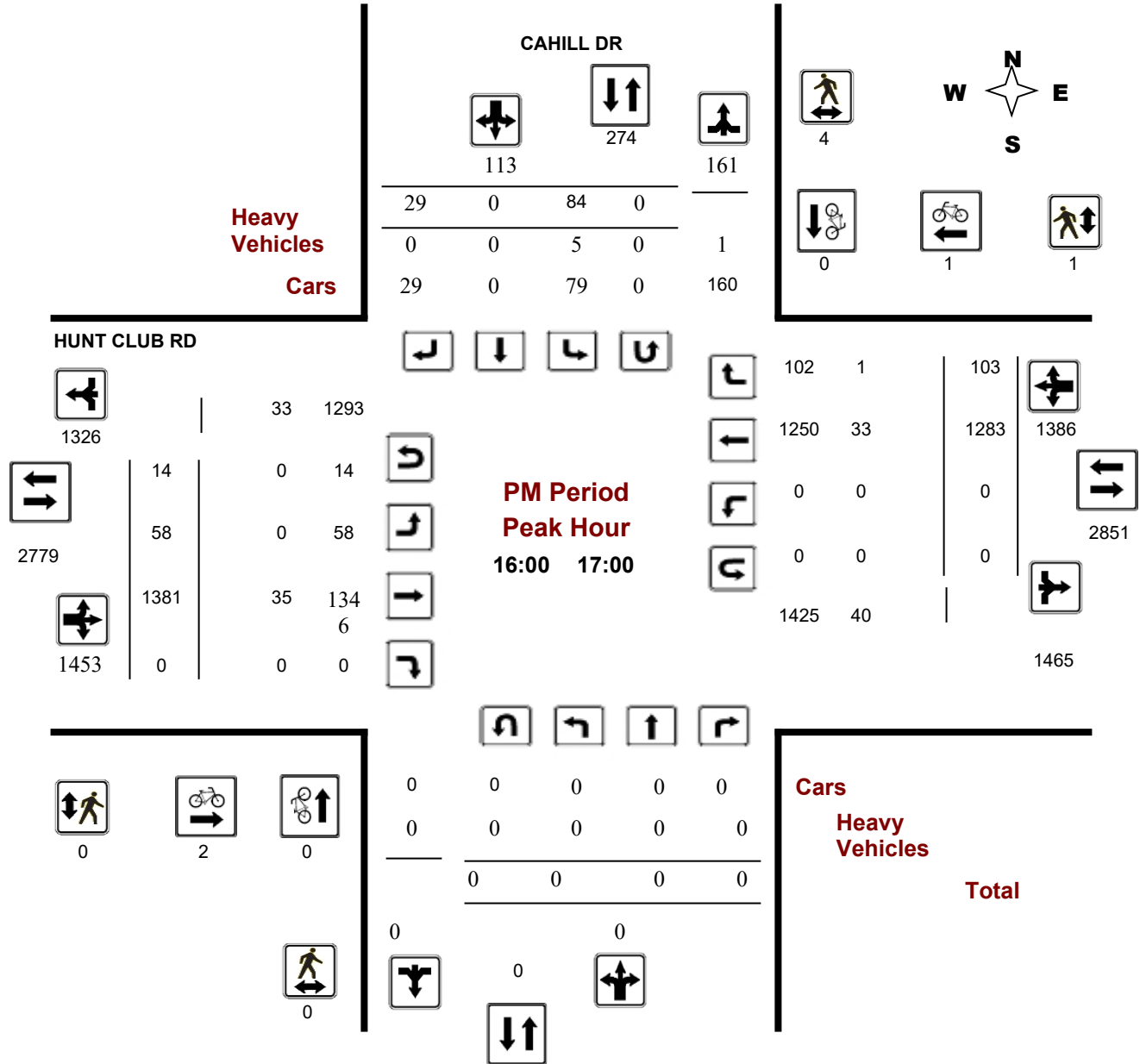
CAHILL DR @ HUNT CLUB RD

Survey Date: Thursday, August 11, 2016

Start Time: 07:00

WO No: 36180

Device: Miovision





Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

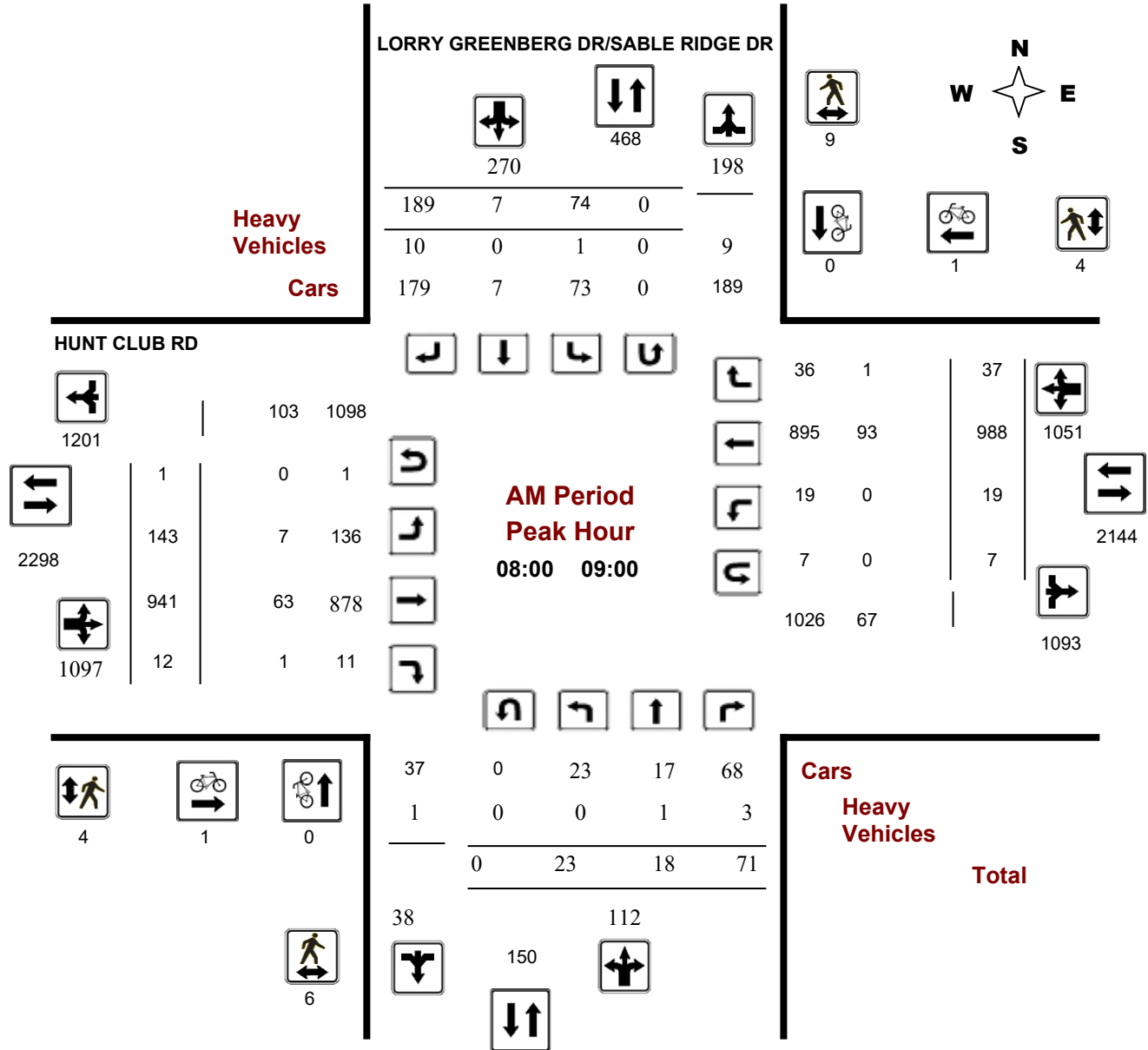
HUNT CLUB RD @ LORRY GREENBERG DR/SABLE RIDGE

Survey Date: Tuesday, April 25, 2017

Start Time: 07:00

WO No: 36251

Device: Miovision



Comments

Turning Movement Count - Peak Hour Diagram

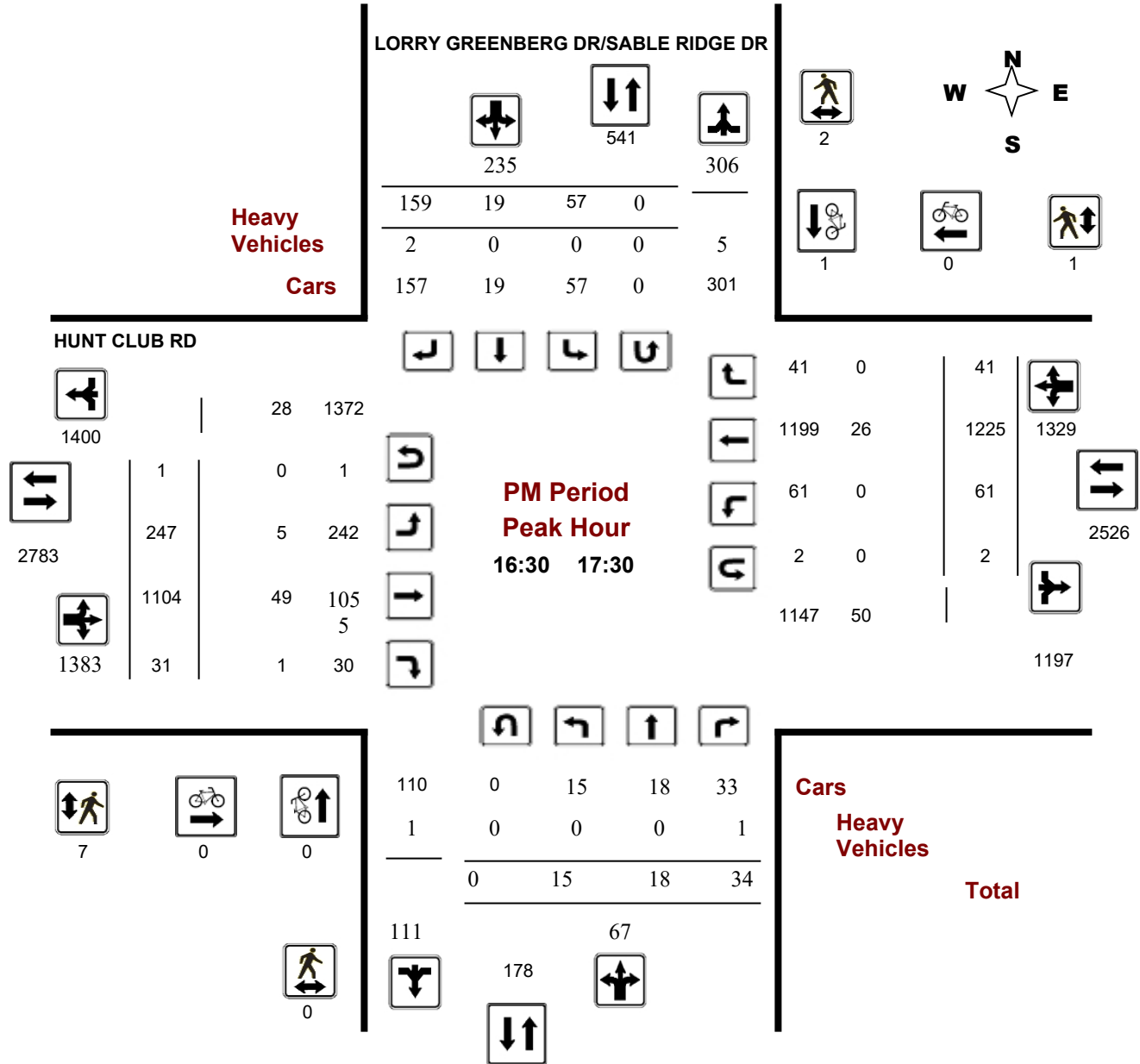
HUNT CLUB RD @ LORRY GREENBERG DR/SABLE RIDGE

Survey Date: Tuesday, April 25, 2017

Start Time: 07:00

WO No: 36251

Device: Miovision



Appendix F – Trip Generation Data

Land Use: 620 Nursing Home

Description

A nursing home is any facility whose primary function is to provide care for persons who are unable to care for themselves. Examples of such facilities include rest homes and chronic care and convalescent homes. Skilled nurses and nursing aides are present 24 hours a day at these sites. Nursing homes are occupied by residents who do little or no driving; traffic is primarily generated by employees, visitors, and deliveries. Assisted living (Land Use 254) and continuing care retirement community (Land Use 255) are related uses.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the four general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 11:00 a.m. and 12:00 p.m. and 1:30 and 2:30 p.m., respectively.

The average numbers of person trips per vehicle trip at the three general urban/suburban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.03 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.12 during Weekday, AM Peak Hour of Generator
- 1.46 during Weekday, PM Peak Hour of Generator

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), Florida, New Hampshire, New Jersey, New York, Ontario, Canada, and Texas.

Source Numbers

436, 502, 598, 734, 878, 971, 972

6.2 Employment Generators

Mode shares for trips to employment generators were developed from the 2011 TRANS Origin-Destination Survey by isolating the ‘travel to work’ trips. However, with the way the data is collected, employment related trips departing the workplace could not be isolated to identify mode share. As a result, peak direction mode shares could only be calculated for the AM peak period. **Table 12** provides the mode share by district during the AM peak period for employment trips in the peak inbound direction. These trips represent trips to the workplace and do not include work-related trips (e.g. for business meetings) or trips classified as working on the road (e.g. delivery trips). Multi-modal trips for employment generators were classified by the mode used to arrive at the workplace (e.g. a park-and-ride trip would be classified as a transit trip since the person arrived at the workplace on transit). Considering the strong likelihood of employees using the same mode of transportation when leaving work, it is fair to equate the PM peak period employment generator mode with the AM peak period.

Table 12: Employment Generator Mode Share by District (AM Peak Period)

District	Mode				
	Auto Driver	Auto Pass.	Transit	Cycling	Walking
Ottawa Centre	24%	7%	54%	4%	11%
Ottawa Inner Area	45%	7%	29%	8%	11%
Île de Hull	40%	9%	40%	5%	6%
Ottawa East	66%	7%	20%	2%	5%
Beacon Hill	73%	6%	16%	2%	3%
Alta Vista	69%	7%	18%	3%	3%
Hunt Club	83%	5%	10%	1%	1%
Merivale	70%	7%	16%	3%	4%
Ottawa West	54%	8%	28%	5%	5%
Bayshore/Cedarview	77%	6%	10%	3%	4%
Hull Périphérie	75%	7%	12%	3%	3%
Orleans	71%	7%	13%	1%	8%
South Gloucester / Leitrim	89%	7%	2%	1%	1%
South Nepean	80%	10%	5%	1%	4%
Kanata - Stittsville	84%	4%	8%	1%	3%
Plateau	82%	6%	7%	1%	4%
Aylmer	83%	3%	5%	4%	5%
Pointe Gatineau	80%	9%	4%	2%	5%
Gatineau Est	88%	6%	4%	0%	2%

Hunt Club

Demographic Characteristics

Population	56,820	Actively Travelled	45,210
Employed Population	25,400	Number of Vehicles	30,390
Households	22,130	Area (km ²)	52.3

Occupation	Male	Female	Total
Status (age 5+)			
Full Time Employed	11,620	10,650	22,280
Part Time Employed	1,130	2,000	3,130
Student	7,910	7,300	15,210
Retiree	3,690	4,680	8,380
Unemployed	730	700	1,430
Homemaker	90	1,950	2,030
Other	420	660	1,080
Total:	25,580	27,950	53,520

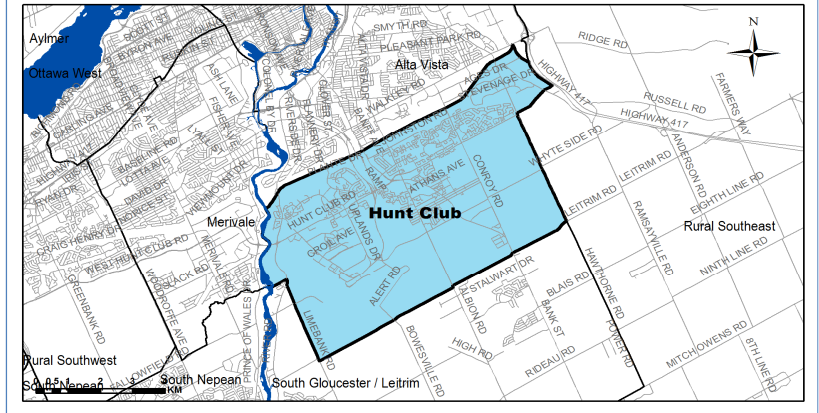
Traveller Characteristics	Male	Female	Total
Transit Pass Holders	5,960	7,020	12,980

Licensed Drivers	18,420	19,280	37,700
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Telecommuters	80	190	270
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Trips made by residents	66,220	74,780	141,000
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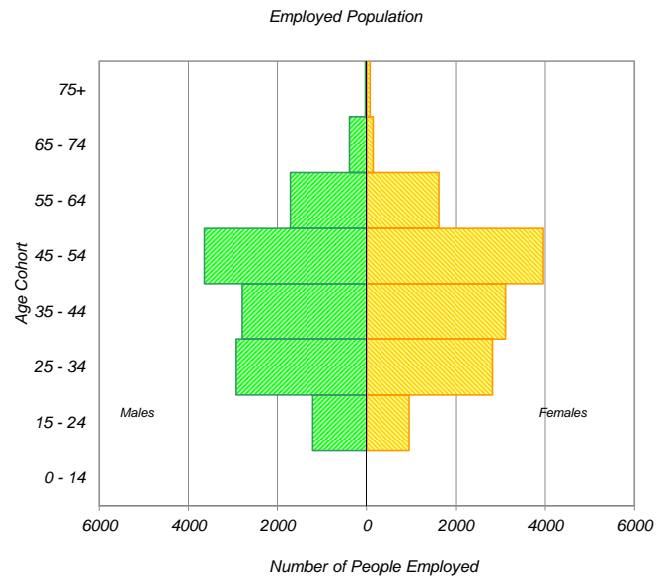
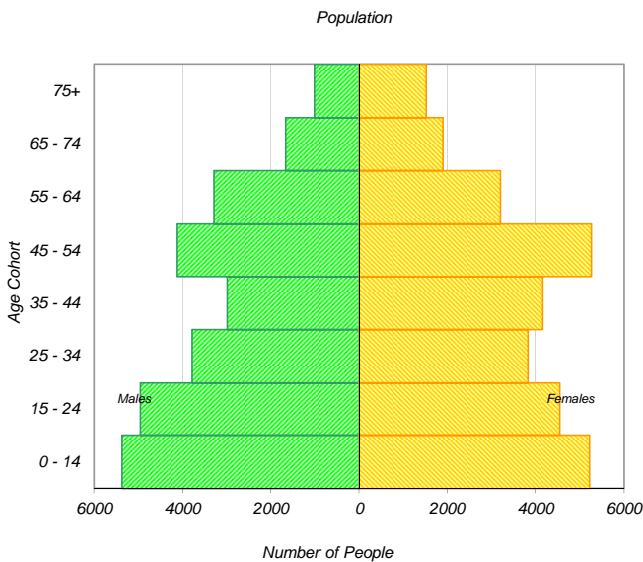
Selected Indicators	
Daily Trips per Person (age 5+)	2.63
Vehicles per Person	0.53
Number of Persons per Household	2.57
Daily Trips per Household	6.37
Vehicles per Household	1.37
Workers per Household	1.15
Population Density (Pop/km ²)	1090



Household Size		
1 person	4,880	22%
2 persons	7,100	32%
3 persons	3,880	18%
4 persons	3,940	18%
5+ persons	2,330	11%
Total:	22,130	100%

Households by Vehicle Availability		
0 vehicles	2,030	9%
1 vehicle	11,340	51%
2 vehicles	7,400	33%
3 vehicles	1,220	6%
4+ vehicles	140	1%
Total:	22,130	100%

Households by Dwelling Type		
Single-detached	6,980	32%
Semi-detached	2,150	10%
Townhouse	8,900	40%
Apartment/Condo	4,110	19%
Total:	22,130	100%

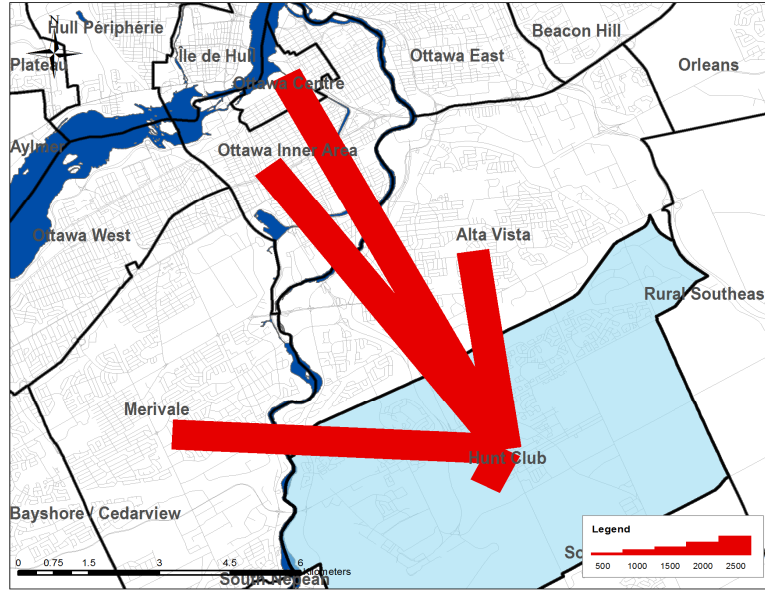


* In 2005 data was only collected for household members aged 11+ therefore these results cannot be compared to the 2011 data.

Travel Patterns

Top Five Destinations of Trips from Hunt Club

AM Peak Period



Summary of Trips to and from Hunt Club

Districts	Destinations of Trips From		Origins of Trips To	
	District	% Total	District	% Total
Ottawa Centre	3,320	10%	180	1%
Ottawa Inner Area	3,060	10%	830	4%
Ottawa East	960	3%	540	3%
Beacon Hill	380	1%	170	1%
Alta Vista	7,990	25%	1,980	10%
Hunt Club	8,550	27%	8,550	44%
Merivale	3,130	10%	960	5%
Ottawa West	580	2%	360	2%
Bayshore / Cedarview	540	2%	230	1%
Orléans	630	2%	950	5%
Rural East	50	0%	140	1%
Rural Southeast	190	1%	1,210	6%
South Gloucester / Leitrim	870	3%	1,100	6%
South Nepean	440	1%	920	5%
Rural Southwest	180	1%	220	1%
Kanata / Stittsville	420	1%	490	3%
Rural West	60	0%	80	0%
Île de Hull	380	1%	50	0%
Hull Périphérie	170	1%	50	0%
Plateau	0	0%	80	0%
Aylmer	0	0%	160	1%
Rural Northwest	0	0%	110	1%
Pointe Gatineau	70	0%	70	0%
Gatineau Est	80	0%	120	1%
Rural Northeast	30	0%	20	0%
Buckingham / Masson-Angers	0	0%	0	0%
Ontario Sub-Total:	31,350	98%	18,910	97%
Québec Sub-Total:	730	2%	660	3%
Total:	32,080	100%	19,570	100%

Trips by Trip Purpose

24 Hours	From District	To District	Within District
Work or related	19,270 25%	12,680 16%	3,720 9%
School	9,690 12%	1,260 2%	3,410 8%
Shopping	6,290 8%	9,030 12%	7,130 17%
Leisure	6,830 9%	5,190 7%	3,880 9%
Medical	2,210 3%	1,090 1%	180 0%
Pick-up / drive passenger	5,400 7%	5,740 7%	3,610 9%
Return Home	25,220 32%	39,090 51%	18,040 43%
Other	3,490 4%	3,100 4%	2,190 5%
Total:	78,400 100%	77,180 100%	42,160 100%

AM Peak (06:30 - 08:59)	From District	To District	Within District
Work or related	12,470 53%	6,990 63%	1,840 22%
School	7,350 31%	1,150 10%	3,190 37%
Shopping	260 1%	390 4%	330 4%
Leisure	360 2%	340 3%	370 4%
Medical	650 3%	140 1%	20 0%
Pick-up / drive passenger	1,480 6%	880 8%	1,340 16%
Return Home	420 2%	570 5%	670 8%
Other	560 2%	570 5%	780 9%
Total:	23,550 100%	11,030 100%	8,540 100%

PM Peak (15:30 - 17:59)	From District	To District	Within District
Work or related	460 3%	530 2%	140 1%
School	350 2%	0 0%	50 1%
Shopping	1,370 9%	2,130 10%	1,530 16%
Leisure	1,440 9%	1,230 6%	1,080 11%
Medical	240 2%	120 1%	10 0%
Pick-up / drive passenger	1,420 9%	2,010 9%	930 9%
Return Home	9,130 59%	15,540 70%	5,730 58%
Other	990 6%	780 3%	400 4%
Total:	15,400 100%	22,340 100%	9,870 100%

Peak Period (%)	Total:	% of 24 Hours	Within District (%)
24 Hours	197,740		21%
AM Peak Period	43,120	22%	20%
PM Peak Period	47,610	24%	21%

Trips by Primary Travel Mode

24 Hours	From District	To District	Within District
Auto Driver	47,460 61%	47,270 61%	22,130 52%
Auto Passenger	12,000 15%	11,370 15%	6,360 15%
Transit	13,980 18%	13,850 18%	1,660 4%
Bicycle	560 1%	580 1%	360 1%
Walk	310 0%	350 0%	8,370 20%
Other	4,100 5%	3,740 5%	3,290 8%
Total:	78,410 100%	77,160 100%	42,170 100%

AM Peak (06:30 - 08:59)	From District	To District	Within District
Auto Driver	10,420 44%	8,350 76%	3,700 43%
Auto Passenger	2,740 12%	1,080 10%	1,190 14%
Transit	7,540 32%	710 6%	270 3%
Bicycle	220 1%	130 1%	100 1%
Walk	150 1%	20 0%	1,720 20%
Other	2,490 11%	760 7%	1,570 18%
Total:	23,560 100%	11,050 100%	8,550 100%

PM Peak (15:30 - 17:59)	From District	To District	Within District
Auto Driver	10,960 71%	12,380 55%	5,340 54%
Auto Passenger	2,590 17%	2,910 13%	1,880 19%
Transit	1,330 9%	5,460 24%	270 3%
Bicycle	120 1%	180 1%	80 1%
Walk	30 0%	40 0%	1,710 17%
Other	360 2%	1,360 6%	580 6%
Total:	15,390 100%	22,330 100%	9,860 100%

Avg Vehicle Occupancy	From District	To District	Within District
24 Hours	1.25	1.24	1.29
AM Peak Period	1.26	1.13	1.32
PM Peak Period	1.24	1.24	1.35

Transit Modal Split	From District	To District	Within District
24 Hours	19%	19%	6%
AM Peak Period	36%	7%	5%
PM Peak Period	9%	26%	4%

Appendix G – TDM Checklists

TDM-Supportive Development Design and Infrastructure Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

Legend	
REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
1. WALKING & CYCLING: ROUTES		
1.1 Building location & access points		
BASIC	1.1.1 Locate building close to the street, and do not locate parking areas between the street and building entrances	<input checked="" type="checkbox"/>
BASIC	1.1.2 Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	<input checked="" type="checkbox"/>
BASIC	1.1.3 Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	<input checked="" type="checkbox"/>
1.2 Facilities for walking & cycling		
REQUIRED	1.2.1 Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations <i>(see Official Plan policy 4.3.3)</i>	<input checked="" type="checkbox"/>
REQUIRED	1.2.2 Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible <i>(see Official Plan policy 4.3.12)</i>	<input checked="" type="checkbox"/>

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3 Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks (<i>see Official Plan policy 4.3.10</i>)	<input checked="" type="checkbox"/>
REQUIRED	1.2.4 Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps (<i>see Official Plan policy 4.3.10</i>)	<input checked="" type="checkbox"/>
REQUIRED	1.2.5 Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians (<i>see Official Plan policy 4.3.11</i>)	<input checked="" type="checkbox"/>
BASIC	1.2.6 Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	<input checked="" type="checkbox"/>
BASIC	1.2.7 Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	<input checked="" type="checkbox"/>
BASIC	1.2.8 Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	<input checked="" type="checkbox"/>
1.3 Amenities for walking & cycling		
BASIC	1.3.1 Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	<input checked="" type="checkbox"/>
BASIC	1.3.2 Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	<input checked="" type="checkbox"/>

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
2. WALKING & CYCLING: END-OF-TRIP FACILITIES		
2.1 Bicycle parking		
REQUIRED	2.1.1 Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible (see <i>Official Plan policy 4.3.6</i>)	<input checked="" type="checkbox"/>
REQUIRED	2.1.2 Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas (see <i>Zoning By-law Section 111</i>)	<input checked="" type="checkbox"/> (0.25 PER UNIT, 0.25 PER STAFF ON-SITE)
REQUIRED	2.1.3 Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored (see <i>Zoning By-law Section 111</i>)	<input checked="" type="checkbox"/>
BASIC	2.1.4 Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	<input checked="" type="checkbox"/>
BETTER	2.1.5 Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	<input type="checkbox"/>
2.2 Secure bicycle parking		
REQUIRED	2.2.1 Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers (see <i>Zoning By-law Section 111</i>)	<input checked="" type="checkbox"/> (PARKING PROVIDED ADJACENT TO BUILDING ENTRANCE AND IN SECURE STORAGE ROOM WITHIN GARAGE)
BETTER	2.2.2 Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	<input checked="" type="checkbox"/>
2.3 Shower & change facilities		
BASIC	2.3.1 Provide shower and change facilities for the use of active commuters	<input checked="" type="checkbox"/>
BETTER	2.3.2 In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	<input checked="" type="checkbox"/> (PROVIDED FOR STAFF ON-SITE)
2.4 Bicycle repair station		
BETTER	2.4.1 Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	<input checked="" type="checkbox"/> (LOCATED UNDERGROUND)

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
3. TRANSIT		
3.1 Customer amenities		
BASIC	3.1.1 Provide shelters, lighting and benches at any on-site transit stops	<input type="checkbox"/> (N/A)
BASIC	3.1.2 Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	<input type="checkbox"/>
BETTER	3.1.3 Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	<input type="checkbox"/>
4. RIDESHARING		
4.1 Pick-up & drop-off facilities		
BASIC	4.1.1 Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	<input checked="" type="checkbox"/>
4.2 Carpool parking		
BASIC	4.2.1 Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools	<input type="checkbox"/> (ALL PARKING FOR FACILITY PROVIDED BELOW-GRADE)
BETTER	4.2.2 At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	<input type="checkbox"/>
5. CARSHARING & BIKESHARING		
5.1 Carshare parking spaces		
BETTER	5.1.1 Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces (<i>see Zoning By-law Section 94</i>)	<input type="checkbox"/>
5.2 Bikeshare station location		
BETTER	5.2.1 Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	<input type="checkbox"/>

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
6. PARKING		
6.1 Number of parking spaces		
REQUIRED	6.1.1 Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	<input checked="" type="checkbox"/>
BASIC	6.1.2 Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	<input type="checkbox"/>
BASIC	6.1.3 Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly (<i>see Zoning By-law Section 104</i>)	<input type="checkbox"/>
BETTER	6.1.4 Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking (<i>see Zoning By-law Section 111</i>)	<input type="checkbox"/>
6.2 Separate long-term & short-term parking areas		
BETTER	6.2.1 Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)	<input type="checkbox"/>
7. OTHER		
7.1 On-site amenities to minimize off-site trips		
BETTER	7.1.1 Provide on-site amenities to minimize mid-day or mid-commute errands	<input type="checkbox"/>

TDM Measures Checklist:

Non-Residential Developments (office, institutional, retail or industrial)

Legend	
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance
★	The measure is one of the most dependably effective tools to encourage the use of sustainable modes

TDM measures: <i>Non-residential developments</i>		Check if proposed & add descriptions
1. TDM PROGRAM MANAGEMENT		
1.1 Program coordinator		
BASIC	★	1.1.1 Designate an internal coordinator, or contract with an external coordinator
		<input checked="" type="checkbox"/>
Included in the HR managers responsibilities.		
1.2 Travel surveys		
BETTER	1.2.1 Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	
		<input checked="" type="checkbox"/>
Included in the HR managers responsibilities.		
2. WALKING AND CYCLING		
2.1 Information on walking/cycling routes & destinations		
BASIC	2.1.1 Display local area maps with walking/cycling access routes and key destinations at major entrances	
		<input checked="" type="checkbox"/>
Maps to be included in the staff lounge and in the lobby/dining area for residents.		
2.2 Bicycle skills training		
<i>Commuter travel</i>		
BETTER	★	2.2.1 Offer on-site cycling courses for commuters, or subsidize off-site courses
		<input type="checkbox"/>
2.3 Valet bike parking		
<i>Visitor travel</i>		
BETTER	2.3.1 Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games)	
		<input type="checkbox"/>

GENERAL COMMENTS

Larga Baffin Ltd. provides medical boarding home services to persons arriving from the Baffin region of Nunavut. All residents arrive by air. Transportation is provided by shuttle bus for all arrivals and departures and to and from all medical appointments. Residents rely on public transit and taxi services for personal travel.

TDM measures: <i>Non-residential developments</i>		Check if proposed & add descriptions
3. TRANSIT		
3.1 Transit information		
BASIC	3.1.1 Display relevant transit schedules and route maps at entrances	<input checked="" type="checkbox"/> OC Transpo brochures/route maps displayed at front desk and in staff lounge.
BASIC	3.1.2 Provide online links to OC Transpo and STO information	<input checked="" type="checkbox"/> Online links provided in the staff training software.
BETTER	3.1.3 Provide real-time arrival information display at entrances	<input type="checkbox"/>
3.2 Transit fare incentives		
<i>Commuter travel</i>		
BETTER	3.2.1 Offer preloaded PRESTO cards to encourage commuters to use transit	<input type="checkbox"/>
BETTER ★	3.2.2 Subsidize or reimburse monthly transit pass purchases by employees	<input type="checkbox"/>
<i>Visitor travel</i>		
BETTER	3.2.3 Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	<input type="checkbox"/>
3.3 Enhanced public transit service		
<i>Commuter travel</i>		
BETTER	3.3.1 Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	<input type="checkbox"/>
<i>Visitor travel</i>		
BETTER	3.3.2 Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	<input type="checkbox"/>
3.4 Private transit service		
<i>Commuter travel</i>		
BETTER	3.4.1 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	<input checked="" type="checkbox"/> Shuttle service provided for employees as needed (e.g. during Covid-19).
<i>Visitor travel</i>		
BETTER	3.4.2 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	<input checked="" type="checkbox"/> Residents are shuttled in buses to various cultural events.

TDM measures: <i>Non-residential developments</i>		Check if proposed & add descriptions
4. RIDESHARING		
4.1 Ridematching service		
<i>Commuter travel</i>		
BASIC	★ 4.1.1 Provide a dedicated ridematching portal at OttawaRideMatch.com	<input type="checkbox"/>
4.2 Carpool parking price incentives		
<i>Commuter travel</i>		
BETTER	4.2.1 Provide discounts on parking costs for registered carpools	<input type="checkbox"/>
4.3 Vanpool service		
<i>Commuter travel</i>		
BETTER	4.3.1 Provide a vanpooling service for long-distance commuters	<input type="checkbox"/>
5. CARSHARING & BIKESHARING		
5.1 Bikeshare stations & memberships		
BETTER	5.1.1 Contract with provider to install on-site bikeshare station for use by commuters and visitors	<input type="checkbox"/>
<i>Commuter travel</i>		
BETTER	5.1.2 Provide employees with bikeshare memberships for local business travel	<input type="checkbox"/>
5.2 Carshare vehicles & memberships		
<i>Commuter travel</i>		
BETTER	5.2.1 Contract with provider to install on-site carshare vehicles and promote their use by tenants	<input type="checkbox"/>
BETTER	5.2.2 Provide employees with carshare memberships for local business travel	<input type="checkbox"/>
6. PARKING		
6.1 Priced parking		
<i>Commuter travel</i>		
BASIC	★ 6.1.1 Charge for long-term parking (daily, weekly, monthly)	<input type="checkbox"/>
BASIC	6.1.2 Unbundle parking cost from lease rates at multi-tenant sites	<input type="checkbox"/>
<i>Visitor travel</i>		
BETTER	6.1.3 Charge for short-term parking (hourly)	<input type="checkbox"/>

TDM measures: <i>Non-residential developments</i>		Check if proposed & add descriptions
7. TDM MARKETING & COMMUNICATIONS		
7.1 Multimodal travel information		
<i>Commuter travel</i>		
BASIC ★	7.1.1 Provide a multimodal travel option information package to new/relocating employees and students	<input checked="" type="checkbox"/> Provided to all employees as part of their orientation package.
<i>Visitor travel</i>		
BETTER ★	7.1.2 Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games)	<input type="checkbox"/>
7.2 Personalized trip planning		
<i>Commuter travel</i>		
BETTER ★	7.2.1 Offer personalized trip planning to new/relocating employees	<input type="checkbox"/>
7.3 Promotions		
<i>Commuter travel</i>		
BETTER	7.3.1 Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes	<input type="checkbox"/>
8. OTHER INCENTIVES & AMENITIES		
8.1 Emergency ride home		
<i>Commuter travel</i>		
BETTER ★	8.1.1 Provide emergency ride home service to non-driving commuters	<input checked="" type="checkbox"/> Taxi chits or shuttle service provided as required.
8.2 Alternative work arrangements		
<i>Commuter travel</i>		
BASIC ★	8.2.1 Encourage flexible work hours	<input checked="" type="checkbox"/> Coordinate with transit schedules as required.
BETTER	8.2.2 Encourage compressed workweeks	<input type="checkbox"/>
BETTER ★	8.2.3 Encourage telework	<input type="checkbox"/>
8.3 Local business travel options		
<i>Commuter travel</i>		
BASIC ★	8.3.1 Provide local business travel options that minimize the need for employees to bring a personal car to work	<input type="checkbox"/>
8.4 Commuter incentives		
<i>Commuter travel</i>		
BETTER	8.4.1 Offer employees a taxable, mode-neutral commuting allowance	<input type="checkbox"/>
8.5 On-site amenities		
<i>Commuter travel</i>		
BETTER	8.5.1 Provide on-site amenities/services to minimize mid-day or mid-commute errands	<input checked="" type="checkbox"/> Hot lunch provided on site for all staff.

Appendix H – MMLOS Analysis

Multi-Modal Level of Service - Intersections Form

Consultant
Scenario
Comments

IBI Group
Existing (2021)

Project
Date

1470 Hunt Club Road
2021-10-04

INTERSECTIONS		Hunt Club Road & Albion Road South				Bank Street & Albion Road South				Hunt Club Road & Cahill Drive				Hunt Club Rd & Lorry Greenberg Dr / Sable Ridge Dr			
Crossing Side		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	5	5	7	7	5	4	7	7	4		5	6	4	3	6	5
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m		No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Protected/ Permissive	Protected/ Permissive	Permissive	Permissive	Protected	Protected	Permissive	Protected/ Permissive	Permissive		Permissive	No left turn / Prohib.	Protected	Protected	Permissive	Permissive
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control		Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	Right Turns on Red (RTOR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed		RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Signal Leading Interval?	No	No	No	No	No	No	No	No	No		No	No	No	No	No	No
	Right Turn Channel	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	Smart Channel	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	No Channel		No Right Turn	No Channel	Conventional with Receiving Lane	No Channel	Conv'tl without Receiving Lane	Conventional with Receiving Lane
	Corner Radius	15-25m	15-25m	15-25m	15-25m	15-25m	15-25m	15-25m	15-25m	10-15m		No Right Turn	5-10m	15-25m	10-15m	15-25m	15-25m
	Crosswalk Type	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings		Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings
	PETSI Score	39	39	6	6	47	65	6	6	53		47	32	60	78	22	36
	Ped. Exposure to Traffic LoS	E	E	F	F	D	C	F	F	D	-	D	E	C	B	F	E
	Cycle Length	120	120	120	120	120	120	120	120	120		120	120	120	120	120	120
Effective Walk Time	46.1	46.1	7.8	7.8	23.3	23.3	21.6	10.6	64.5		7.3	7.3	39.1	39.1	9.3	9.3	
Average Pedestrian Delay	23	23	52	52	39	39	40	50	13		53	53	27	27	51	51	
Pedestrian Delay LoS	C	C	E	E	D	D	E	E	B	-	E	E	C	C	E	E	
Level of Service	E	E	F	F	D	D	F	F	D	-	E	E	C	C	F	E	
Approach From	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	
Bicycle	Bicycle Lane Arrangement on Approach	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic		Pocket Bike Lane	Mixed Traffic	Mixed Traffic	Mixed Traffic	Pocket Bike Lane	Curb Bike Lane, Cycletrack or MUP
	IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank>			≤ 50 m	≤ 50 m			> 50 m	> 50 m			Bike lane shifts to the left of right turn	≤ 50 m			Bike lane shifts to the left of right turn	Not Applicable
	Dedicated Right Turning Speed	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h		≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	Not Applicable
	Cyclist Through Movement			D	D			F	F		-	D	D			D	Not Applicable
	Separated or Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	-	Separated	Mixed Traffic	Mixed Traffic	Mixed Traffic	Separated	Separated
	Left Turn Approach	One lane crossed	One lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	One lane crossed	One lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	One lane crossed			≥ 2 lanes crossed	One lane crossed	One lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed
	Operating Speed	> 50 to < 60 km/h	> 50 to < 60 km/h	≥ 60 km/h	≥ 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	≥ 60 km/h	≥ 60 km/h	> 50 to < 60 km/h			≥ 60 km/h	> 50 to < 60 km/h	> 40 to ≤ 50 km/h	≥ 60 km/h	≥ 60 km/h
Left Turning Cyclist	E	E	F	F	E	E	F	F	E	-	-	F	E	D	F	F	
Level of Service	E	E	F	F	E	E	F	F	E	-	-	F	E	D	F	F	
Transit	Average Signal Delay	> 40 sec			≤ 20 sec					> 40 sec			≤ 10 sec	≤ 30 sec			> 40 sec
Level of Service	F	-	-	C	-	-	-	-	F	-	B	-	D	-	-	F	
Truck	Effective Corner Radius																
Level of Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Auto	Volume to Capacity Ratio																
Level of Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix I – Traffic Signal Warrants



OTM BOOK 12* - TRAFFIC SIGNAL WARRANT

Project: 1470 Hunt Club Road Date: October 07, 2021
 Project #: 126884
 Location: Bank Street at Sieveright Avenue
(Major Roadway) (Minor Roadway)
 Orientation: East/West North/South
 Municipality: City of Ottawa Scenario: Existing (2021) Traffic

Justification 1 - Minimum Vehicle Volume

WARRANT	MINIMUM REQUIREMENT				COMPLIANCE								SECTIONAL PERCENT
	FREE FLOW	RESTR. FLOW	ADJUST. FREE FLOW	ADJUST. RESTR. FLOW	7:00 AM	8:00 AM	9:00 AM	10:00 AM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	
A. Vehicle volumes, all approaches	480	720	600	900	1511 100%	1450 100%	1293 100%	1481 100%	1481 100%	1724 100%	1745 100%	1815 100%	100%
B. Vehicle volume along minor roads	120	170	180	255	145 57%	126 49%	95 37%	113 44%	87 34%	99 39%	114 45%	122 48%	44%

Justification 2 - Delay to Cross Traffic

WARRANT	MINIMUM REQUIREMENT				COMPLIANCE								SECTIONAL PERCENT
	FREE FLOW	RESTR. FLOW	ADJUST. FREE FLOW	ADJUST. RESTR. FLOW	7:00 AM	8:00 AM	9:00 AM	10:00 AM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	
A. Vehicle volumes, along artery	480	720	600	900	1366 100%	1324 100%	1198 100%	1368 100%	1394 100%	1625 100%	1631 100%	1693 100%	100%
B. Combined vehicle and pedestrian volume crossing artery from minor roads	50	70	50	70	31 44%	26 37%	18 26%	17 24%	16 23%	30 43%	28 40%	23 33%	34%

Justification 3 - Volume/Delay Combination

JUSTIFICATION	SATISFIED TO 80% OR MORE?	BOTH SATISFIED TO 80% OR MORE?
Justification 1 - Minimum Vehicular Volume	NO	NO
Justification 2 - Delay to Cross Traffic	NO	

Eight Hour Traffic Volumes:

Hour	Major Road						Minor Road						Ped*
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
7:00 AM	37	387	0	0	924	18	0	0	0	31	0	114	0
8:00 AM	47	419	0	0	836	22	0	0	0	26	0	100	0
9:00 AM	61	443	0	0	675	19	0	0	0	18	0	77	0
10:00 AM	63	625	0	0	663	17	0	0	0	17	0	96	0
3:00 PM	68	676	0	0	629	21	0	0	0	16	0	71	0
4:00 PM	79	906	0	0	606	34	0	0	0	30	0	69	0
5:00 PM	113	925	0	0	560	33	0	0	0	28	0	86	0
6:00 PM	100	1005	0	0	562	26	0	0	0	23	0	99	0

* Number of pedestrians crossing the major road

Notes:

- Vehicle volume warrant (1A) and (2A) for intersections of roadways having two or more moving lanes in one direction should be 25% higher than the values given above.
- Warrant values for free flow apply when the 85th percentile speed of artery traffic equals or exceeds 70 km/h or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000. Warrant values for restricted flow apply to large urban communities when the 85th percentile speed of artery traffic does not exceed 70 km/h.
- The lowest sectional percentage governs the entire warrant.
- For "T" intersections the warrant values for the minor road should be increased by 50% (Warrant 1B only).
- All flow values for Justification 1 and 2 are to be increased by 20% in the case of new intersections. Justification 3 is to only be used for existing intersections and all flow values for Warrant 1 and Warrant 2 of Justification 7 are to be increased by 20% for existing intersections and by 50% in the case of new intersections.
- The crossing volumes are defined as the sum of:
 - Left-turns from both minor road approaches.
 - The heaviest through volume from the minor road.
 - 50% of the heavier left turn movement from major road when both of the following are met:
 - the left-turn volume >120 vph
 - the left-turn volume plus the opposing volume >720 vph
 - Pedestrians crossing the main road.

2+ Lanes per Direction

Restricted Flow

3-legged Intersection

Existing Intersection

CONCLUSION: The intersection does NOT meet the minimum warrants for traffic control signals.

* Ontario Traffic Manual, Book 12 (March 2012), Ontario Ministry of Transportation.



OTM BOOK 12* - TRAFFIC SIGNAL WARRANT

Project: 1470 Hunt Club Road Date: October 07, 2021
 Project #: 126884
 Location: Bank Street at Sieveright Avenue
 Orientation: (Major Roadway) East/West (Minor Roadway) North/South
 Municipality: City of Ottawa Scenario: Future (2027) Total Traffic

Justification 1 - Minimum Vehicle Volume

WARRANT	MINIMUM REQUIREMENT				COMPLIANCE								SECTIONAL PERCENT
	FREE FLOW	RESTR. FLOW	ADJUST. FREE FLOW	ADJUST. RESTR. FLOW	7:00 AM	8:00 AM	9:00 AM	10:00 AM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	
A. Vehicle volumes, all approaches	480	720	600	900	1695 100%	848 94%	848 94%	848 94%	1916 100%	958 100%	958 100%	958 100%	98%
B. Vehicle volume along minor roads	120	170	180	255	147 58%	74 29%	74 29%	74 29%	132 52%	66 26%	66 26%	66 26%	34%

Justification 2 - Delay to Cross Traffic

WARRANT	MINIMUM REQUIREMENT				COMPLIANCE								SECTIONAL PERCENT
	FREE FLOW	RESTR. FLOW	ADJUST. FREE FLOW	ADJUST. RESTR. FLOW	7:00 AM	8:00 AM	9:00 AM	10:00 AM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	
A. Vehicle volumes, along artery	480	720	600	900	1548 100%	774 86%	774 86%	774 86%	1784 100%	892 99%	892 99%	892 99%	94%
B. Combined vehicle and pedestrian volume crossing artery from minor roads	50	70	50	70	31 44%	16 22%	16 22%	16 22%	27 39%	14 19%	14 19%	14 19%	26%

Justification 3 - Volume/Delay Combination

JUSTIFICATION	SATISFIED TO 80% OR MORE?	BOTH SATISFIED TO 80% OR MORE?
Justification 1 - Minimum Vehicular Volume	NO	NO
Justification 2 - Delay to Cross Traffic	NO	

Justification 7 - Projected Volumes

WARRANT	DESCRIPTION	MINIMUM REQUIREMENT				COMPLIANCE		
		FREE FLOW	RESTRICTED FLOW	ADJUSTED FREE FLOW	ADJUSTED RESTRICTED FLOW	SECTIONAL		ENTIRE %
						AHV	%	
1. MINIMUM VEHICULAR VOLUME	A. Vehicle volumes, all approaches (Average Hour)	480	720	720	1080	903	84%	23%
	B. Vehicle volume along minor roads (Average Hour)	120	170	216	306	70	23%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volumes, along artery (Average Hour)	480	720	720	1080	833	77%	17%
	B. Combined vehicle and pedestrian volume crossing artery from minor roads (Average Hour)	50	75	60	90	15	17%	

Projected Traffic Volumes:

Average Hourly Volume (AHV) Equation: $AHV = (amPHV + pmPHV)/4$

AM Peak Hour Volumes

116	0	31	↖	27
			←	1022
↙	↓	↘	↙	0
42	↗	↖	↑	↗
457	→	0	0	0
0	↘			

PM Peak Hour Volumes

105	0	27	↖	28
			←	594
↙	↓	↘	↙	0
102	↗	↖	↑	↗
1060	→	0	0	0
0	↘			

Average Hourly Volumes (AHV)

55	0	15	↖	14
			←	404
↙	↓	↘	↙	0
36	↗	↖	↑	↗
379	→	0	0	0
0	↘			



Eight Hour Traffic Volumes:**

Hour	Major Road						Minor Road						Ped*
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
7:00 AM	42	457	0	0	1022	27	0	0	0	31	0	116	0
8:00 AM	21	229	0	0	511	14	0	0	0	16	0	58	0
9:00 AM	21	229	0	0	511	14	0	0	0	16	0	58	0
10:00 AM	21	229	0	0	511	14	0	0	0	16	0	58	0
3:00 PM	102	1060	0	0	594	28	0	0	0	27	0	105	0
4:00 PM	51	530	0	0	297	14	0	0	0	14	0	53	0
5:00 PM	51	530	0	0	297	14	0	0	0	14	0	53	0
6:00 PM	51	530	0	0	297	14	0	0	0	14	0	53	0

* Number of pedestrians crossing the major road

** These are projected 8-hour traffic volumes.

Notes:

- Vehicle volume warrant (1A) and (2A) for intersections of roadways having two or more moving lanes in one direction should be 25% higher than the values given above.
- Warrant values for free flow apply when the 85th percentile speed of artery traffic equals or exceeds 70 km/h or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000. Warrant values for restricted flow apply to large urban communities when the 85th percentile speed of artery traffic does not exceed 70 km/h.
- The lowest sectional percentage governs the entire warrant.
- For "T" intersections the warrant values for the minor road should be increased by 50% (Warrant 1B only).
- All flow values for Justification 1 and 2 are to be increased by 20% in the case of new intersections, Justification 3 is to only be used for existing intersections and all flow values for Warrant 1 and Warrant 2 of Justification 7 are to be increased by 20% for existing intersections and by 50% in the case of new intersections.
- The crossing volumes are defined as the sum of:
 - Left-turns from both minor road approaches.
 - The heaviest through volume from the minor road.
 - 50% of the heavier left turn movement from major road when both of the following are met:
 - the left-turn volume >120 vph
 - the left-turn volume plus the opposing volume >720 vph
 - Pedestrians crossing the main road.

2+ Lanes per Direction

Restricted Flow

3-legged Intersection

Existing Intersection

CONCLUSION: The intersection does NOT meet the minimum warrants for traffic control signals.

* "Ontario Traffic Manual, Book 12 (March 2012)", Ontario Ministry of Transportation.

Appendix J – Roundabout Screening

City of Ottawa Roundabout Initial Feasibility Screening Tool

The intent of this screening tool is to provide a relatively quick assessment of the feasibility of a roundabout at a particular intersection in comparison to other appropriate forms of traffic control or road modifications including all-way stop control, traffic signals, auxiliary lanes, etc. The intended outcome of this tool is to provide enough information to assist staff in deciding whether or not to proceed with an Intersection Control Study to investigate the feasibility of a roundabout in more detail.

1	Project Name:	1470 Hunt Club Road
2	Intersection:	Bank Street & Sieveright Avenue
3	Location and Description of Intersection: Lane Configuration, total or approach AADT, distance to nearby intersection(s), etc. Attach or sketch a diagram and include existing and/or horizon-year turning movements. If an existing intersection then indicate type of control	The intersection is currently a 3-legged unsignalized intersection with stop-control on the southbound approach.
4	What traditional modifications are proposed? All-way stop control, traffic signals, auxiliary lanes, etc. Attach or sketch a diagram if necessary.	Traffic signals
5	What size of roundabout is being considered? Describe, and attach a Roundabout Traffic Flow Worksheet	Two-lane roundabout
6	Why is a roundabout being considered?	Due to existing capacity issues

- 7 Are there contra-indications for
- If "Yes" is indicated for one or more of the contra-indications then a roundabout may be problematic at the subject intersection. That is not to say that a roundabout is not possible, just that there may be difficulties or high

No.	Contra-Indication	Outcome
1	Is there insufficient property at the intersection (i.e. less than 44 metres diameter if considering a single-lane roundabout, and less than 60 metres if considering a two-lane roundabout) or property constraints that would require demolition of adjacent structures?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2	Are there any instances where stopping sight distance (SSD) of a roundabout yield line may not be attainable (i.e. the intersection is on a crest vertical curve)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3	Is there an existing uncontrolled approach with a grade in excess of 4 percent?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
4	Is the intersection located within a coordinated signal system?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
5	Is there a closely-spaced traffic signal or railway crossing that could not be controlled with a nearby roundabout?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
6	Are significant differences in directional flows or any situations of sudden high demand expected?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
7	Are there known visually-impaired pedestrians that cross this intersection?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

- 8 Are there suitability factors for a roundabout?
- If "Yes" is indicated for two or more of the suitability factors then a roundabout should be technically feasible at the subject intersection..

No.	Suitability Factor	Outcome
1	Does the intersection currently experience an average collision frequency of more than 1.5 injury crashes per year, or a collision rate in excess of 1 injury crash per 1 million vehicles entering (MVE)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2	Has there been a fatal crash at the intersection in the last 10 years?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3	Are capacity problems currently being experienced, or expected in the future?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
4	Are traffic signals warranted, or expected to be warranted in the future?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
5	Does the intersection have more than 4 legs, or unusual geometry?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
6	Will Planned modifications to the intersection require that nearby structures be widened (i.e. to accommodate left-turn lanes)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
7	Is the intersection located at a transition between rural and urban environments (i.e. an urban boundary) such that a roundabout could act as a means of speed transition?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

- 9 Conclusions/recommendation whether to proceed with an Intersection Control Study:

Given the large number of contra-indications (property impacts, nearby signalized intersections, etc.) and the lack of suitability factors, a roundabout is not recommended for this location.

DRAFT

City of Ottawa Mini-Roundabout Screening Criteria

Mini roundabouts are best suited and most effective when they meet the following conditions;

No.	Criteria	Outcome
1	Located at minor collector road intersecting a minor collector road or a local residential road	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2	ADT lesser than 15,000 (estimated ADT in case of new development area)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3	At least 10% of the total traffic has generated from minor road (estimated in case of new development area)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
4	Operating speed <55km/hr or posted speed ≤ 50km/hr in a new development area	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
5	A right of way wide enough to accommodate a 13 m to 27 m Inscribed Circle Diameter roundabout and adjacent sidewalks	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
6	Situated on a non truck route or roads without heavy truck movements	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
7	Intersections with no more than four legs	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Conclusion

Based on the number of criteria that are not met, a mini-roundabout is not recommended for this location.

Appendix K – Intersection Capacity Analyses

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	440	991	24	30	114
Future Vol, veh/h	40	440	991	24	30	114
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	600	-	-	-	300	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	6	5	8	10	4
Mvmt Flow	44	489	1101	27	33	127

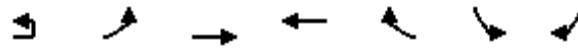
Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1130	0	-	0	1450 566
Stage 1	-	-	-	-	1117 -
Stage 2	-	-	-	-	333 -
Critical Hdwy	4.14	-	-	-	7 6.98
Critical Hdwy Stg 1	-	-	-	-	6 -
Critical Hdwy Stg 2	-	-	-	-	6 -
Follow-up Hdwy	2.22	-	-	-	3.6 3.34
Pot Cap-1 Maneuver	614	-	-	-	113 462
Stage 1	-	-	-	-	258 -
Stage 2	-	-	-	-	675 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	613	-	-	-	104 461
Mov Cap-2 Maneuver	-	-	-	-	104 -
Stage 1	-	-	-	-	239 -
Stage 2	-	-	-	-	674 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	23.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	613	-	-	-	104	461
HCM Lane V/C Ratio	0.073	-	-	-	0.321	0.275
HCM Control Delay (s)	11.3	-	-	-	55.2	15.7
HCM Lane LOS	B	-	-	-	F	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1.2	1.1

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

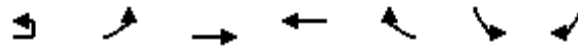
Existing (2021) Traffic
AM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↘	↕	↕	↗	↘	↗
Traffic Volume (vph)	4	15	1039	1185	54	77	45
Future Volume (vph)	4	15	1039	1185	54	77	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0			45.0	35.0	0.0
Storage Lanes		1			1	1	1
Taper Length (m)		7.6				7.6	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.98	0.99	
Frt					0.850		0.850
Flt Protected		0.950				0.950	
Satd. Flow (prot)	0	1729	3293	3262	1345	1679	1547
Flt Permitted		0.192				0.950	
Satd. Flow (perm)	0	349	3293	3262	1317	1669	1547
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					50		50
Link Speed (k/h)			60	60		50	
Link Distance (m)			163.5	485.0		251.0	
Travel Time (s)			9.8	29.1		18.1	
Confl. Peds. (#/hr)						5	
Confl. Bikes (#/hr)					2		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	5%	6%	15%	3%	0%
Adj. Flow (vph)	4	17	1154	1317	60	86	50
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	21	1154	1317	60	86	50
Turn Type	Perm	Perm	NA	NA	Perm	Prot	Perm
Protected Phases			2	6		4	
Permitted Phases	2	2			6		4
Detector Phase	2	2	2	6	6	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	27.5	27.5	37.7	37.7
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%
Maximum Green (s)	76.5	76.5	76.5	76.5	76.5	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	2.4	2.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.7	5.7
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)				10.0	10.0	7.0	7.0
Flash Dont Walk (s)				12.0	12.0	25.0	25.0
Pedestrian Calls (#/hr)				0	0	0	0
Act Effct Green (s)		100.9	100.9	100.9	100.9	11.5	11.5
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.10	0.10

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

Existing (2021) Traffic
AM Peak Hour

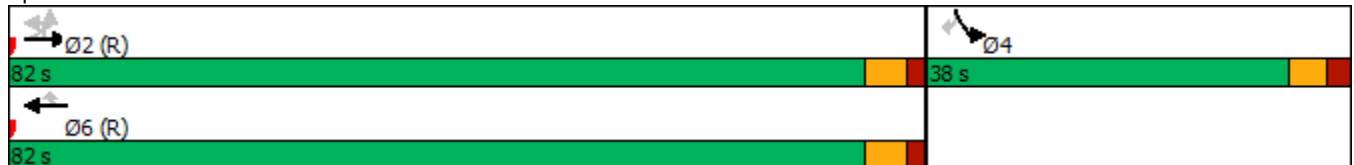


Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.07	0.42	0.48	0.05	0.54	0.26
Control Delay		4.7	4.4	3.0	0.2	63.1	16.4
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		4.7	4.4	3.0	0.2	63.1	16.4
LOS		A	A	A	A	E	B
Approach Delay			4.4	2.9		45.9	
Approach LOS			A	A		D	
Queue Length 50th (m)		0.6	24.4	83.5	0.0	19.6	0.0
Queue Length 95th (m)		m3.2	m67.4	3.0	m0.0	34.8	11.4
Internal Link Dist (m)			139.5	461.0		227.0	
Turn Bay Length (m)		100.0			45.0	35.0	
Base Capacity (vph)		293	2769	2743	1115	451	452
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		0.07	0.42	0.48	0.05	0.19	0.11

Intersection Summary

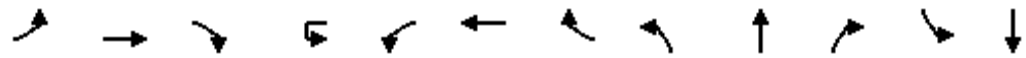
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 5.7
 Intersection LOS: A
 Intersection Capacity Utilization 48.4%
 ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5212: Hunt Club Road & Cahill Drive



5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Existing (2021) Traffic
AM Peak Hour

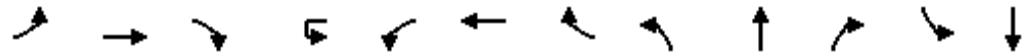


Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	58	728	8	9	172	1007	79	6	90	213	41	84
Future Volume (vph)	58	728	8	9	172	1007	79	6	90	213	41	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		45.0		95.0		60.0	40.0		0.0	30.0	
Storage Lanes	1		1		1		1	1		0	1	
Taper Length (m)	7.6				7.6			7.6			7.6	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		0.97	0.99	0.99		1.00	0.99
Frt			0.850				0.850		0.895			0.932
Flt Protected	0.950				0.950			0.950			0.950	
Satd. Flow (prot)	1572	3232	1238	0	1666	3202	1532	1729	1547	0	1695	1519
Flt Permitted	0.210				0.279			0.536			0.177	
Satd. Flow (perm)	347	3232	1206	0	489	3202	1483	968	1547	0	315	1519
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			78				79		89			31
Link Speed (k/h)		60				60			50			50
Link Distance (m)		200.9				300.4			218.1			176.4
Travel Time (s)		12.1				18.0			15.7			12.7
Confl. Peds. (#/hr)	4		2		2		4	7		2	2	
Confl. Bikes (#/hr)							1					
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 (%)	10%	7%	25%	0%	4%	8%	1%	0%	7%	3%	2%	1%
Adj. Flow (vph)	64	809	9	10	191	1119	88	7	100	237	46	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	809	9	0	201	1119	88	7	337	0	46	170
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases	2		2	6	6		6	8			4	
Detector Phase	5	2	2	1	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2	29.2
Total Split (s)	25.0	65.0	65.0	25.0	25.0	65.0	65.0	30.0	30.0		30.0	30.0
Total Split (%)	20.8%	54.2%	54.2%	20.8%	20.8%	54.2%	54.2%	25.0%	25.0%		25.0%	25.0%
Maximum Green (s)	19.6	59.5	59.5	19.6	19.6	59.5	59.5	23.8	23.8		23.8	23.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9	2.9
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)	5.4	5.5	5.5		5.4	5.5	5.5	6.2	6.2		6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None	None
Walk Time (s)		14.0	14.0			14.0	14.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)		7.0	7.0			7.0	7.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0			0	0	0	0		0	0
Act Effct Green (s)	77.1	70.0	70.0		84.5	75.5	75.5	22.6	22.6		22.6	22.6
Actuated g/C Ratio	0.64	0.58	0.58		0.70	0.63	0.63	0.19	0.19		0.19	0.19

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	69
Future Volume (vph)	69
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	22%
Adj. Flow (vph)	77
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Existing (2021) Traffic
AM Peak Hour

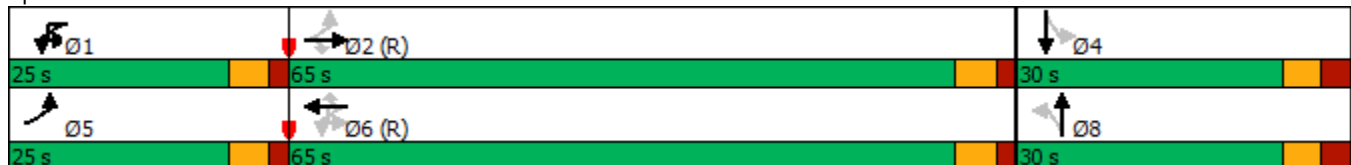


Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio	0.22	0.43	0.01		0.45	0.56	0.09	0.04	0.93		0.78	0.55
Control Delay	7.7	15.3	0.0		7.3	6.3	0.5	63.5	88.7		114.4	42.6
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	7.7	15.3	0.0		7.3	6.3	0.5	63.5	88.7		114.4	42.6
LOS	A	B	A		A	A	A	E	F		F	D
Approach Delay		14.6				6.1			88.2			57.9
Approach LOS		B				A			F			E
Queue Length 50th (m)	4.2	54.1	0.0		6.6	20.8	0.0	1.4	58.6		10.3	29.4
Queue Length 95th (m)	8.2	73.0	0.0		11.0	29.3	1.1	m5.1	#109.3		#31.7	51.6
Internal Link Dist (m)		176.9				276.4			194.1			152.4
Turn Bay Length (m)	70.0		45.0		95.0		60.0	40.0			30.0	
Base Capacity (vph)	448	1884	735		541	2014	962	191	378		62	326
Starvation Cap Reductn	0	0	0		0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0		0	0
Reduced v/c Ratio	0.14	0.43	0.01		0.37	0.56	0.09	0.04	0.89		0.74	0.52

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 27 (23%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 22.6 Intersection LOS: C
 Intersection Capacity Utilization 76.1% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5214: Albion Road South & Hunt Club Road

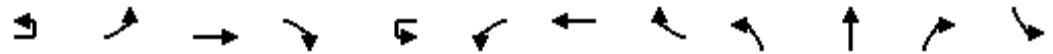




Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road
 1470 Hunt Club Road

Existing (2021) Traffic
 AM Peak Hour



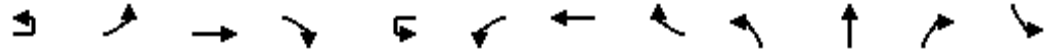
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↖	↕			↖	↕	↖	↖	↖		↖
Traffic Volume (vph)	1	143	960	12	7	19	1026	37	23	18	71	74
Future Volume (vph)	1	143	960	12	7	19	1026	37	23	18	71	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99	1.00			1.00		0.96	1.00	0.99		1.00
Frt			0.998					0.850		0.880		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1647	3224	0	0	1729	3172	1547	1729	1514	0	1712
Flt Permitted		0.950				0.950			0.292			0.693
Satd. Flow (perm)	0	1639	3224	0	0	1723	3172	1478	530	1514	0	1244
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			1					87		79		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		9		6		6		9	4		4	4
Confl. Bikes (#/hr)				1				1				
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 (%)	0%	5%	7%	8%	0%	0%	9%	0%	0%	6%	4%	1%
Adj. Flow (vph)	1	159	1067	13	8	21	1140	41	26	20	79	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	160	1080	0	0	29	1140	41	26	99	0	82
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	15.0	15.0	63.0		15.0	15.0	63.0	63.0	42.0	42.0		42.0
Total Split (%)	12.5%	12.5%	52.5%		12.5%	12.5%	52.5%	52.5%	35.0%	35.0%		35.0%
Maximum Green (s)	9.1	9.1	57.1		9.1	9.1	57.1	57.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0				0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9				5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		9.1	85.2			7.4	78.7	78.7	13.7	13.7		13.7
Actuated g/C Ratio		0.08	0.71			0.06	0.66	0.66	0.11	0.11		0.11



Lane Group	SBT	SBR
Lane Configurations	↔	
Traffic Volume (vph)	7	189
Future Volume (vph)	7	189
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.856	
Flt Protected		
Satd. Flow (prot)	1463	0
Flt Permitted		
Satd. Flow (perm)	1463	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	145	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		4
Confl. Bikes (#/hr)		
Peak Hour Factor	0.90	0.90
Heavy Vehicles (%)	0%	5%
Adj. Flow (vph)	8	210
Shared Lane Traffic (%)		
Lane Group Flow (vph)	218	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	13.7	
Actuated g/C Ratio	0.11	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road
 1470 Hunt Club Road

Existing (2021) Traffic
 AM Peak Hour

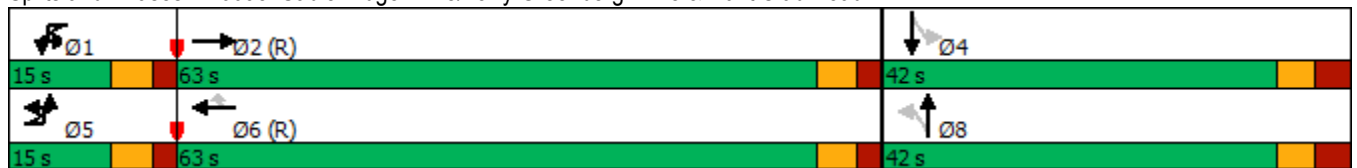


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		1.29	0.47			0.27	0.55	0.04	0.43	0.41		0.58
Control Delay		216.9	9.4			59.7	13.1	0.1	69.2	19.4		65.1
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		216.9	9.4			59.7	13.1	0.1	69.2	19.4		65.1
LOS		F	A			E	B	A	E	B		E
Approach Delay			36.1				13.8			29.8		
Approach LOS			D				B			C		
Queue Length 50th (m)		~47.9	41.5			6.6	69.1	0.0	5.8	4.3		18.7
Queue Length 95th (m)		#91.9	77.1			16.2	105.5	0.2	14.5	18.9		32.8
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		124	2288			131	2079	998	155	501		365
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		1.29	0.47			0.22	0.55	0.04	0.17	0.20		0.22

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 86 (72%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.29
 Intersection Signal Delay: 27.0
 Intersection LOS: C
 Intersection Capacity Utilization 75.1%
 ICU Level of Service D
 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: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road

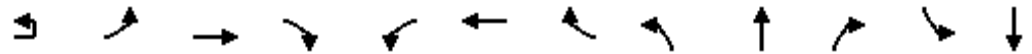




Lane Group	SBT	SBR
v/c Ratio	0.74	
Control Delay	32.8	
Queue Delay	0.0	
Total Delay	32.8	
LOS	C	
Approach Delay	41.7	
Approach LOS	D	
Queue Length 50th (m)	16.4	
Queue Length 95th (m)	40.3	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	532	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.41	
Intersection Summary		

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Existing (2021) Traffic
AM Peak Hour

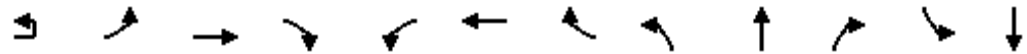


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↖	↕	↗	↖	↕	↗	↖	↕		↖	↗
Traffic Volume (vph)	1	20	382	95	29	964	117	298	214	29	27	130
Future Volume (vph)	1	20	382	95	29	964	117	298	214	29	27	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.97	1.00		0.95	1.00	1.00		1.00	0.99
Fr _t				0.850			0.850		0.982			0.935
Fl _t Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3202	1502	1572	3357	1488	1695	1753	0	1558	1661
Fl _t Permitted		0.950			0.950			0.275			0.593	
Satd. Flow (perm)	0	1719	3202	1464	1567	3357	1419	489	1753	0	971	1661
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				122			122		7			34
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		14		3	3		14	7		2	2	
Confl. Bikes (#/hr)							1			2		
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 (%)	0%	0%	8%	3%	10%	3%	4%	2%	2%	0%	11%	2%
Adj. Flow (vph)	1	22	424	106	32	1071	130	331	238	32	30	144
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	424	106	32	1071	130	331	270	0	30	255
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	19.0	19.0	42.0	42.0	19.0	42.0	42.0	15.0	59.0		44.0	44.0
Total Split (%)	15.8%	15.8%	35.0%	35.0%	15.8%	35.0%	35.0%	12.5%	49.2%		36.7%	36.7%
Maximum Green (s)	13.3	13.3	36.3	36.3	13.3	36.3	36.3	10.7	52.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
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)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		7.2	62.3	62.3	7.9	62.9	62.9	38.8	36.7		21.7	21.7
Actuated g/C Ratio		0.06	0.52	0.52	0.07	0.52	0.52	0.32	0.31		0.18	0.18

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	100
Future Volume (vph)	100
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	1
Peak Hour Factor	0.90
Heavy Vehicles (%)	1%
Adj. Flow (vph)	111
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Existing (2021) Traffic
AM Peak Hour



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio		0.22	0.26	0.13	0.31	0.61	0.16	1.25	0.50		0.17	0.78
Control Delay		58.2	19.1	3.3	60.3	24.5	4.9	171.3	35.6		39.1	54.8
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		58.2	19.1	3.3	60.3	24.5	4.9	171.3	35.6		39.1	54.8
LOS		E	B	A	E	C	A	F	D		D	D
Approach Delay			17.7			23.3			110.3			53.2
Approach LOS			B			C			F			D
Queue Length 50th (m)		5.3	30.5	0.0	7.3	97.0	1.0	~84.3	50.6		5.9	41.0
Queue Length 95th (m)		13.5	49.7	8.5	17.2	142.1	13.1	#132.0	68.5		m11.0	54.5
Internal Link Dist (m)			155.7			56.6			215.7			194.1
Turn Bay Length (m)		35.0		105.0	60.0		85.0	45.0			45.0	
Base Capacity (vph)		191	1661	818	174	1760	802	265	772		304	543
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio		0.12	0.26	0.13	0.18	0.61	0.16	1.25	0.35		0.10	0.47

Intersection Summary

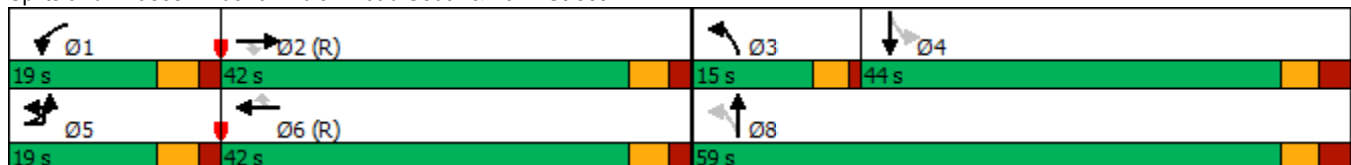
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.25
 Intersection Signal Delay: 44.9
 Intersection Capacity Utilization 76.7%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

~ 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.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6343: Albion Road South & Bank Street





Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

1: Bank Street & Sieveright Avenue
1470 Hunt Club Road

Existing (2021) Traffic
PM Peak Hour

Intersection							
Int Delay, s/veh	1.7						
Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↘	↕	↕		↘	↗
Traffic Vol, veh/h	1	100	1025	573	26	23	99
Future Vol, veh/h	1	100	1025	573	26	23	99
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	600	-	-	-	300	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	1	0	4	0
Mvmt Flow	1	111	1139	637	29	26	110

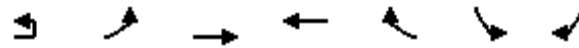
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	666	666	0	-	0	1446
Stage 1	-	-	-	-	-	652
Stage 2	-	-	-	-	-	794
Critical Hdwy	6.4	4.1	-	-	-	6.88
Critical Hdwy Stg 1	-	-	-	-	-	5.88
Critical Hdwy Stg 2	-	-	-	-	-	5.88
Follow-up Hdwy	2.5	2.2	-	-	-	3.54
Pot Cap-1 Maneuver	550	933	-	-	-	120
Stage 1	-	-	-	-	-	475
Stage 2	-	-	-	-	-	401
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	924	924	-	-	-	105
Mov Cap-2 Maneuver	-	-	-	-	-	105
Stage 1	-	-	-	-	-	418
Stage 2	-	-	-	-	-	401

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	18.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	924	-	-	-	105	669
HCM Lane V/C Ratio	0.121	-	-	-	0.243	0.164
HCM Control Delay (s)	9.4	-	-	-	50	11.4
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.9	0.6

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

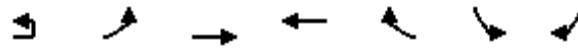
Existing (2021) Traffic
PM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↘	↕	↕	↗	↘	↗
Traffic Volume (vph)	14	58	1416	1322	103	84	29
Future Volume (vph)	14	58	1416	1322	103	84	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0			45.0	35.0	0.0
Storage Lanes		1			1	1	1
Taper Length (m)		7.6				7.6	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.97	1.00	
Frt					0.850		0.850
Flt Protected		0.950				0.950	
Satd. Flow (prot)	0	1729	3357	3357	1532	1631	1547
Flt Permitted		0.156				0.950	
Satd. Flow (perm)	0	284	3357	3357	1484	1629	1547
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					84		32
Link Speed (k/h)			60	60		50	
Link Distance (m)			163.5	485.0		251.0	
Travel Time (s)			9.8	29.1		18.1	
Confl. Peds. (#/hr)		4			4	1	
Confl. Bikes (#/hr)					1		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	3%	3%	1%	6%	0%
Adj. Flow (vph)	16	64	1573	1469	114	93	32
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	80	1573	1469	114	93	32
Turn Type	Perm	Perm	NA	NA	Perm	Prot	Perm
Protected Phases			2	6		4	
Permitted Phases	2	2			6		4
Detector Phase	2	2	2	6	6	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	27.5	27.5	37.7	37.7
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%
Maximum Green (s)	76.5	76.5	76.5	76.5	76.5	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	2.4	2.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.7	5.7
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)				10.0	10.0	7.0	7.0
Flash Dont Walk (s)				12.0	12.0	25.0	25.0
Pedestrian Calls (#/hr)				0	0	0	0
Act Effct Green (s)		96.6	96.6	96.6	96.6	12.2	12.2
Actuated g/C Ratio		0.80	0.80	0.80	0.80	0.10	0.10

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

Existing (2021) Traffic
PM Peak Hour

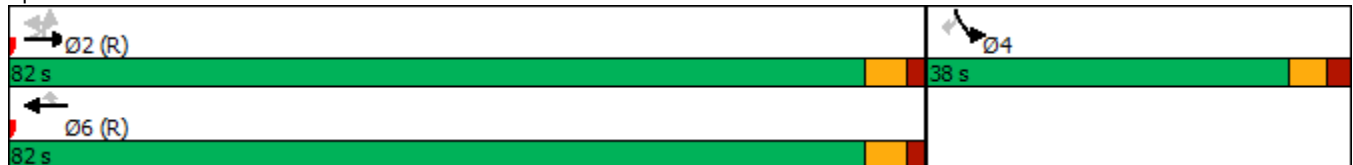


Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.35	0.58	0.54	0.09	0.56	0.17
Control Delay		2.3	0.8	13.9	2.6	63.6	17.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		2.3	0.8	13.9	2.6	63.6	17.3
LOS		A	A	B	A	E	B
Approach Delay			0.9	13.1		51.8	
Approach LOS			A	B		D	
Queue Length 50th (m)		0.1	1.3	146.8	5.3	21.2	0.0
Queue Length 95th (m)		m0.4	3.9	186.4	m8.1	36.8	9.0
Internal Link Dist (m)			139.5	461.0		227.0	
Turn Bay Length (m)		100.0			45.0	35.0	
Base Capacity (vph)		228	2702	2702	1211	439	439
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		0.35	0.58	0.54	0.09	0.21	0.07

Intersection Summary

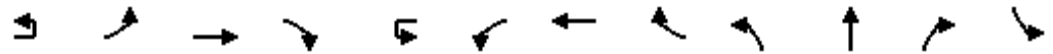
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 22 (18%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 8.5
 Intersection Capacity Utilization 61.6%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service B
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5212: Hunt Club Road & Cahill Drive



5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Existing (2021) Traffic
PM Peak Hour



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↘	↕	↗		↘	↕	↗	↘	↗		↘
Traffic Volume (vph)	3	118	1218	23	5	310	957	64	7	114	237	48
Future Volume (vph)	3	118	1218	23	5	310	957	64	7	114	237	48
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		70.0		45.0		95.0		60.0	40.0		0.0	30.0
Storage Lanes		1		1		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.97				0.97	0.98	0.99		1.00
Fr _t				0.850				0.850		0.899		
Fl _t Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1618	3357	1547	0	1696	3390	1502	1729	1586	0	1601
Fl _t Permitted		0.230				0.066			0.496			0.153
Satd. Flow (perm)	0	392	3357	1499	0	118	3390	1451	880	1586	0	257
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				78				78			83	
Link Speed (k/h)			60				60			50		
Link Distance (m)			200.9				300.4			218.1		
Travel Time (s)			12.1				18.0			15.7		
Confl. Peds. (#/hr)		5		4		4		5	24		6	6
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 (%)	0%	7%	3%	0%	0%	2%	2%	3%	0%	1%	2%	8%
Adj. Flow (vph)	3	131	1353	26	6	344	1063	71	8	127	263	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	134	1353	26	0	350	1063	71	8	390	0	53
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases	2	2		2	6	6		6	8			4
Detector Phase	5	5	2	2	1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.4	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2
Total Split (s)	25.4	25.4	58.6	58.6	25.4	25.4	58.6	58.6	36.0	36.0		36.0
Total Split (%)	21.2%	21.2%	48.8%	48.8%	21.2%	21.2%	48.8%	48.8%	30.0%	30.0%		30.0%
Maximum Green (s)	20.0	20.0	53.1	53.1	20.0	20.0	53.1	53.1	29.8	29.8		29.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	1.7	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0			0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.4	5.5	5.5			5.4	5.5	5.5	6.2		6.2
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None
Walk Time (s)			14.0	14.0			14.0	14.0	7.0	7.0		7.0
Flash Dont Walk (s)			7.0	7.0			7.0	7.0	16.0	16.0		16.0
Pedestrian Calls (#/hr)			0	0			0	0	0	0		0
Act Effct Green (s)		65.1	55.6	55.6			81.1	66.2	66.2	27.3	27.3	27.3
Actuated g/C Ratio		0.54	0.46	0.46			0.68	0.55	0.55	0.23	0.23	0.23
v/c Ratio		0.44	0.87	0.04			1.02	0.57	0.09	0.04	0.92	0.91

5214: Albion Road South & Hunt Club Road
 1470 Hunt Club Road

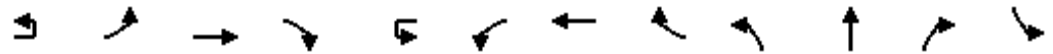
Existing (2021) Traffic
 PM Peak Hour



Lane Group	SBT	SBR
Lane Configurations	↔	
Traffic Volume (vph)	133	52
Future Volume (vph)	133	52
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.99	
Frt	0.958	
Flt Protected		
Satd. Flow (prot)	1667	0
Flt Permitted		
Satd. Flow (perm)	1667	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	16	
Link Speed (k/h)	50	
Link Distance (m)	176.4	
Travel Time (s)	12.7	
Confl. Peds. (#/hr)		24
Peak Hour Factor	0.90	0.90
Heavy Vehicles (%)	2%	6%
Adj. Flow (vph)	148	58
Shared Lane Traffic (%)		
Lane Group Flow (vph)	206	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	29.2	
Total Split (s)	36.0	
Total Split (%)	30.0%	
Maximum Green (s)	29.8	
Yellow Time (s)	3.3	
All-Red Time (s)	2.9	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.2	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	7.0	
Flash Dont Walk (s)	16.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	27.3	
Actuated g/C Ratio	0.23	
v/c Ratio	0.53	

5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Existing (2021) Traffic
PM Peak Hour

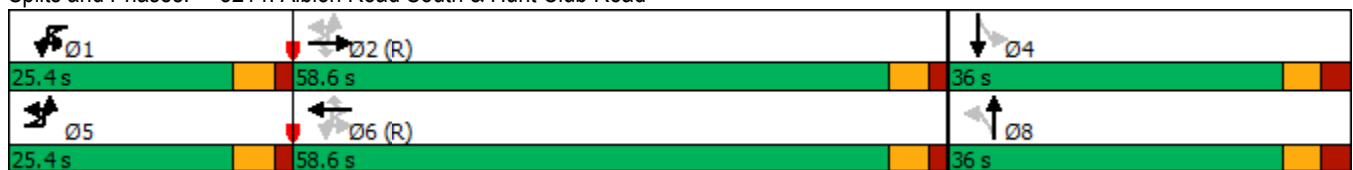


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Control Delay		13.5	37.0	0.1		73.7	36.3	11.4	31.1	59.4		143.2
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		13.5	37.0	0.1		73.7	36.3	11.4	31.1	59.4		143.2
LOS		B	D	A		E	D	B	C	E		F
Approach Delay		34.3				43.9				58.8		
Approach LOS		C				D				E		
Queue Length 50th (m)		10.9	153.4	0.0		~79.1	138.5	6.9	1.5	78.9		11.9
Queue Length 95th (m)		18.5	#199.4	0.0		#128.7	159.9	m16.2	m4.3	#120.4		#36.8
Internal Link Dist (m)		176.9				276.4				194.1		
Turn Bay Length (m)		70.0		45.0		95.0		60.0	40.0			30.0
Base Capacity (vph)		451	1555	736		342	1870	835	218	456		63
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		0.30	0.87	0.04		1.02	0.57	0.09	0.04	0.86		0.84

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 96 (80%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 42.9
 Intersection LOS: D
 Intersection Capacity Utilization 99.7%
 ICU Level of Service F
 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.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5214: Albion Road South & Hunt Club Road

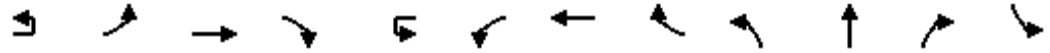




Lane Group	SBT	SBR
Control Delay	42.1	
Queue Delay	0.0	
Total Delay	42.1	
LOS	D	
Approach Delay	62.8	
Approach LOS	E	
Queue Length 50th (m)	38.3	
Queue Length 95th (m)	61.8	
Internal Link Dist (m)	152.4	
Turn Bay Length (m)		
Base Capacity (vph)	425	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.48	
Intersection Summary		

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road
1470 Hunt Club Road

Existing (2021) Traffic
PM Peak Hour



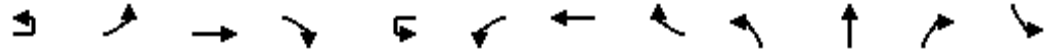
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	247	1221	31	2	61	1250	41	15	18	34	57
Future Volume (vph)	1	247	1221	31	2	61	1250	41	15	18	34	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00						0.97	0.99	0.99		1.00
Frt			0.996					0.850		0.902		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1695	3312	0	0	1729	3390	1547	1729	1596	0	1729
Flt Permitted		0.950				0.950			0.357			0.719
Satd. Flow (perm)	0	1694	3312	0	0	1729	3390	1508	646	1596	0	1307
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			3					87		38		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		2						2	7		1	1
Confl. Bikes (#/hr)												
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 (%)	0%	2%	4%	3%	0%	0%	2%	0%	0%	0%	3%	0%
Adj. Flow (vph)	1	274	1357	34	2	68	1389	46	17	20	38	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	275	1391	0	0	70	1389	46	17	58	0	63
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	20.0	20.0	59.0		20.0	20.0	59.0	59.0	41.0	41.0		41.0
Total Split (%)	16.7%	16.7%	49.2%		16.7%	16.7%	49.2%	49.2%	34.2%	34.2%		34.2%
Maximum Green (s)	14.1	14.1	53.1		14.1	14.1	53.1	53.1	34.3	34.3		34.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0				0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9				5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		14.1	82.5			10.2	76.2	76.2	11.2	11.2		11.2
Actuated g/C Ratio		0.12	0.69			0.08	0.64	0.64	0.09	0.09		0.09



Lane Group	SBT	SBR
Lane Configurations	↔	
Traffic Volume (vph)	19	159
Future Volume (vph)	19	159
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.866	
Flt Protected		
Satd. Flow (prot)	1534	0
Flt Permitted		
Satd. Flow (perm)	1534	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	177	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		1
Peak Hour Factor	0.90	0.90
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	21	177
Shared Lane Traffic (%)		
Lane Group Flow (vph)	198	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	41.0	
Total Split (%)	34.2%	
Maximum Green (s)	34.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	11.2	
Actuated g/C Ratio	0.09	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road
 1470 Hunt Club Road

Existing (2021) Traffic
 PM Peak Hour

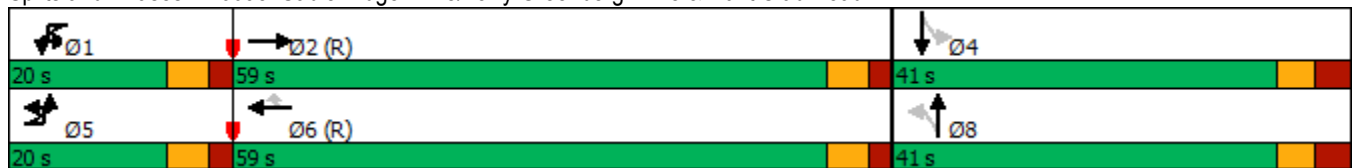


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		1.38	0.61			0.48	0.65	0.05	0.28	0.32		0.52
Control Delay		233.4	22.1			62.4	15.9	0.4	60.9	26.8		65.7
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		233.4	22.1			62.4	15.9	0.4	60.9	26.8		65.7
LOS		F	C			E	B	A	E	C		E
Approach Delay			57.0				17.6			34.5		
Approach LOS			E				B			C		
Queue Length 50th (m)		~84.6	153.3			16.0	99.0	0.0	3.8	4.4		14.4
Queue Length 95th (m)		#137.6	193.3			29.9	136.7	0.8	11.0	16.5		27.8
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		199	2278			203	2152	989	184	483		373
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		1.38	0.61			0.34	0.65	0.05	0.09	0.12		0.17

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 97 (81%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 125
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.38
 Intersection Signal Delay: 37.7
 Intersection LOS: D
 Intersection Capacity Utilization 82.0%
 ICU Level of Service E
 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: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road

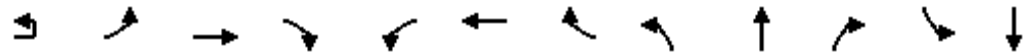




Lane Group	SBT	SBR
v/c Ratio	0.65	
Control Delay	20.6	
Queue Delay	0.0	
Total Delay	20.6	
LOS	C	
Approach Delay	31.5	
Approach LOS	C	
Queue Length 50th (m)	4.6	
Queue Length 95th (m)	26.8	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	564	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.35	
Intersection Summary		

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Existing (2021) Traffic
PM Peak Hour

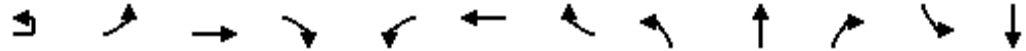


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↖	↗	↖	↖	↗	↖	↖	↗		↖	↗
Traffic Volume (vph)	1	69	947	279	43	594	145	158	169	44	177	255
Future Volume (vph)	1	69	947	279	43	594	145	158	169	44	177	255
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.98	1.00		0.96	1.00	1.00		1.00	1.00
Fr _t				0.850			0.850		0.969			0.977
Fl _t Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3424	1547	1695	3424	1502	1729	1736	0	1712	1773
Fl _t Permitted		0.950			0.950			0.234			0.611	
Satd. Flow (perm)	0	1716	3424	1510	1694	3424	1440	425	1736	0	1097	1773
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				310			161		13			8
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		10		1	1		10	5		5	5	
Confl. Bikes (#/hr)				2			3			1		
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 (%)	0%	0%	1%	0%	2%	1%	3%	0%	1%	2%	1%	0%
Adj. Flow (vph)	1	77	1052	310	48	660	161	176	188	49	197	283
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	78	1052	310	48	660	161	176	237	0	197	335
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	20.0	20.0	45.0	45.0	20.0	45.0	45.0	11.0	55.0		44.0	44.0
Total Split (%)	16.7%	16.7%	37.5%	37.5%	16.7%	37.5%	37.5%	9.2%	45.8%		36.7%	36.7%
Maximum Green (s)	14.3	14.3	39.3	39.3	14.3	39.3	39.3	6.7	48.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
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)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		10.6	56.4	56.4	8.8	54.9	54.9	41.3	39.2		28.2	28.2
Actuated g/C Ratio		0.09	0.47	0.47	0.07	0.46	0.46	0.34	0.33		0.24	0.24

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	47
Future Volume (vph)	47
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	3
Peak Hour Factor	0.90
Heavy Vehicles (%)	0%
Adj. Flow (vph)	52
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Existing (2021) Traffic
PM Peak Hour

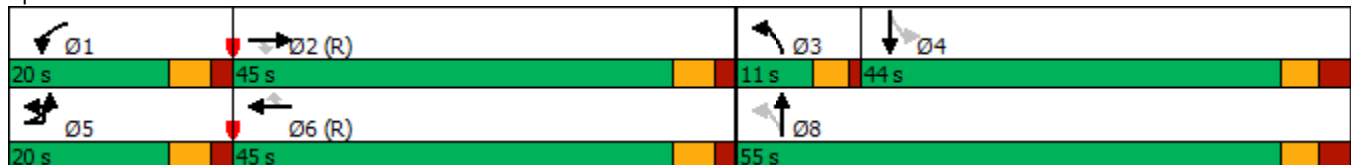


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio		0.51	0.65	0.35	0.39	0.42	0.22	0.80	0.41		0.77	0.79
Control Delay		63.4	29.5	4.1	61.0	25.7	4.9	56.6	30.7		42.3	38.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		63.4	29.5	4.1	61.0	25.7	4.9	56.6	30.7		42.3	38.2
LOS		E	C	A	E	C	A	E	C		D	D
Approach Delay			25.9			23.8			41.7			39.7
Approach LOS			C			C			D			D
Queue Length 50th (m)		17.8	101.2	0.0	11.0	56.2	0.0	30.0	40.7		48.1	80.4
Queue Length 95th (m)		32.6	#159.7	18.6	22.6	86.9	14.6	#45.8	55.5		m54.8	m87.8
Internal Link Dist (m)			155.7			56.6			215.7			194.1
Turn Bay Length (m)		35.0		105.0	60.0		85.0	45.0			45.0	
Base Capacity (vph)		206	1609	874	201	1565	745	219	710		343	561
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio		0.38	0.65	0.35	0.24	0.42	0.22	0.80	0.33		0.57	0.60

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 42 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 29.6
 Intersection LOS: C
 Intersection Capacity Utilization 78.8%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6343: Albion Road South & Bank Street



























Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

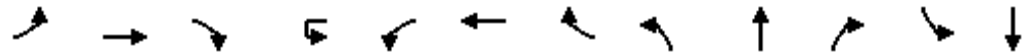
Existing (2021) Traffic (Optimized)
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	58	728	8	9	172	1007	79	6	90	213	41	84
Future Volume (vph)	58	728	8	9	172	1007	79	6	90	213	41	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		45.0		95.0		60.0	40.0		0.0	30.0	
Storage Lanes	1		1		1		1	1		0	1	
Taper Length (m)	7.6				7.6			7.6			7.6	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		0.97	0.99	0.99		1.00	0.99
Frt			0.850				0.850		0.895			0.932
Flt Protected	0.950				0.950			0.950			0.950	
Satd. Flow (prot)	1572	3232	1238	0	1666	3202	1532	1729	1547	0	1695	1519
Flt Permitted	0.208				0.276			0.543			0.177	
Satd. Flow (perm)	344	3232	1206	0	483	3202	1483	980	1547	0	315	1519
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			78				78		92			32
Link Speed (k/h)		60				60			50			50
Link Distance (m)		200.9				300.4			218.1			176.4
Travel Time (s)		12.1				18.0			15.7			12.7
Confl. Peds. (#/hr)	4		2		2		4	7		2	2	
Confl. Bikes (#/hr)							1					
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 (%)	10%	7%	25%	0%	4%	8%	1%	0%	7%	3%	2%	1%
Adj. Flow (vph)	64	809	9	10	191	1119	88	7	100	237	46	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	809	9	0	201	1119	88	7	337	0	46	170
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases	2		2	6	6		6	8				4
Detector Phase	5	2	2	1	1	6	6	8	8			4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2	29.2
Total Split (s)	25.0	62.0	62.0	25.0	25.0	62.0	62.0	33.0	33.0		33.0	33.0
Total Split (%)	20.8%	51.7%	51.7%	20.8%	20.8%	51.7%	51.7%	27.5%	27.5%		27.5%	27.5%
Maximum Green (s)	19.6	56.5	56.5	19.6	19.6	56.5	56.5	26.8	26.8		26.8	26.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9	2.9
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)	5.4	5.5	5.5		5.4	5.5	5.5	6.2	6.2		6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None	None
Walk Time (s)		14.0	14.0			14.0	14.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)		7.0	7.0			7.0	7.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0			0	0	0	0		0	0
Act Effct Green (s)	76.0	68.8	68.8		83.7	74.5	74.5	23.5	23.5		23.5	23.5
Actuated g/C Ratio	0.63	0.57	0.57		0.70	0.62	0.62	0.20	0.20		0.20	0.20

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	69
Future Volume (vph)	69
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	22%
Adj. Flow (vph)	77
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Existing (2021) Traffic (Optimized)
AM Peak Hour



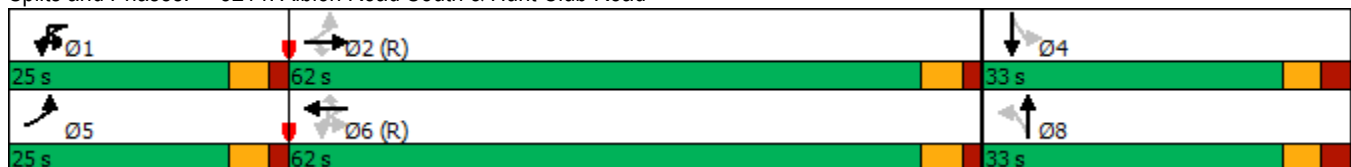
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio	0.22	0.44	0.01		0.46	0.56	0.09	0.04	0.89		0.75	0.53
Control Delay	8.5	16.5	0.0		7.7	4.6	0.4	56.2	80.1		105.1	40.2
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	8.5	16.5	0.0		7.7	4.6	0.4	56.2	80.1		105.1	40.2
LOS	A	B	A		A	A	A	E	F		F	D
Approach Delay		15.7				4.8			79.6			54.0
Approach LOS		B				A			E			D
Queue Length 50th (m)	4.5	57.4	0.0		4.4	14.2	0.2	1.4	56.9		10.0	28.4
Queue Length 95th (m)	9.1	78.4	0.0		10.4	23.3	0.7	m5.2	#97.1		#29.8	49.7
Internal Link Dist (m)		176.9				276.4			194.1			152.4
Turn Bay Length (m)	70.0		45.0		95.0		60.0	40.0			30.0	
Base Capacity (vph)	443	1853	724		534	1988	950	218	416		70	364
Starvation Cap Reductn	0	0	0		0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0		0	0
Reduced v/c Ratio	0.14	0.44	0.01		0.38	0.56	0.09	0.03	0.81		0.66	0.47

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 27 (23%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 20.9
 Intersection Capacity Utilization 76.1%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

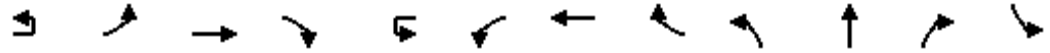
Splits and Phases: 5214: Albion Road South & Hunt Club Road





Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2021) Traffic (Optimized)
 1470 Hunt Club Road AM Peak Hour



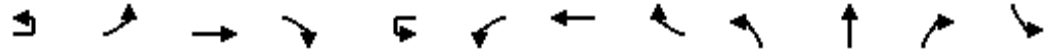
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↘	↕			↘	↕	↘	↘	↘		↘
Traffic Volume (vph)	1	143	960	12	7	19	1026	37	23	18	71	74
Future Volume (vph)	1	143	960	12	7	19	1026	37	23	18	71	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99	1.00			1.00		0.96	1.00	0.99		1.00
Frt			0.998					0.850		0.880		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1647	3224	0	0	1729	3172	1547	1729	1514	0	1712
Flt Permitted		0.950				0.950			0.301			0.693
Satd. Flow (perm)	0	1639	3224	0	0	1723	3172	1477	546	1514	0	1244
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			1					141		79		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		9		6		6		9	4		4	4
Confl. Bikes (#/hr)				1				1				
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 (%)	0%	5%	7%	8%	0%	0%	9%	0%	0%	6%	4%	1%
Adj. Flow (vph)	1	159	1067	13	8	21	1140	41	26	20	79	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	160	1080	0	0	29	1140	41	26	99	0	82
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	23.0	23.0	66.0		12.0	12.0	55.0	55.0	42.0	42.0		42.0
Total Split (%)	19.2%	19.2%	55.0%		10.0%	10.0%	45.8%	45.8%	35.0%	35.0%		35.0%
Maximum Green (s)	17.1	17.1	60.1		6.1	6.1	49.1	49.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0				0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9				5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		15.3	86.9			6.0	72.8	72.8	13.3	13.3		13.3
Actuated g/C Ratio		0.13	0.72			0.05	0.61	0.61	0.11	0.11		0.11

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road ~~Round~~ (2021) Traffic (Optimized)
 1470 Hunt Club Road AM Peak Hour



Lane Group	SBT	SBR
Lane Configurations	↕ ↗	
Traffic Volume (vph)	7	189
Future Volume (vph)	7	189
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.856	
Flt Protected		
Satd. Flow (prot)	1463	0
Flt Permitted		
Satd. Flow (perm)	1463	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	190	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		4
Confl. Bikes (#/hr)		
Peak Hour Factor	0.90	0.90
Heavy Vehicles (%)	0%	5%
Adj. Flow (vph)	8	210
Shared Lane Traffic (%)		
Lane Group Flow (vph)	218	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	13.3	
Actuated g/C Ratio	0.11	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2021) Traffic (Optimized)
 1470 Hunt Club Road AM Peak Hour

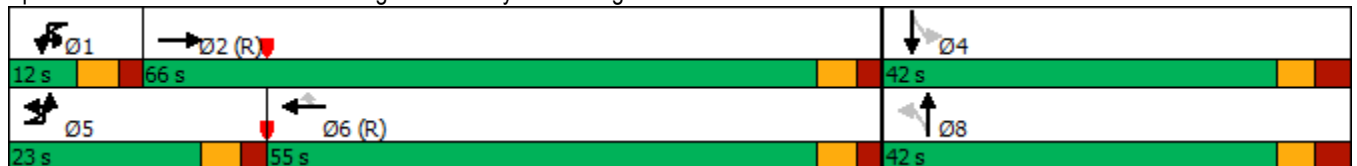


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.76	0.46			0.34	0.59	0.04	0.43	0.42		0.60
Control Delay		66.6	11.8			66.1	17.2	0.1	69.7	20.0		67.3
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		66.6	11.8			66.1	17.2	0.1	69.7	20.0		67.3
LOS		E	B			E	B	A	E	C		E
Approach Delay			18.9				17.8			30.4		
Approach LOS			B				B			C		
Queue Length 50th (m)		36.1	47.8			6.7	84.9	0.0	5.8	4.3		18.7
Queue Length 95th (m)		#63.9	102.2			16.6	120.2	0.0	14.7	19.3		33.5
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		234	2334			87	1925	951	160	501		365
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		0.68	0.46			0.33	0.59	0.04	0.16	0.20		0.22

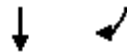
Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 86 (72%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 20.4 Intersection LOS: C
 Intersection Capacity Utilization 75.1% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road



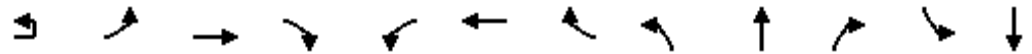
6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road ~~Round~~ (2021) Traffic (Optimized)
 1470 Hunt Club Road AM Peak Hour



Lane Group	SBT	SBR
v/c Ratio	0.66	
Control Delay	19.9	
Queue Delay	0.0	
Total Delay	19.9	
LOS	B	
Approach Delay	32.8	
Approach LOS	C	
Queue Length 50th (m)	6.1	
Queue Length 95th (m)	29.0	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	564	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.39	
Intersection Summary		

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Existing (2021) Traffic (Optimized)
AM Peak Hour

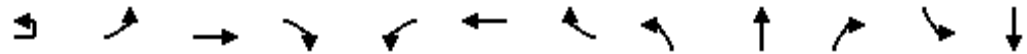


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↗
Traffic Volume (vph)	1	20	382	95	29	964	117	298	214	29	27	130
Future Volume (vph)	1	20	382	95	29	964	117	298	214	29	27	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.97	1.00		0.95	1.00	1.00		1.00	0.99
Frt				0.850			0.850		0.982			0.935
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3202	1502	1572	3357	1488	1695	1753	0	1558	1661
Flt Permitted		0.950			0.950			0.275			0.593	
Satd. Flow (perm)	0	1719	3202	1464	1567	3357	1419	489	1753	0	971	1661
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				122			122		8			34
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		14		3	3		14	7		2	2	
Confl. Bikes (#/hr)							1			2		
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 (%)	0%	0%	8%	3%	10%	3%	4%	2%	2%	0%	11%	2%
Adj. Flow (vph)	1	22	424	106	32	1071	130	331	238	32	30	144
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	424	106	32	1071	130	331	270	0	30	255
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	11.0	11.0	41.0	41.0	12.0	42.0	42.0	23.0	67.0		44.0	44.0
Total Split (%)	9.2%	9.2%	34.2%	34.2%	10.0%	35.0%	35.0%	19.2%	55.8%		36.7%	36.7%
Maximum Green (s)	5.3	5.3	35.3	35.3	6.3	36.3	36.3	18.7	60.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
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)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		5.3	56.2	56.2	6.1	56.8	56.8	46.6	44.5		21.7	21.7
Actuated g/C Ratio		0.04	0.47	0.47	0.05	0.47	0.47	0.39	0.37		0.18	0.18

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	100
Future Volume (vph)	100
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	1
Peak Hour Factor	0.90
Heavy Vehicles (%)	1%
Adj. Flow (vph)	111
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Existing (2021) Traffic (Optimized)
AM Peak Hour

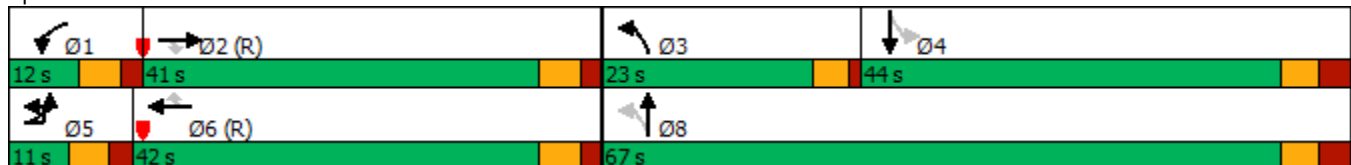


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio		0.30	0.28	0.14	0.40	0.67	0.18	0.88	0.41		0.17	0.78
Control Delay		66.1	22.6	3.7	69.9	29.5	5.6	53.1	28.2		41.8	57.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		66.1	22.6	3.7	69.9	29.5	5.6	53.1	28.2		41.8	57.3
LOS		E	C	A	E	C	A	D	C		D	E
Approach Delay			20.8			28.0			41.9			55.6
Approach LOS			C			C			D			E
Queue Length 50th (m)		5.4	34.1	0.0	7.4	108.0	1.1	58.4	45.2		6.9	53.3
Queue Length 95th (m)		14.0	52.3	8.9	17.9	150.6	13.9	#80.1	60.4		m14.5	73.7
Internal Link Dist (m)			155.7			56.6			215.7			194.1
Turn Bay Length (m)		35.0		105.0	60.0		85.0	45.0			45.0	
Base Capacity (vph)		76	1500	750	82	1590	736	377	889		304	543
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio		0.30	0.28	0.14	0.39	0.67	0.18	0.88	0.30		0.10	0.47

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 32.6 Intersection LOS: C
 Intersection Capacity Utilization 76.7% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6343: Albion Road South & Bank Street





Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Existing (2021) Traffic (Optimized)
PM Peak Hour

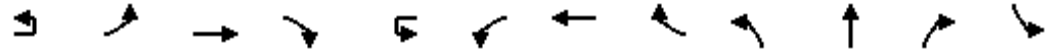
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	3	118	1218	23	5	310	957	64	7	114	237	48
Future Volume (vph)	3	118	1218	23	5	310	957	64	7	114	237	48
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		70.0		45.0		95.0		60.0	40.0		0.0	30.0
Storage Lanes		1		1		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.97				0.97	0.98	0.99		1.00
Frt				0.850				0.850		0.899		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1618	3357	1547	0	1696	3390	1502	1729	1586	0	1601
Flt Permitted		0.241				0.068			0.496			0.153
Satd. Flow (perm)	0	411	3357	1499	0	121	3390	1451	880	1586	0	257
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				78				78		83		
Link Speed (k/h)			60				60			50		
Link Distance (m)			200.9				300.4			218.1		
Travel Time (s)			12.1				18.0			15.7		
Confl. Peds. (#/hr)		5		4		4		5	24		6	6
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 (%)	0%	7%	3%	0%	0%	2%	2%	3%	0%	1%	2%	8%
Adj. Flow (vph)	3	131	1353	26	6	344	1063	71	8	127	263	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	134	1353	26	0	350	1063	71	8	390	0	53
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases	2	2		2	6	6		6	8			4
Detector Phase	5	5	2	2	1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.4	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2
Total Split (s)	26.0	26.0	55.0	55.0	29.0	29.0	58.0	58.0	36.0	36.0		36.0
Total Split (%)	21.7%	21.7%	45.8%	45.8%	24.2%	24.2%	48.3%	48.3%	30.0%	30.0%		30.0%
Maximum Green (s)	20.6	20.6	49.5	49.5	23.6	23.6	52.5	52.5	29.8	29.8		29.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	1.7	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0			0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.4	5.5	5.5			5.4	5.5	5.5	6.2		6.2
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None
Walk Time (s)			14.0	14.0			14.0	14.0	7.0	7.0		7.0
Flash Dont Walk (s)			7.0	7.0			7.0	7.0	16.0	16.0		16.0
Pedestrian Calls (#/hr)			0	0			0	0	0	0		0
Act Effct Green (s)		62.5	53.0	53.0		81.1	66.2	66.2	27.3	27.3		27.3
Actuated g/C Ratio		0.52	0.44	0.44		0.68	0.55	0.55	0.23	0.23		0.23
v/c Ratio		0.43	0.91	0.04		0.92	0.57	0.09	0.04	0.92		0.91



Lane Group	SBT	SBR
Lane Configurations	↔	
Traffic Volume (vph)	133	52
Future Volume (vph)	133	52
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.99	
Frt	0.958	
Flt Protected		
Satd. Flow (prot)	1667	0
Flt Permitted		
Satd. Flow (perm)	1667	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	16	
Link Speed (k/h)	50	
Link Distance (m)	176.4	
Travel Time (s)	12.7	
Confl. Peds. (#/hr)		24
Peak Hour Factor	0.90	0.90
Heavy Vehicles (%)	2%	6%
Adj. Flow (vph)	148	58
Shared Lane Traffic (%)		
Lane Group Flow (vph)	206	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	29.2	
Total Split (s)	36.0	
Total Split (%)	30.0%	
Maximum Green (s)	29.8	
Yellow Time (s)	3.3	
All-Red Time (s)	2.9	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.2	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	7.0	
Flash Dont Walk (s)	16.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	27.3	
Actuated g/C Ratio	0.23	
v/c Ratio	0.53	

5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Existing (2021) Traffic (Optimized)
PM Peak Hour

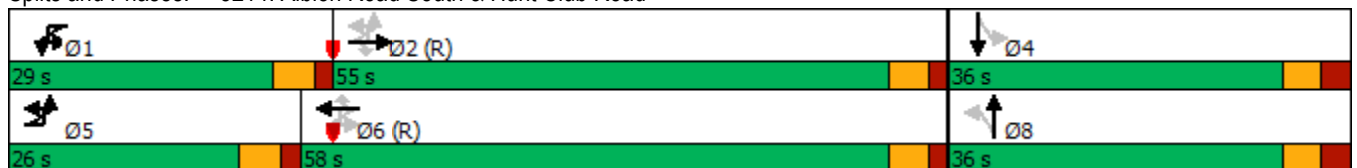


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Control Delay		14.2	42.9	0.1		46.4	33.0	9.8	31.7	58.5		143.2
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		14.2	42.9	0.1		46.4	33.0	9.8	31.7	58.5		143.2
LOS		B	D	A		D	C	A	C	E		F
Approach Delay			39.6				35.0			58.0		
Approach LOS			D				D			E		
Queue Length 50th (m)		10.9	162.4	0.0		72.0	138.2	6.9	1.4	78.9		11.9
Queue Length 95th (m)		18.5	#212.4	0.0		#116.9	159.6	m14.8	m4.5	#120.8		#36.8
Internal Link Dist (m)			176.9				276.4			194.1		
Turn Bay Length (m)		70.0		45.0		95.0		60.0	40.0			30.0
Base Capacity (vph)		459	1481	705		391	1869	835	218	456		63
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		0.29	0.91	0.04		0.90	0.57	0.09	0.04	0.86		0.84

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 96 (80%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 41.4 Intersection LOS: D
 Intersection Capacity Utilization 99.7% ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

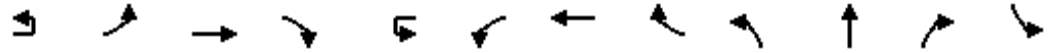
Splits and Phases: 5214: Albion Road South & Hunt Club Road





Lane Group	SBT	SBR
Control Delay	42.1	
Queue Delay	0.0	
Total Delay	42.1	
LOS	D	
Approach Delay	62.8	
Approach LOS	E	
Queue Length 50th (m)	38.3	
Queue Length 95th (m)	61.8	
Internal Link Dist (m)	152.4	
Turn Bay Length (m)		
Base Capacity (vph)	425	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.48	
Intersection Summary		

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2021) Traffic (Optimized)
 1470 Hunt Club Road PM Peak Hour



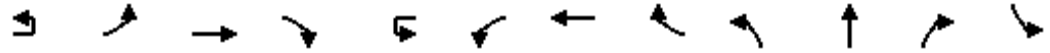
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	247	1221	31	2	61	1250	41	15	18	34	57
Future Volume (vph)	1	247	1221	31	2	61	1250	41	15	18	34	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00						0.97	0.99	0.99		1.00
Frt			0.996					0.850		0.902		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1695	3312	0	0	1729	3390	1547	1729	1596	0	1729
Flt Permitted		0.950				0.950			0.357			0.719
Satd. Flow (perm)	0	1694	3312	0	0	1729	3390	1508	646	1596	0	1307
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			3					141		38		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		2						2	7		1	1
Confl. Bikes (#/hr)												
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 (%)	0%	2%	4%	3%	0%	0%	2%	0%	0%	0%	3%	0%
Adj. Flow (vph)	1	274	1357	34	2	68	1389	46	17	20	38	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	275	1391	0	0	70	1389	46	17	58	0	63
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	29.0	29.0	65.0		13.0	13.0	49.0	49.0	42.0	42.0		42.0
Total Split (%)	24.2%	24.2%	54.2%		10.8%	10.8%	40.8%	40.8%	35.0%	35.0%		35.0%
Maximum Green (s)	23.1	23.1	59.1		7.1	7.1	43.1	43.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0				0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9				5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		22.0	85.8			7.0	68.3	68.3	11.2	11.2		11.2
Actuated g/C Ratio		0.18	0.72			0.06	0.57	0.57	0.09	0.09		0.09

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road ~~Reading~~ (2021) Traffic (Optimized)
 1470 Hunt Club Road PM Peak Hour



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	19	159
Future Volume (vph)	19	159
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.866	
Flt Protected		
Satd. Flow (prot)	1535	0
Flt Permitted		
Satd. Flow (perm)	1535	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	177	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		1
Peak Hour Factor	0.90	0.90
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	21	177
Shared Lane Traffic (%)		
Lane Group Flow (vph)	198	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	11.2	
Actuated g/C Ratio	0.09	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2021) Traffic (Optimized)
 1470 Hunt Club Road PM Peak Hour

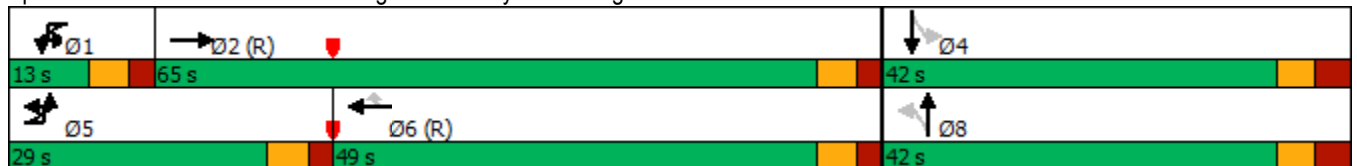


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.89	0.59			0.69	0.72	0.05	0.28	0.32		0.52
Control Delay		71.2	12.1			88.8	22.5	0.1	60.9	26.8		65.7
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		71.2	12.1			88.8	22.5	0.1	60.9	26.8		65.7
LOS		E	B			F	C	A	E	C		E
Approach Delay			21.8				24.9			34.5		
Approach LOS			C				C			C		
Queue Length 50th (m)		54.2	146.1			16.5	122.4	0.0	3.8	4.4		14.4
Queue Length 95th (m)		#105.5	175.5			#39.1	165.4	0.0	11.0	16.5		27.8
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		326	2369			102	1930	919	190	496		384
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		0.84	0.59			0.69	0.72	0.05	0.09	0.12		0.16

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 97 (81%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 125
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 24.2 Intersection LOS: C
 Intersection Capacity Utilization 82.0% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road



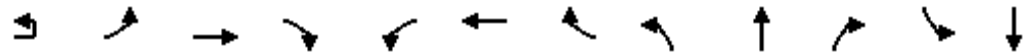
6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road ~~Round~~ (2021) Traffic (Optimized)
 1470 Hunt Club Road PM Peak Hour



Lane Group	SBT	SBR
v/c Ratio	0.65	
Control Delay	20.6	
Queue Delay	0.0	
Total Delay	20.6	
LOS	C	
Approach Delay	31.4	
Approach LOS	C	
Queue Length 50th (m)	4.6	
Queue Length 95th (m)	26.8	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	576	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.34	
Intersection Summary		

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Existing (2021) Traffic (Optimized)
PM Peak Hour

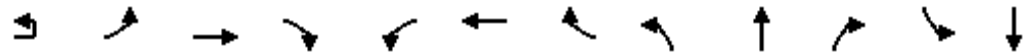


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↗
Traffic Volume (vph)	1	69	947	279	43	594	145	158	169	44	177	255
Future Volume (vph)	1	69	947	279	43	594	145	158	169	44	177	255
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.98	1.00		0.96	1.00	1.00		1.00	1.00
Fr _t				0.850			0.850		0.969			0.977
Fl _t Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3424	1547	1695	3424	1502	1729	1736	0	1712	1773
Fl _t Permitted		0.950			0.950			0.234			0.611	
Satd. Flow (perm)	0	1716	3424	1510	1694	3424	1440	425	1736	0	1097	1773
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				310			161		13			8
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		10		1	1		10	5		5	5	
Confl. Bikes (#/hr)				2			3			1		
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 (%)	0%	0%	1%	0%	2%	1%	3%	0%	1%	2%	1%	0%
Adj. Flow (vph)	1	77	1052	310	48	660	161	176	188	49	197	283
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	78	1052	310	48	660	161	176	237	0	197	335
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	20.0	20.0	45.0	45.0	20.0	45.0	45.0	11.0	55.0		44.0	44.0
Total Split (%)	16.7%	16.7%	37.5%	37.5%	16.7%	37.5%	37.5%	9.2%	45.8%		36.7%	36.7%
Maximum Green (s)	14.3	14.3	39.3	39.3	14.3	39.3	39.3	6.7	48.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
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)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		10.6	56.4	56.4	8.8	54.9	54.9	41.3	39.2		28.2	28.2
Actuated g/C Ratio		0.09	0.47	0.47	0.07	0.46	0.46	0.34	0.33		0.24	0.24

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	47
Future Volume (vph)	47
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	3
Peak Hour Factor	0.90
Heavy Vehicles (%)	0%
Adj. Flow (vph)	52
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Existing (2021) Traffic (Optimized)
PM Peak Hour

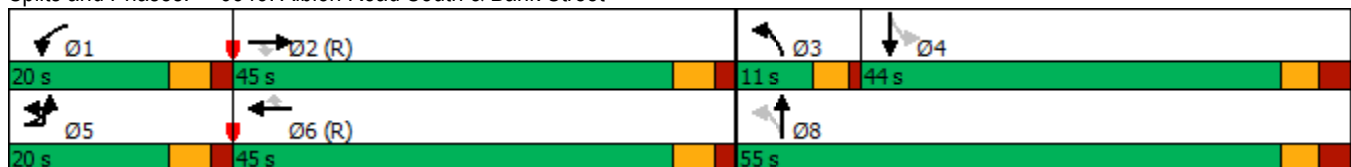


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio		0.51	0.65	0.35	0.39	0.42	0.22	0.80	0.41		0.77	0.79
Control Delay		63.4	29.5	4.1	61.0	25.7	4.9	56.6	30.7		45.3	40.8
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		63.4	29.5	4.1	61.0	25.7	4.9	56.6	30.7		45.3	40.8
LOS		E	C	A	E	C	A	E	C		D	D
Approach Delay			25.9			23.8			41.7			42.5
Approach LOS			C			C			D			D
Queue Length 50th (m)		17.8	101.2	0.0	11.0	56.2	0.0	30.0	40.7		48.9	81.8
Queue Length 95th (m)		32.6	#159.7	18.6	22.6	86.9	14.6	#45.8	55.5		m59.6	m96.3
Internal Link Dist (m)			155.7			56.6			215.7			194.1
Turn Bay Length (m)		35.0		105.0	60.0		85.0	45.0			45.0	
Base Capacity (vph)		206	1609	874	201	1565	745	219	710		343	561
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio		0.38	0.65	0.35	0.24	0.42	0.22	0.80	0.33		0.57	0.60

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 42 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 30.0
 Intersection LOS: C
 Intersection Capacity Utilization 78.8%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6343: Albion Road South & Bank Street





Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

1: Bank Street & Sieveright Avenue
1470 Hunt Club Road

Future (2022) Background Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	446	997	24	30	114
Future Vol, veh/h	40	446	997	24	30	114
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	600	-	-	-	300	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	6	5	8	10	4
Mvmt Flow	40	446	997	24	30	114

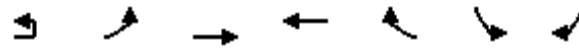
Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1023	0	-	0	1314 513
Stage 1	-	-	-	-	1011 -
Stage 2	-	-	-	-	303 -
Critical Hdwy	4.14	-	-	-	7 6.98
Critical Hdwy Stg 1	-	-	-	-	6 -
Critical Hdwy Stg 2	-	-	-	-	6 -
Follow-up Hdwy	2.22	-	-	-	3.6 3.34
Pot Cap-1 Maneuver	674	-	-	-	140 501
Stage 1	-	-	-	-	295 -
Stage 2	-	-	-	-	700 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	673	-	-	-	131 500
Mov Cap-2 Maneuver	-	-	-	-	131 -
Stage 1	-	-	-	-	277 -
Stage 2	-	-	-	-	699 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	19.8
HCM LOS			C

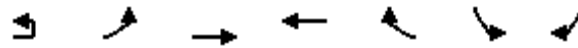
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	673	-	-	-	131	500
HCM Lane V/C Ratio	0.059	-	-	-	0.229	0.228
HCM Control Delay (s)	10.7	-	-	-	40.5	14.3
HCM Lane LOS	B	-	-	-	E	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.8	0.9

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

Future (2022) Background Traffic
AM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↘	↕	↕	↗	↘	↗
Traffic Volume (vph)	4	15	1046	1194	54	77	45
Future Volume (vph)	4	15	1046	1194	54	77	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0			45.0	35.0	0.0
Storage Lanes		1			1	1	1
Taper Length (m)		7.6				7.6	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.98	0.99	
Frt					0.850		0.850
Flt Protected		0.950				0.950	
Satd. Flow (prot)	0	1729	3293	3262	1345	1679	1547
Flt Permitted		0.223				0.950	
Satd. Flow (perm)	0	406	3293	3262	1317	1669	1547
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					49		45
Link Speed (k/h)			60	60		50	
Link Distance (m)			163.5	485.0		251.0	
Travel Time (s)			9.8	29.1		18.1	
Confl. Peds. (#/hr)						5	
Confl. Bikes (#/hr)					2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	5%	6%	15%	3%	0%
Adj. Flow (vph)	4	15	1046	1194	54	77	45
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	19	1046	1194	54	77	45
Turn Type	Perm	Perm	NA	NA	Perm	Prot	Perm
Protected Phases			2	6		4	
Permitted Phases	2	2			6		4
Detector Phase	2	2	2	6	6	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	27.5	27.5	37.7	37.7
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%
Maximum Green (s)	76.5	76.5	76.5	76.5	76.5	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	2.4	2.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.7	5.7
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)				10.0	10.0	7.0	7.0
Flash Dont Walk (s)				12.0	12.0	25.0	25.0
Pedestrian Calls (#/hr)				0	0	0	0
Act Effct Green (s)		101.5	101.5	101.5	101.5	10.9	10.9
Actuated g/C Ratio		0.85	0.85	0.85	0.85	0.09	0.09



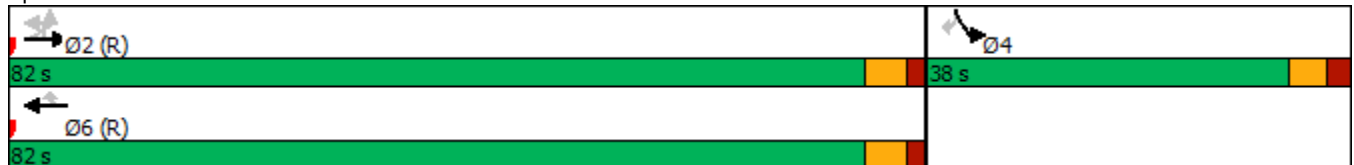
Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.06	0.38	0.43	0.05	0.51	0.25
Control Delay		4.0	3.7	4.3	0.4	62.8	17.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		4.0	3.7	4.3	0.4	62.8	17.1
LOS		A	A	A	A	E	B
Approach Delay			3.7	4.1		45.9	
Approach LOS			A	A		D	
Queue Length 50th (m)		0.5	20.8	87.8	0.4	17.6	0.0
Queue Length 95th (m)		m3.0	54.7	3.2	m0.0	31.9	10.8
Internal Link Dist (m)			139.5	461.0		227.0	
Turn Bay Length (m)		100.0			45.0	35.0	
Base Capacity (vph)		343	2784	2758	1121	451	449
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		0.06	0.38	0.43	0.05	0.17	0.10

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.51
 Intersection Signal Delay: 6.0
 Intersection Capacity Utilization 48.7%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A























m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5212: Hunt Club Road & Cahill Drive



5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

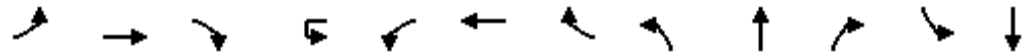
Future (2022) Background Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	58	733	8	9	172	1015	79	6	90	213	41	84
Future Volume (vph)	58	733	8	9	172	1015	79	6	90	213	41	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		45.0		95.0		60.0	40.0		0.0	30.0	
Storage Lanes	1		1		1		1	1		0	1	
Taper Length (m)	7.6				7.6			7.6			7.6	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		0.97	0.99	0.99		1.00	0.99
Frt			0.850				0.850		0.895			0.932
Flt Protected	0.950				0.950			0.950			0.950	
Satd. Flow (prot)	1572	3232	1238	0	1666	3202	1532	1729	1547	0	1695	1520
Flt Permitted	0.246				0.315			0.570			0.210	
Satd. Flow (perm)	407	3232	1206	0	551	3202	1483	1029	1547	0	374	1520
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			78				78		91			32
Link Speed (k/h)		60				60			50			50
Link Distance (m)		200.9				300.4			218.1			176.4
Travel Time (s)		12.1				18.0			15.7			12.7
Confl. Peds. (#/hr)	4		2		2		4	7		2	2	
Confl. Bikes (#/hr)							1					
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 (%)	10%	7%	25%	0%	4%	8%	1%	0%	7%	3%	2%	1%
Adj. Flow (vph)	58	733	8	9	172	1015	79	6	90	213	41	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	733	8	0	181	1015	79	6	303	0	41	153
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases	2		2	6	6		6	8				4
Detector Phase	5	2	2	1	1	6	6	8	8			4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2	29.2
Total Split (s)	25.0	62.0	62.0	25.0	25.0	62.0	62.0	33.0	33.0		33.0	33.0
Total Split (%)	20.8%	51.7%	51.7%	20.8%	20.8%	51.7%	51.7%	27.5%	27.5%		27.5%	27.5%
Maximum Green (s)	19.6	56.5	56.5	19.6	19.6	56.5	56.5	26.8	26.8		26.8	26.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9	2.9
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)	5.4	5.5	5.5		5.4	5.5	5.5	6.2	6.2		6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None	None
Walk Time (s)		14.0	14.0			14.0	14.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)		7.0	7.0			7.0	7.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0			0	0	0	0		0	0
Act Effct Green (s)	78.5	71.5	71.5		85.1	76.6	76.6	21.6	21.6		21.6	21.6
Actuated g/C Ratio	0.65	0.60	0.60		0.71	0.64	0.64	0.18	0.18		0.18	0.18

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	69
Future Volume (vph)	69
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	
Peak Hour Factor	1.00
Heavy Vehicles (%)	22%
Adj. Flow (vph)	69
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Future (2022) Background Traffic
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio	0.17	0.38	0.01		0.38	0.50	0.08	0.03	0.86		0.61	0.51
Control Delay	7.4	14.5	0.0		4.5	3.9	0.3	58.7	77.6		80.4	39.8
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	7.4	14.5	0.0		4.5	3.9	0.3	58.7	77.6		80.4	39.8
LOS	A	B	A		A	A	A	E	E		F	D
Approach Delay		13.9				3.8			77.3			48.4
Approach LOS		B				A			E			D
Queue Length 50th (m)	3.6	45.8	0.0		3.3	11.1	0.0	1.4	55.8		8.9	25.5
Queue Length 95th (m)	8.4	68.3	0.0		7.3	20.2	0.4	m4.7	77.3		#23.2	44.5
Internal Link Dist (m)		176.9				276.4			194.1			152.4
Turn Bay Length (m)	70.0		45.0		95.0		60.0	40.0			30.0	
Base Capacity (vph)	484	1925	750		580	2043	974	229	416		83	364
Starvation Cap Reductn	0	0	0		0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0		0	0
Reduced v/c Ratio	0.12	0.38	0.01		0.31	0.50	0.08	0.03	0.73		0.49	0.42

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 27 (23%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 19.1
 Intersection LOS: B
 Intersection Capacity Utilization 76.4%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

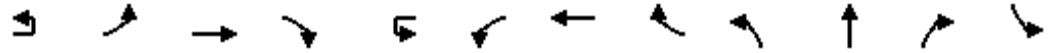
Splits and Phases: 5214: Albion Road South & Hunt Club Road





Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2022) Background Traffic
 1470 Hunt Club Road AM Peak Hour



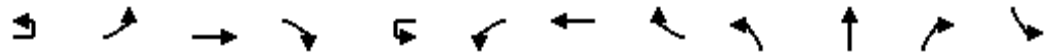
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	143	967	12	7	19	1034	37	23	18	71	74
Future Volume (vph)	1	143	967	12	7	19	1034	37	23	18	71	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99	1.00			1.00		0.96	1.00	0.99		1.00
Frt			0.998					0.850		0.880		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1647	3223	0	0	1729	3172	1547	1729	1514	0	1712
Flt Permitted		0.950				0.950			0.320			0.699
Satd. Flow (perm)	0	1638	3223	0	0	1722	3172	1477	581	1514	0	1255
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			1					141		71		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		9		6		6		9	4		4	4
Confl. Bikes (#/hr)				1				1				
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 (%)	0%	5%	7%	8%	0%	0%	9%	0%	0%	6%	4%	1%
Adj. Flow (vph)	1	143	967	12	7	19	1034	37	23	18	71	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	144	979	0	0	26	1034	37	23	89	0	74
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	23.0	23.0	66.0		12.0	12.0	55.0	55.0	42.0	42.0		42.0
Total Split (%)	19.2%	19.2%	55.0%		10.0%	10.0%	45.8%	45.8%	35.0%	35.0%		35.0%
Maximum Green (s)	17.1	17.1	60.1		6.1	6.1	49.1	49.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0				0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9				5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		14.6	87.7			6.0	74.5	74.5	12.5	12.5		12.5
Actuated g/C Ratio		0.12	0.73			0.05	0.62	0.62	0.10	0.10		0.10

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2022) Background Traffic
 1470 Hunt Club Road AM Peak Hour



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	7	189
Future Volume (vph)	7	189
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.855	
Flt Protected		
Satd. Flow (prot)	1462	0
Flt Permitted		
Satd. Flow (perm)	1462	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	189	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		4
Confl. Bikes (#/hr)		
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	0%	5%
Adj. Flow (vph)	7	189
Shared Lane Traffic (%)		
Lane Group Flow (vph)	196	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	12.5	
Actuated g/C Ratio	0.10	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2022) Background Traffic
 1470 Hunt Club Road AM Peak Hour

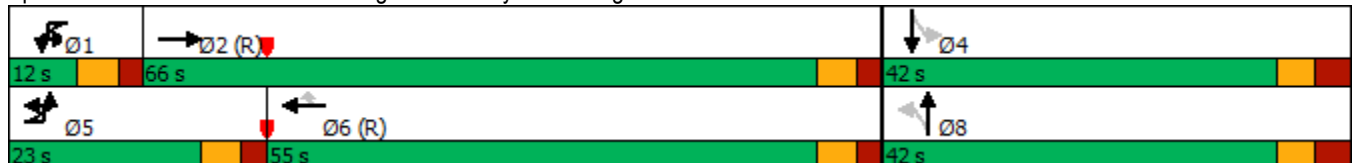


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.72	0.42			0.31	0.53	0.04	0.38	0.40		0.57
Control Delay		65.7	9.4			64.5	15.1	0.1	66.6	20.9		67.0
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		65.7	9.4			64.5	15.1	0.1	66.6	20.9		67.0
LOS		E	A			E	B	A	E	C		E
Approach Delay			16.7				15.8			30.3		
Approach LOS			B				B			C		
Queue Length 50th (m)		31.8	40.9			6.0	69.3	0.0	5.1	3.9		16.9
Queue Length 95th (m)		54.2	83.7			15.4	101.3	0.0	13.3	18.4		31.1
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		234	2356			87	1968	970	170	495		369
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		0.62	0.42			0.30	0.53	0.04	0.14	0.18		0.20

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 86 (72%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 18.2 Intersection LOS: B
 Intersection Capacity Utilization 75.3% ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road

























6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2022) Background Traffic
 1470 Hunt Club Road AM Peak Hour



Lane Group	SBT	SBR
v/c Ratio	0.61	
Control Delay	16.1	
Queue Delay	0.0	
Total Delay	16.1	
LOS	B	
Approach Delay	30.0	
Approach LOS	C	
Queue Length 50th (m)	1.5	
Queue Length 95th (m)	22.5	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	563	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.35	
Intersection Summary		

6343: Albion Road South & Bank Street
1470 Hunt Club Road

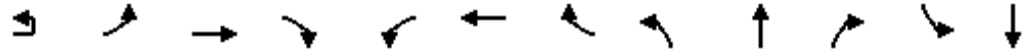
Future (2022) Background Traffic
AM Peak Hour

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	20	388	95	29	969	117	298	214	29	27	130
Future Volume (vph)	1	20	388	95	29	969	117	298	214	29	27	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.97	1.00		0.95	1.00	1.00		1.00	0.99
Frt				0.850			0.850		0.982			0.935
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3202	1502	1572	3357	1488	1695	1753	0	1558	1661
Flt Permitted		0.950			0.950			0.296			0.608	
Satd. Flow (perm)	0	1718	3202	1464	1567	3357	1419	526	1753	0	996	1661
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				122			122		8			34
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		14		3	3		14	7		2	2	
Confl. Bikes (#/hr)							1			2		
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 (%)	0%	0%	8%	3%	10%	3%	4%	2%	2%	0%	11%	2%
Adj. Flow (vph)	1	20	388	95	29	969	117	298	214	29	27	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	388	95	29	969	117	298	243	0	27	230
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	11.0	11.0	41.0	41.0	12.0	42.0	42.0	23.0	67.0		44.0	44.0
Total Split (%)	9.2%	9.2%	34.2%	34.2%	10.0%	35.0%	35.0%	19.2%	55.8%		36.7%	36.7%
Maximum Green (s)	5.3	5.3	35.3	35.3	6.3	36.3	36.3	18.7	60.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
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)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		5.3	58.3	58.3	6.1	61.1	61.1	44.5	42.4		19.9	19.9
Actuated g/C Ratio		0.04	0.49	0.49	0.05	0.51	0.51	0.37	0.35		0.17	0.17

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	100
Future Volume (vph)	100
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	1
Peak Hour Factor	1.00
Heavy Vehicles (%)	1%
Adj. Flow (vph)	100
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Future (2022) Background Traffic
AM Peak Hour

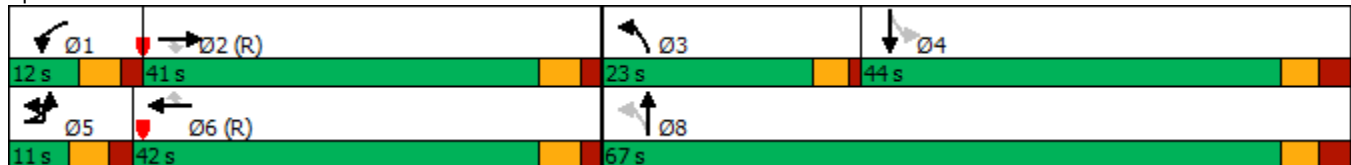


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio		0.28	0.25	0.12	0.36	0.57	0.15	0.80	0.39		0.16	0.76
Control Delay		64.9	21.0	2.4	67.8	24.3	4.2	45.0	28.9		45.1	58.6
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		64.9	21.0	2.4	67.8	24.3	4.2	45.0	28.9		45.1	58.6
LOS		E	C	A	E	C	A	D	C		D	E
Approach Delay			19.3			23.3			37.8			57.2
Approach LOS			B			C			D			E
Queue Length 50th (m)		4.9	29.9	0.0	6.7	74.2	0.0	52.6	40.8		6.3	48.0
Queue Length 95th (m)		13.3	46.3	6.4	16.7	127.3	10.7	69.7	56.0		m14.7	69.6
Internal Link Dist (m)			155.7			56.6			215.7			194.1
Turn Bay Length (m)		35.0		105.0	60.0		85.0	45.0			45.0	
Base Capacity (vph)		76	1556	774	82	1710	782	376	889		312	543
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio		0.28	0.25	0.12	0.35	0.57	0.15	0.79	0.27		0.09	0.42

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 29.3 Intersection LOS: C
 Intersection Capacity Utilization 76.9% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6343: Albion Road South & Bank Street





Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

1: Bank Street & Sieveright Avenue
1470 Hunt Club Road

Future (2022) Background Traffic
PM Peak Hour

Intersection							
Int Delay, s/veh	1.5						
Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↘	↕↕	↕↕		↘	↗
Traffic Vol, veh/h	1	100	1034	580	26	23	99
Future Vol, veh/h	1	100	1034	580	26	23	99
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	600	-	-	-	300	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	1	1	0	4	0
Mvmt Flow	1	100	1034	580	26	23	99

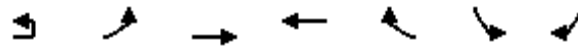
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	606	606	0	-	0	1312
Stage 1	-	-	-	-	-	593
Stage 2	-	-	-	-	-	719
Critical Hdwy	6.4	4.1	-	-	-	6.88
Critical Hdwy Stg 1	-	-	-	-	-	5.88
Critical Hdwy Stg 2	-	-	-	-	-	5.88
Follow-up Hdwy	2.5	2.2	-	-	-	3.54
Pot Cap-1 Maneuver	601	982	-	-	-	148
Stage 1	-	-	-	-	-	509
Stage 2	-	-	-	-	-	438
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	973	973	-	-	-	133
Mov Cap-2 Maneuver	-	-	-	-	-	133
Stage 1	-	-	-	-	-	456
Stage 2	-	-	-	-	-	438

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	16
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	973	-	-	-	133	699
HCM Lane V/C Ratio	0.104	-	-	-	0.173	0.142
HCM Control Delay (s)	9.1	-	-	-	37.6	11
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.6	0.5

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

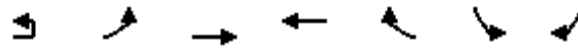
Future (2022) Background Traffic
PM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↘	↕	↕	↗	↘	↗
Traffic Volume (vph)	14	58	1426	1332	103	84	29
Future Volume (vph)	14	58	1426	1332	103	84	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0			45.0	35.0	0.0
Storage Lanes		1			1	1	1
Taper Length (m)		7.6				7.6	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.97	1.00	
Frt					0.850		0.850
Flt Protected		0.950				0.950	
Satd. Flow (prot)	0	1729	3357	3357	1532	1631	1547
Flt Permitted		0.189				0.950	
Satd. Flow (perm)	0	344	3357	3357	1484	1629	1547
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					84		29
Link Speed (k/h)			60	60		50	
Link Distance (m)			163.5	485.0		251.0	
Travel Time (s)			9.8	29.1		18.1	
Confl. Peds. (#/hr)		4			4	1	
Confl. Bikes (#/hr)					1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	3%	3%	1%	6%	0%
Adj. Flow (vph)	14	58	1426	1332	103	84	29
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	72	1426	1332	103	84	29
Turn Type	Perm	Perm	NA	NA	Perm	Prot	Perm
Protected Phases			2	6		4	
Permitted Phases	2	2			6		4
Detector Phase	2	2	2	6	6	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	27.5	27.5	37.7	37.7
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%
Maximum Green (s)	76.5	76.5	76.5	76.5	76.5	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	2.4	2.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.7	5.7
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)				10.0	10.0	7.0	7.0
Flash Dont Walk (s)				12.0	12.0	25.0	25.0
Pedestrian Calls (#/hr)				0	0	0	0
Act Effct Green (s)		100.9	100.9	100.9	100.9	11.5	11.5
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.10	0.10

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

Future (2022) Background Traffic
PM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.25	0.51	0.47	0.08	0.54	0.17
Control Delay		1.4	0.5	13.2	3.0	63.5	18.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		1.4	0.5	13.2	3.0	63.5	18.1
LOS		A	A	B	A	E	B
Approach Delay			0.5	12.5		51.8	
Approach LOS			A	B		D	
Queue Length 50th (m)		0.1	1.1	144.4	5.6	19.2	0.0
Queue Length 95th (m)		m0.2	1.2	182.2	m8.7	34.1	8.7
Internal Link Dist (m)			139.5	461.0		227.0	
Turn Bay Length (m)		100.0			45.0	35.0	
Base Capacity (vph)		289	2822	2822	1261	439	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		0.25	0.51	0.47	0.08	0.19	0.07

Intersection Summary






















Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 22 (18%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 8.1
 Intersection LOS: A
 Intersection Capacity Utilization 61.9%
 ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5212: Hunt Club Road & Cahill Drive



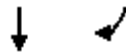
5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Future (2022) Background Traffic
PM Peak Hour

												
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	3	118	1227	23	5	310	966	64	7	114	237	48
Future Volume (vph)	3	118	1227	23	5	310	966	64	7	114	237	48
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		70.0		45.0		95.0		60.0	40.0		0.0	30.0
Storage Lanes		1		1		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.97				0.97	0.97	0.99		1.00
Fr _t				0.850				0.850		0.899		
Fl _t Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1619	3357	1547	0	1696	3390	1502	1729	1586	0	1601
Fl _t Permitted		0.286				0.097			0.522			0.184
Satd. Flow (perm)	0	486	3357	1499	0	173	3390	1451	925	1586	0	309
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				78				78		83		
Link Speed (k/h)			60				60			50		
Link Distance (m)			200.9				300.4			218.1		
Travel Time (s)			12.1				18.0			15.7		
Confl. Peds. (#/hr)		5		4		4		5	24		6	6
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 (%)	0%	7%	3%	0%	0%	2%	2%	3%	0%	1%	2%	8%
Adj. Flow (vph)	3	118	1227	23	5	310	966	64	7	114	237	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	121	1227	23	0	315	966	64	7	351	0	48
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases	2	2		2	6	6		6	8			4
Detector Phase	5	5	2	2	1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.4	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2
Total Split (s)	26.0	26.0	55.0	55.0	29.0	29.0	58.0	58.0	36.0	36.0		36.0
Total Split (%)	21.7%	21.7%	45.8%	45.8%	24.2%	24.2%	48.3%	48.3%	30.0%	30.0%		30.0%
Maximum Green (s)	20.6	20.6	49.5	49.5	23.6	23.6	52.5	52.5	29.8	29.8		29.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	1.7	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0			0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.4	5.5	5.5			5.4	5.5	5.5	6.2		6.2
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None
Walk Time (s)			14.0	14.0			14.0	14.0	7.0	7.0		7.0
Flash Dont Walk (s)			7.0	7.0			7.0	7.0	16.0	16.0		16.0
Pedestrian Calls (#/hr)			0	0			0	0	0	0		0
Act Effct Green (s)		65.1	56.4	56.4			83.2	69.0	69.0	25.2	25.2	25.2
Actuated g/C Ratio		0.54	0.47	0.47			0.69	0.58	0.58	0.21	0.21	0.21
v/c Ratio		0.35	0.78	0.03			0.81	0.50	0.07	0.04	0.88	0.75

5214: Albion Road South & Hunt Club Road
 1470 Hunt Club Road

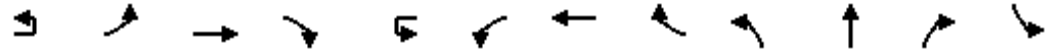
Future (2022) Background Traffic
 PM Peak Hour



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	133	52
Future Volume (vph)	133	52
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.99	
Frt	0.958	
Flt Protected		
Satd. Flow (prot)	1668	0
Flt Permitted		
Satd. Flow (perm)	1668	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	16	
Link Speed (k/h)	50	
Link Distance (m)	176.4	
Travel Time (s)	12.7	
Confl. Peds. (#/hr)		24
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	2%	6%
Adj. Flow (vph)	133	52
Shared Lane Traffic (%)		
Lane Group Flow (vph)	185	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	29.2	
Total Split (s)	36.0	
Total Split (%)	30.0%	
Maximum Green (s)	29.8	
Yellow Time (s)	3.3	
All-Red Time (s)	2.9	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.2	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	7.0	
Flash Dont Walk (s)	16.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	25.2	
Actuated g/C Ratio	0.21	
v/c Ratio	0.51	

5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Future (2022) Background Traffic
PM Peak Hour

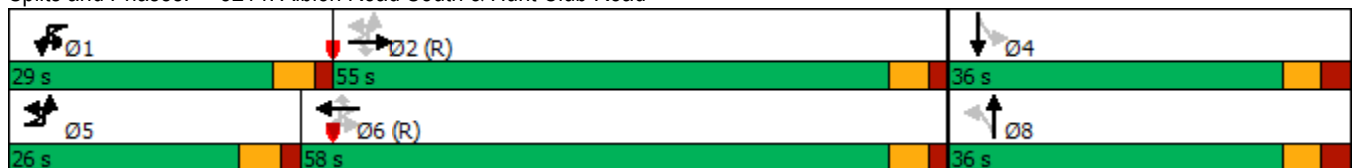


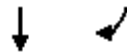
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Control Delay		11.9	32.5	0.1		30.1	29.3	10.3	29.3	52.0		100.4
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		11.9	32.5	0.1		30.1	29.3	10.3	29.3	52.0		100.4
LOS		B	C	A		C	C	B	C	D		F
Approach Delay			30.2				28.6			51.6		
Approach LOS			C				C			D		
Queue Length 50th (m)		9.0	132.5	0.0		64.2	124.6	6.2	1.3	69.0		10.5
Queue Length 95th (m)		16.9	#170.8	0.0		#75.9	145.8	14.9	m4.1	#93.1		#29.7
Internal Link Dist (m)			176.9				276.4			194.1		
Turn Bay Length (m)		70.0		45.0		95.0		60.0	40.0			30.0
Base Capacity (vph)		506	1577	745		419	1949	867	229	456		76
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		0.24	0.78	0.03		0.75	0.50	0.07	0.03	0.77		0.63

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 96 (80%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 33.5
 Intersection LOS: C
 Intersection Capacity Utilization 99.9%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

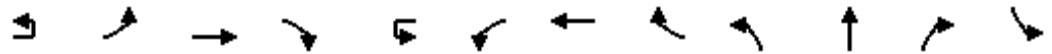
Splits and Phases: 5214: Albion Road South & Hunt Club Road





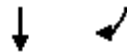
Lane Group	SBT	SBR
Control Delay	42.3	
Queue Delay	0.0	
Total Delay	42.3	
LOS	D	
Approach Delay	54.3	
Approach LOS	D	
Queue Length 50th (m)	34.7	
Queue Length 95th (m)	55.4	
Internal Link Dist (m)	152.4	
Turn Bay Length (m)		
Base Capacity (vph)	426	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.43	
Intersection Summary		

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2022) Background Traffic
 1470 Hunt Club Road PM Peak Hour



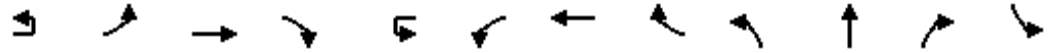
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	247	1230	31	2	61	1260	41	15	18	34	57
Future Volume (vph)	1	247	1230	31	2	61	1260	41	15	18	34	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00						0.97	0.99	0.99		1.00
Frt			0.996					0.850		0.902		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1695	3312	0	0	1729	3390	1547	1729	1596	0	1729
Flt Permitted		0.950				0.950			0.377			0.723
Satd. Flow (perm)	0	1694	3312	0	0	1729	3390	1508	682	1596	0	1315
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			3					141		34		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		2						2	7		1	1
Confl. Bikes (#/hr)												
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 (%)	0%	2%	4%	3%	0%	0%	2%	0%	0%	0%	3%	0%
Adj. Flow (vph)	1	247	1230	31	2	61	1260	41	15	18	34	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	248	1261	0	0	63	1260	41	15	52	0	57
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	29.0	29.0	65.0		13.0	13.0	49.0	49.0	42.0	42.0		42.0
Total Split (%)	24.2%	24.2%	54.2%		10.8%	10.8%	40.8%	40.8%	35.0%	35.0%		35.0%
Maximum Green (s)	23.1	23.1	59.1		7.1	7.1	43.1	43.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0				0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9				5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		21.0	86.4			6.9	69.9	69.9	10.6	10.6		10.6
Actuated g/C Ratio		0.18	0.72			0.06	0.58	0.58	0.09	0.09		0.09

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2022) Background Traffic
 1470 Hunt Club Road PM Peak Hour



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	19	159
Future Volume (vph)	19	159
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.866	
Flt Protected		
Satd. Flow (prot)	1535	0
Flt Permitted		
Satd. Flow (perm)	1535	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	159	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		1
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	19	159
Shared Lane Traffic (%)		
Lane Group Flow (vph)	178	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	10.6	
Actuated g/C Ratio	0.09	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2022) Background Traffic
 1470 Hunt Club Road PM Peak Hour

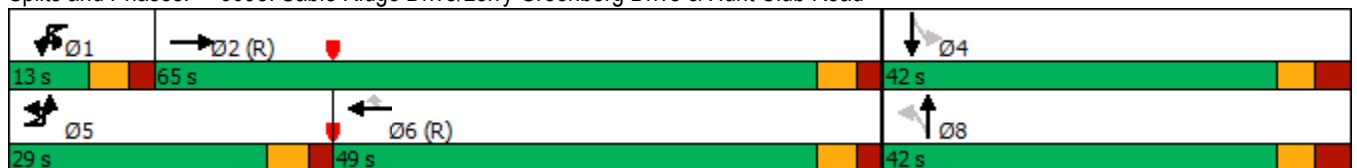


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.84	0.53			0.64	0.64	0.04	0.25	0.30		0.49
Control Delay		63.2	12.9			82.8	19.6	0.1	59.4	28.0		65.2
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		63.2	12.9			82.8	19.6	0.1	59.4	28.0		65.2
LOS		E	B			F	B	A	E	C		E
Approach Delay			21.1				21.9			35.1		
Approach LOS			C				C			D		
Queue Length 50th (m)		44.2	126.1			14.8	103.0	0.0	3.4	4.0		13.0
Queue Length 95th (m)		#89.8	153.3			#34.7	138.7	0.0	10.0	15.5		25.7
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		326	2385			102	1974	937	200	493		386
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		0.76	0.53			0.62	0.64	0.04	0.07	0.11		0.15

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 97 (81%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 22.6 Intersection LOS: C
 Intersection Capacity Utilization 82.3% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road



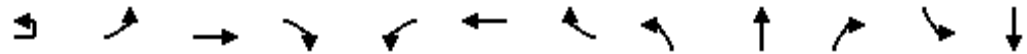
6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2022) Background Traffic
 1470 Hunt Club Road PM Peak Hour



Lane Group	SBT	SBR
v/c Ratio	0.64	
Control Delay	21.1	
Queue Delay	0.0	
Total Delay	21.1	
LOS	C	
Approach Delay	31.8	
Approach LOS	C	
Queue Length 50th (m)	4.2	
Queue Length 95th (m)	25.1	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	563	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.32	
Intersection Summary		

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Future (2022) Background Traffic
PM Peak Hour



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	69	956	279	43	601	145	158	169	44	177	255
Future Volume (vph)	1	69	956	279	43	601	145	158	169	44	177	255
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.98	1.00		0.96	1.00	1.00		1.00	1.00
Fr _t				0.850			0.850		0.969			0.977
Fl _t Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3424	1547	1695	3424	1502	1729	1736	0	1712	1773
Fl _t Permitted		0.950			0.950			0.257			0.625	
Satd. Flow (perm)	0	1715	3424	1510	1694	3424	1440	467	1736	0	1122	1773
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				279			145		13			8
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		10		1	1		10	5		5	5	
Confl. Bikes (#/hr)				2			3			1		
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 (%)	0%	0%	1%	0%	2%	1%	3%	0%	1%	2%	1%	0%
Adj. Flow (vph)	1	69	956	279	43	601	145	158	169	44	177	255
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	70	956	279	43	601	145	158	213	0	177	302
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	20.0	20.0	45.0	45.0	20.0	45.0	45.0	11.0	55.0		44.0	44.0
Total Split (%)	16.7%	16.7%	37.5%	37.5%	16.7%	37.5%	37.5%	9.2%	45.8%		36.7%	36.7%
Maximum Green (s)	14.3	14.3	39.3	39.3	14.3	39.3	39.3	6.7	48.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
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)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		10.2	58.9	58.9	8.5	57.3	57.3	39.2	37.1		26.1	26.1
Actuated g/C Ratio		0.08	0.49	0.49	0.07	0.48	0.48	0.33	0.31		0.22	0.22

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	47
Future Volume (vph)	47
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	3
Peak Hour Factor	1.00
Heavy Vehicles (%)	0%
Adj. Flow (vph)	47
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	



Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

1: Bank Street & Sieveright Avenue
1470 Hunt Club Road

Future (2027) Background Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	457	1022	24	30	114
Future Vol, veh/h	40	457	1022	24	30	114
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	600	-	-	-	300	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	6	5	8	10	4
Mvmt Flow	40	457	1022	24	30	114

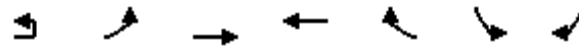
Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1048	0	-	0	1345 525
Stage 1	-	-	-	-	1036 -
Stage 2	-	-	-	-	309 -
Critical Hdwy	4.14	-	-	-	7 6.98
Critical Hdwy Stg 1	-	-	-	-	6 -
Critical Hdwy Stg 2	-	-	-	-	6 -
Follow-up Hdwy	2.22	-	-	-	3.6 3.34
Pot Cap-1 Maneuver	660	-	-	-	133 492
Stage 1	-	-	-	-	286 -
Stage 2	-	-	-	-	695 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	659	-	-	-	124 491
Mov Cap-2 Maneuver	-	-	-	-	124 -
Stage 1	-	-	-	-	268 -
Stage 2	-	-	-	-	694 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	20.5
HCM LOS			C

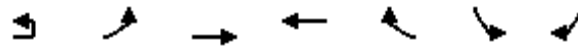
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	659	-	-	-	124	491
HCM Lane V/C Ratio	0.061	-	-	-	0.242	0.232
HCM Control Delay (s)	10.8	-	-	-	43.1	14.5
HCM Lane LOS	B	-	-	-	E	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.9	0.9

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

Future (2027) Background Traffic
AM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↘	↕	↕	↗	↘	↗
Traffic Volume (vph)	4	15	1072	1222	54	77	45
Future Volume (vph)	4	15	1072	1222	54	77	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0			45.0	35.0	0.0
Storage Lanes		1			1	1	1
Taper Length (m)		7.6				7.6	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.98	0.99	
Frt					0.850		0.850
Flt Protected		0.950				0.950	
Satd. Flow (prot)	0	1729	3293	3262	1345	1679	1547
Flt Permitted		0.216				0.950	
Satd. Flow (perm)	0	393	3293	3262	1317	1669	1547
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					48		45
Link Speed (k/h)			60	60		50	
Link Distance (m)			163.5	485.0		251.0	
Travel Time (s)			9.8	29.1		18.1	
Confl. Peds. (#/hr)						5	
Confl. Bikes (#/hr)					2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	5%	6%	15%	3%	0%
Adj. Flow (vph)	4	15	1072	1222	54	77	45
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	19	1072	1222	54	77	45
Turn Type	Perm	Perm	NA	NA	Perm	Prot	Perm
Protected Phases			2	6		4	
Permitted Phases	2	2			6		4
Detector Phase	2	2	2	6	6	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	27.5	27.5	37.7	37.7
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%
Maximum Green (s)	76.5	76.5	76.5	76.5	76.5	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	2.4	2.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.7	5.7
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)				10.0	10.0	7.0	7.0
Flash Dont Walk (s)				12.0	12.0	25.0	25.0
Pedestrian Calls (#/hr)				0	0	0	0
Act Effct Green (s)		101.5	101.5	101.5	101.5	10.9	10.9
Actuated g/C Ratio		0.85	0.85	0.85	0.85	0.09	0.09



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.06	0.39	0.44	0.05	0.51	0.25
Control Delay		4.2	3.9	4.4	0.4	62.8	17.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		4.2	3.9	4.4	0.4	62.8	17.1
LOS		A	A	A	A	E	B
Approach Delay			3.9	4.2		45.9	
Approach LOS			A	A		D	
Queue Length 50th (m)		0.5	21.6	91.2	0.4	17.6	0.0
Queue Length 95th (m)		m3.1	58.7	3.2	m0.0	31.9	10.8
Internal Link Dist (m)			139.5	461.0		227.0	
Turn Bay Length (m)		100.0			45.0	35.0	
Base Capacity (vph)		332	2784	2758	1121	451	449
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		0.06	0.39	0.44	0.05	0.17	0.10

Intersection Summary























Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.51
 Intersection Signal Delay: 6.1
 Intersection Capacity Utilization 49.5%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5212: Hunt Club Road & Cahill Drive



5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

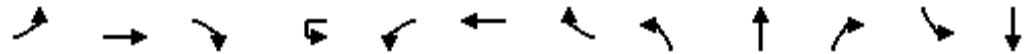
Future (2027) Background Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	58	752	8	9	172	1039	79	6	90	213	41	84
Future Volume (vph)	58	752	8	9	172	1039	79	6	90	213	41	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		45.0		95.0		60.0	40.0		0.0	30.0	
Storage Lanes	1		1		1		1	1		0	1	
Taper Length (m)	7.6				7.6			7.6			7.6	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		0.97	0.99	0.99		1.00	0.99
Frt			0.850				0.850		0.895			0.932
Flt Protected	0.950				0.950			0.950			0.950	
Satd. Flow (prot)	1572	3232	1238	0	1666	3202	1532	1729	1547	0	1695	1520
Flt Permitted	0.237				0.307			0.570			0.210	
Satd. Flow (perm)	392	3232	1206	0	538	3202	1483	1029	1547	0	374	1520
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			78				78		91			32
Link Speed (k/h)		60				60			50			50
Link Distance (m)		200.9				300.4			218.1			176.4
Travel Time (s)		12.1				18.0			15.7			12.7
Confl. Peds. (#/hr)	4		2		2		4	7		2	2	
Confl. Bikes (#/hr)							1					
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 (%)	10%	7%	25%	0%	4%	8%	1%	0%	7%	3%	2%	1%
Adj. Flow (vph)	58	752	8	9	172	1039	79	6	90	213	41	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	752	8	0	181	1039	79	6	303	0	41	153
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases	2		2	6	6		6	8				4
Detector Phase	5	2	2	1	1	6	6	8	8			4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2	29.2
Total Split (s)	25.0	62.0	62.0	25.0	25.0	62.0	62.0	33.0	33.0		33.0	33.0
Total Split (%)	20.8%	51.7%	51.7%	20.8%	20.8%	51.7%	51.7%	27.5%	27.5%		27.5%	27.5%
Maximum Green (s)	19.6	56.5	56.5	19.6	19.6	56.5	56.5	26.8	26.8		26.8	26.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9	2.9
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)	5.4	5.5	5.5		5.4	5.5	5.5	6.2	6.2		6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None	None
Walk Time (s)		14.0	14.0			14.0	14.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)		7.0	7.0			7.0	7.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0			0	0	0	0		0	0
Act Effct Green (s)	78.5	71.5	71.5		85.1	76.6	76.6	21.6	21.6		21.6	21.6
Actuated g/C Ratio	0.65	0.60	0.60		0.71	0.64	0.64	0.18	0.18		0.18	0.18

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	69
Future Volume (vph)	69
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	
Peak Hour Factor	1.00
Heavy Vehicles (%)	22%
Adj. Flow (vph)	69
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Future (2027) Background Traffic
AM Peak Hour

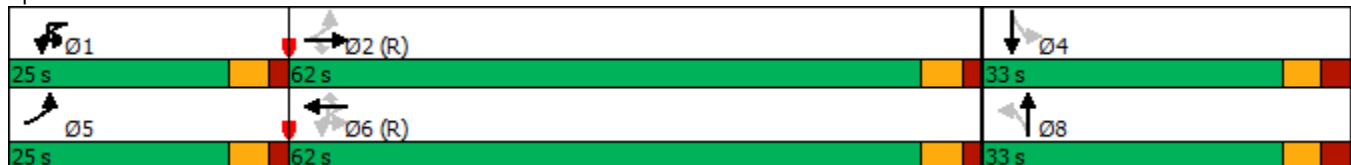


Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio	0.18	0.39	0.01		0.38	0.51	0.08	0.03	0.86		0.61	0.51
Control Delay	7.5	14.7	0.0		4.6	3.9	0.3	58.7	77.6		80.4	39.8
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	7.5	14.7	0.0		4.6	3.9	0.3	58.7	77.6		80.4	39.8
LOS	A	B	A		A	A	A	E	E		F	D
Approach Delay		14.0				3.8			77.3			48.4
Approach LOS		B				A			E			D
Queue Length 50th (m)	3.6	47.4	0.0		3.2	11.1	0.0	1.4	55.8		8.9	25.5
Queue Length 95th (m)	8.4	70.4	0.0		7.2	20.1	0.4	m4.7	77.3		#23.2	44.5
Internal Link Dist (m)		176.9				276.4			194.1			152.4
Turn Bay Length (m)	70.0		45.0		95.0		60.0	40.0			30.0	
Base Capacity (vph)	476	1925	750		573	2043	974	229	416		83	364
Starvation Cap Reductn	0	0	0		0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0		0	0
Reduced v/c Ratio	0.12	0.39	0.01		0.32	0.51	0.08	0.03	0.73		0.49	0.42

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 27 (23%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 18.9 Intersection LOS: B
 Intersection Capacity Utilization 77.1% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

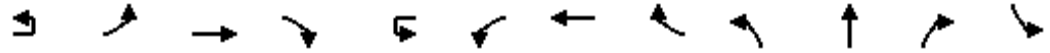
Splits and Phases: 5214: Albion Road South & Hunt Club Road





Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2027) Background Traffic
 1470 Hunt Club Road AM Peak Hour



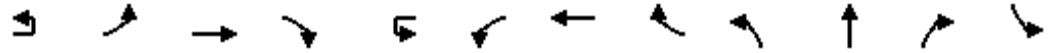
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	143	991	12	7	19	1059	37	23	18	71	74
Future Volume (vph)	1	143	991	12	7	19	1059	37	23	18	71	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99	1.00			1.00		0.96	1.00	0.99		1.00
Frt			0.998					0.850		0.880		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1647	3224	0	0	1729	3172	1547	1729	1514	0	1712
Flt Permitted		0.950				0.950			0.320			0.699
Satd. Flow (perm)	0	1638	3224	0	0	1722	3172	1477	581	1514	0	1255
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			1					141		71		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		9		6		6		9	4		4	4
Confl. Bikes (#/hr)				1				1				
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 (%)	0%	5%	7%	8%	0%	0%	9%	0%	0%	6%	4%	1%
Adj. Flow (vph)	1	143	991	12	7	19	1059	37	23	18	71	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	144	1003	0	0	26	1059	37	23	89	0	74
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	23.0	23.0	66.0		12.0	12.0	55.0	55.0	42.0	42.0		42.0
Total Split (%)	19.2%	19.2%	55.0%		10.0%	10.0%	45.8%	45.8%	35.0%	35.0%		35.0%
Maximum Green (s)	17.1	17.1	60.1		6.1	6.1	49.1	49.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0				0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9				5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		14.6	87.7			6.0	74.5	74.5	12.5	12.5		12.5
Actuated g/C Ratio		0.12	0.73			0.05	0.62	0.62	0.10	0.10		0.10

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2027) Background Traffic
 1470 Hunt Club Road AM Peak Hour



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	7	189
Future Volume (vph)	7	189
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.855	
Flt Protected		
Satd. Flow (prot)	1462	0
Flt Permitted		
Satd. Flow (perm)	1462	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	189	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		4
Confl. Bikes (#/hr)		
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	0%	5%
Adj. Flow (vph)	7	189
Shared Lane Traffic (%)		
Lane Group Flow (vph)	196	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	12.5	
Actuated g/C Ratio	0.10	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2027) Background Traffic
 1470 Hunt Club Road AM Peak Hour

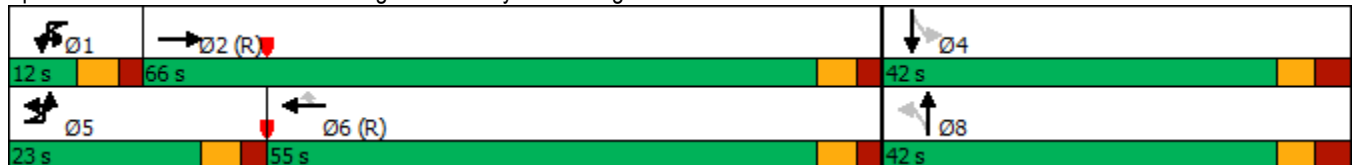


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.72	0.43			0.31	0.54	0.04	0.38	0.40		0.57
Control Delay		65.6	9.8			64.5	15.3	0.1	66.6	20.9		67.0
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		65.6	9.8			64.5	15.3	0.1	66.6	20.9		67.0
LOS		E	A			E	B	A	E	C		E
Approach Delay			16.8				16.0			30.3		
Approach LOS			B				B			C		
Queue Length 50th (m)		31.9	42.4			6.0	71.7	0.0	5.1	3.9		16.9
Queue Length 95th (m)		54.3	86.8			15.4	104.8	0.0	13.3	18.4		31.1
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		234	2357			87	1968	970	170	495		369
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		0.62	0.43			0.30	0.54	0.04	0.14	0.18		0.20

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	86 (72%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	18.4
Intersection LOS:	B
Intersection Capacity Utilization:	76.0%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road



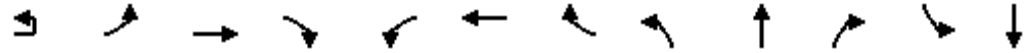
6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2027) Background Traffic
 1470 Hunt Club Road AM Peak Hour



Lane Group	SBT	SBR
v/c Ratio	0.61	
Control Delay	16.1	
Queue Delay	0.0	
Total Delay	16.1	
LOS	B	
Approach Delay	30.0	
Approach LOS	C	
Queue Length 50th (m)	1.5	
Queue Length 95th (m)	22.5	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	563	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.35	
Intersection Summary		

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Future (2027) Background Traffic
AM Peak Hour

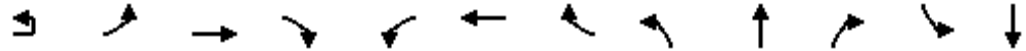


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↗
Traffic Volume (vph)	1	20	397	95	29	993	117	298	214	29	27	130
Future Volume (vph)	1	20	397	95	29	993	117	298	214	29	27	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.97	1.00		0.95	1.00	1.00		1.00	0.99
Fr _t				0.850			0.850		0.982			0.935
Fl _t Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3202	1502	1572	3357	1488	1695	1753	0	1558	1661
Fl _t Permitted		0.950			0.950			0.296			0.608	
Satd. Flow (perm)	0	1718	3202	1464	1567	3357	1419	526	1753	0	996	1661
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				122			122		8			34
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		14		3	3		14	7		2	2	
Confl. Bikes (#/hr)							1			2		
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 (%)	0%	0%	8%	3%	10%	3%	4%	2%	2%	0%	11%	2%
Adj. Flow (vph)	1	20	397	95	29	993	117	298	214	29	27	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	397	95	29	993	117	298	243	0	27	230
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	11.0	11.0	41.0	41.0	12.0	42.0	42.0	23.0	67.0		44.0	44.0
Total Split (%)	9.2%	9.2%	34.2%	34.2%	10.0%	35.0%	35.0%	19.2%	55.8%		36.7%	36.7%
Maximum Green (s)	5.3	5.3	35.3	35.3	6.3	36.3	36.3	18.7	60.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
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)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		5.3	58.3	58.3	6.1	61.1	61.1	44.5	42.4		19.9	19.9
Actuated g/C Ratio		0.04	0.49	0.49	0.05	0.51	0.51	0.37	0.35		0.17	0.17

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	100
Future Volume (vph)	100
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	1
Peak Hour Factor	1.00
Heavy Vehicles (%)	1%
Adj. Flow (vph)	100
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Future (2027) Background Traffic
AM Peak Hour

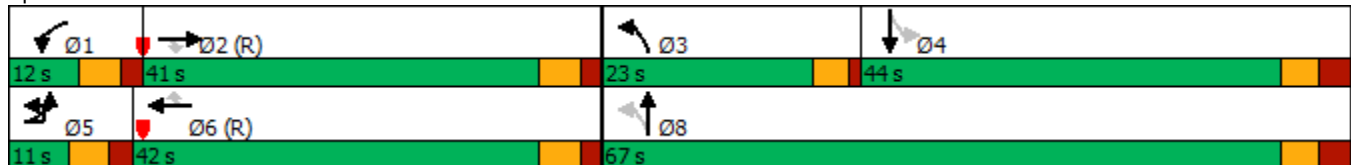


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio		0.28	0.26	0.12	0.36	0.58	0.15	0.80	0.39		0.16	0.76
Control Delay		64.9	21.0	2.4	67.8	24.6	4.2	45.0	28.9		44.9	58.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		64.9	21.0	2.4	67.8	24.6	4.2	45.0	28.9		44.9	58.5
LOS		E	C	A	E	C	A	D	C		D	E
Approach Delay			19.4			23.6			37.8			57.1
Approach LOS			B			C			D			E
Queue Length 50th (m)		4.9	30.7	0.0	6.7	76.8	0.0	52.6	40.8		6.3	48.0
Queue Length 95th (m)		13.3	47.3	6.4	16.7	131.6	10.7	69.7	56.0		m14.8	69.6
Internal Link Dist (m)			155.7			56.6			215.7			194.1
Turn Bay Length (m)		35.0		105.0	60.0		85.0	45.0			45.0	
Base Capacity (vph)		76	1556	774	82	1710	782	376	889		312	543
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio		0.28	0.26	0.12	0.35	0.58	0.15	0.79	0.27		0.09	0.42

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 29.4
 Intersection LOS: C
 Intersection Capacity Utilization 77.6%
 ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6343: Albion Road South & Bank Street





Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

1: Bank Street & Sieveright Avenue
1470 Hunt Club Road

Future (2027) Background Traffic
PM Peak Hour

Intersection							
Int Delay, s/veh	1.5						
Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↘	↕	↕		↘	↗
Traffic Vol, veh/h	1	100	1060	594	26	23	99
Future Vol, veh/h	1	100	1060	594	26	23	99
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	600	-	-	-	300	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	1	1	0	4	0
Mvmt Flow	1	100	1060	594	26	23	99

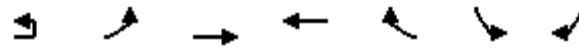
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	620	620	0	-	0	1339
Stage 1	-	-	-	-	-	607
Stage 2	-	-	-	-	-	732
Critical Hdwy	6.4	4.1	-	-	-	6.88
Critical Hdwy Stg 1	-	-	-	-	-	5.88
Critical Hdwy Stg 2	-	-	-	-	-	5.88
Follow-up Hdwy	2.5	2.2	-	-	-	3.54
Pot Cap-1 Maneuver	589	970	-	-	-	142
Stage 1	-	-	-	-	-	501
Stage 2	-	-	-	-	-	432
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	961	961	-	-	-	127
Mov Cap-2 Maneuver	-	-	-	-	-	127
Stage 1	-	-	-	-	-	448
Stage 2	-	-	-	-	-	432

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	961	-	-	-	127	692
HCM Lane V/C Ratio	0.105	-	-	-	0.181	0.143
HCM Control Delay (s)	9.2	-	-	-	39.5	11.1
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.6	0.5

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

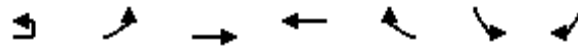
Future (2027) Background Traffic
PM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↘	↕	↕	↗	↘	↗
Traffic Volume (vph)	15	58	1461	1365	103	84	29
Future Volume (vph)	15	58	1461	1365	103	84	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0			45.0	35.0	0.0
Storage Lanes		1			1	1	1
Taper Length (m)		7.6				7.6	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.97	1.00	
Frt					0.850		0.850
Flt Protected		0.950				0.950	
Satd. Flow (prot)	0	1729	3357	3357	1532	1631	1547
Flt Permitted		0.181				0.950	
Satd. Flow (perm)	0	329	3357	3357	1484	1629	1547
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					82		29
Link Speed (k/h)			60	60		50	
Link Distance (m)			163.5	485.0		251.0	
Travel Time (s)			9.8	29.1		18.1	
Confl. Peds. (#/hr)		4			4	1	
Confl. Bikes (#/hr)					1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	3%	3%	1%	6%	0%
Adj. Flow (vph)	15	58	1461	1365	103	84	29
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	73	1461	1365	103	84	29
Turn Type	Perm	Perm	NA	NA	Perm	Prot	Perm
Protected Phases			2	6		4	
Permitted Phases	2	2			6		4
Detector Phase	2	2	2	6	6	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	27.5	27.5	37.7	37.7
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%
Maximum Green (s)	76.5	76.5	76.5	76.5	76.5	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	2.4	2.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.7	5.7
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)				10.0	10.0	7.0	7.0
Flash Dont Walk (s)				12.0	12.0	25.0	25.0
Pedestrian Calls (#/hr)				0	0	0	0
Act Effct Green (s)		100.9	100.9	100.9	100.9	11.5	11.5
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.10	0.10

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

Future (2027) Background Traffic
PM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.26	0.52	0.48	0.08	0.54	0.17
Control Delay		1.5	0.6	13.5	3.0	63.5	18.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		1.5	0.6	13.5	3.0	63.5	18.1
LOS		A	A	B	A	E	B
Approach Delay			0.7	12.7		51.8	
Approach LOS			A	B		D	
Queue Length 50th (m)		0.1	1.1	150.6	5.5	19.2	0.0
Queue Length 95th (m)		m0.2	1.2	187.2	m8.2	34.1	8.7
Internal Link Dist (m)			139.5	461.0		227.0	
Turn Bay Length (m)		100.0			45.0	35.0	
Base Capacity (vph)		276	2822	2822	1260	439	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		0.26	0.52	0.48	0.08	0.19	0.07

Intersection Summary






















Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 22 (18%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 8.2
 Intersection Capacity Utilization 62.9%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service B
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5212: Hunt Club Road & Cahill Drive



5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Future (2027) Background Traffic
PM Peak Hour

												
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	3	118	1258	23	5	310	990	64	7	114	237	48
Future Volume (vph)	3	118	1258	23	5	310	990	64	7	114	237	48
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		70.0		45.0		95.0		60.0	40.0		0.0	30.0
Storage Lanes		1		1		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.97				0.97	0.97	0.99		1.00
Fr _t				0.850				0.850		0.899		
Fl _t Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1619	3357	1547	0	1696	3390	1502	1729	1586	0	1601
Fl _t Permitted		0.276				0.089			0.522			0.184
Satd. Flow (perm)	0	469	3357	1499	0	159	3390	1451	925	1586	0	309
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				78				78		83		
Link Speed (k/h)			60				60			50		
Link Distance (m)			200.9				300.4			218.1		
Travel Time (s)			12.1				18.0			15.7		
Confl. Peds. (#/hr)		5		4		4		5	24		6	6
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 (%)	0%	7%	3%	0%	0%	2%	2%	3%	0%	1%	2%	8%
Adj. Flow (vph)	3	118	1258	23	5	310	990	64	7	114	237	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	121	1258	23	0	315	990	64	7	351	0	48
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases	2	2		2	6	6		6	8			4
Detector Phase	5	5	2	2	1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.4	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2
Total Split (s)	26.0	26.0	55.0	55.0	29.0	29.0	58.0	58.0	36.0	36.0		36.0
Total Split (%)	21.7%	21.7%	45.8%	45.8%	24.2%	24.2%	48.3%	48.3%	30.0%	30.0%		30.0%
Maximum Green (s)	20.6	20.6	49.5	49.5	23.6	23.6	52.5	52.5	29.8	29.8		29.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	1.7	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0			0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.4	5.5	5.5			5.4	5.5	5.5	6.2		6.2
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None
Walk Time (s)			14.0	14.0			14.0	14.0	7.0	7.0		7.0
Flash Dont Walk (s)			7.0	7.0			7.0	7.0	16.0	16.0		16.0
Pedestrian Calls (#/hr)			0	0			0	0	0	0		0
Act Effct Green (s)		65.1	56.4	56.4			83.2	69.0	69.0	25.2	25.2	25.2
Actuated g/C Ratio		0.54	0.47	0.47			0.69	0.58	0.58	0.21	0.21	0.21
v/c Ratio		0.36	0.80	0.03			0.82	0.51	0.07	0.04	0.88	0.75

5214: Albion Road South & Hunt Club Road
 1470 Hunt Club Road

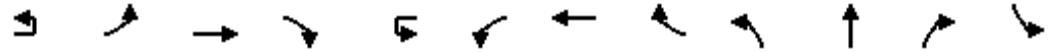
Future (2027) Background Traffic
 PM Peak Hour



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	133	52
Future Volume (vph)	133	52
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.99	
Frt	0.958	
Flt Protected		
Satd. Flow (prot)	1668	0
Flt Permitted		
Satd. Flow (perm)	1668	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	16	
Link Speed (k/h)	50	
Link Distance (m)	176.4	
Travel Time (s)	12.7	
Confl. Peds. (#/hr)		24
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	2%	6%
Adj. Flow (vph)	133	52
Shared Lane Traffic (%)		
Lane Group Flow (vph)	185	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	29.2	
Total Split (s)	36.0	
Total Split (%)	30.0%	
Maximum Green (s)	29.8	
Yellow Time (s)	3.3	
All-Red Time (s)	2.9	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.2	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	7.0	
Flash Dont Walk (s)	16.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	25.2	
Actuated g/C Ratio	0.21	
v/c Ratio	0.51	

5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Future (2027) Background Traffic
PM Peak Hour

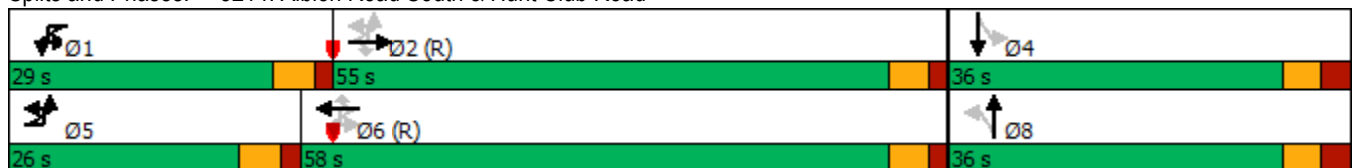


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Control Delay		12.1	33.4	0.1		31.2	29.3	9.8	29.3	52.0		100.4
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		12.1	33.4	0.1		31.2	29.3	9.8	29.3	52.0		100.4
LOS		B	C	A		C	C	A	C	D		F
Approach Delay			31.0				28.8			51.6		
Approach LOS			C				C			D		
Queue Length 50th (m)		9.0	137.8	0.0		61.1	127.8	6.0	1.3	69.0		10.5
Queue Length 95th (m)		16.9	#187.6	0.0		#88.2	149.2	14.4	m4.1	#93.1		#29.7
Internal Link Dist (m)			176.9				276.4			194.1		
Turn Bay Length (m)		70.0		45.0		95.0		60.0	40.0			30.0
Base Capacity (vph)		498	1577	745		412	1949	867	229	456		76
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		0.24	0.80	0.03		0.76	0.51	0.07	0.03	0.77		0.63

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 96 (80%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 33.9 Intersection LOS: C
 Intersection Capacity Utilization 100.8% ICU Level of Service G
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

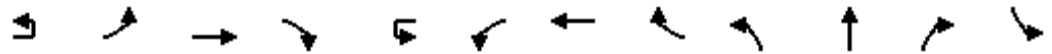
Splits and Phases: 5214: Albion Road South & Hunt Club Road





Lane Group	SBT	SBR
Control Delay	42.3	
Queue Delay	0.0	
Total Delay	42.3	
LOS	D	
Approach Delay	54.3	
Approach LOS	D	
Queue Length 50th (m)	34.7	
Queue Length 95th (m)	55.4	
Internal Link Dist (m)	152.4	
Turn Bay Length (m)		
Base Capacity (vph)	426	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.43	
Intersection Summary		

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2027) Background Traffic
 1470 Hunt Club Road PM Peak Hour



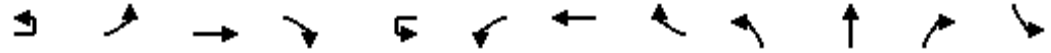
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	247	1260	31	2	61	1291	41	15	18	34	57
Future Volume (vph)	1	247	1260	31	2	61	1291	41	15	18	34	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00						0.97	0.99	0.99		1.00
Frt			0.996					0.850		0.902		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1695	3312	0	0	1729	3390	1547	1729	1596	0	1729
Flt Permitted		0.950				0.950			0.377			0.723
Satd. Flow (perm)	0	1694	3312	0	0	1729	3390	1508	682	1596	0	1315
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			3					141		34		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		2						2	7		1	1
Confl. Bikes (#/hr)												
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 (%)	0%	2%	4%	3%	0%	0%	2%	0%	0%	0%	3%	0%
Adj. Flow (vph)	1	247	1260	31	2	61	1291	41	15	18	34	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	248	1291	0	0	63	1291	41	15	52	0	57
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	29.0	29.0	65.0		13.0	13.0	49.0	49.0	42.0	42.0		42.0
Total Split (%)	24.2%	24.2%	54.2%		10.8%	10.8%	40.8%	40.8%	35.0%	35.0%		35.0%
Maximum Green (s)	23.1	23.1	59.1		7.1	7.1	43.1	43.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0				0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9				5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		21.0	86.4			6.9	69.9	69.9	10.6	10.6		10.6
Actuated g/C Ratio		0.18	0.72			0.06	0.58	0.58	0.09	0.09		0.09

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2027) Background Traffic
 1470 Hunt Club Road PM Peak Hour



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	19	159
Future Volume (vph)	19	159
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.866	
Flt Protected		
Satd. Flow (prot)	1535	0
Flt Permitted		
Satd. Flow (perm)	1535	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	159	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		1
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	19	159
Shared Lane Traffic (%)		
Lane Group Flow (vph)	178	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	10.6	
Actuated g/C Ratio	0.09	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2027) Background Traffic
 1470 Hunt Club Road PM Peak Hour

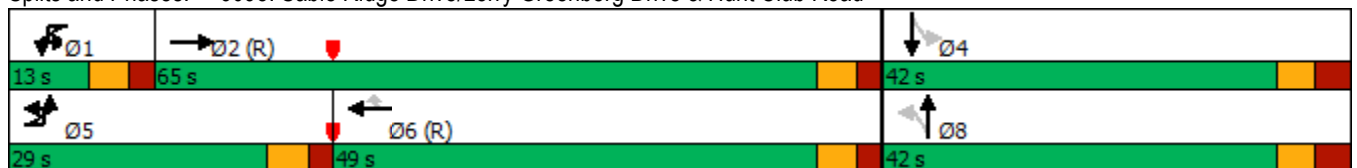


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.84	0.54			0.64	0.65	0.04	0.25	0.30		0.49
Control Delay		63.8	13.0			82.8	20.0	0.1	59.4	28.0		65.2
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		63.8	13.0			82.8	20.0	0.1	59.4	28.0		65.2
LOS		E	B			F	B	A	E	C		E
Approach Delay			21.2				22.2			35.1		
Approach LOS			C				C			D		
Queue Length 50th (m)		44.7	131.4			14.8	107.1	0.0	3.4	4.0		13.0
Queue Length 95th (m)		#89.8	158.8			#34.7	144.5	0.0	10.0	15.5		25.7
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		326	2385			102	1974	937	200	493		386
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		0.76	0.54			0.62	0.65	0.04	0.07	0.11		0.15

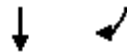
Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 97 (81%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 22.7 Intersection LOS: C
 Intersection Capacity Utilization 83.2% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road



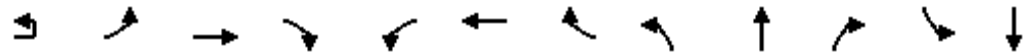
6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road (2027) Background Traffic
 1470 Hunt Club Road PM Peak Hour



Lane Group	SBT	SBR
v/c Ratio	0.64	
Control Delay	21.1	
Queue Delay	0.0	
Total Delay	21.1	
LOS	C	
Approach Delay	31.8	
Approach LOS	C	
Queue Length 50th (m)	4.2	
Queue Length 95th (m)	25.1	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	563	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.32	
Intersection Summary		

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Future (2027) Background Traffic
PM Peak Hour



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↖	↗	↖	↖	↗	↖	↖	↗		↖	↗
Traffic Volume (vph)	1	69	980	279	43	616	145	158	169	44	177	255
Future Volume (vph)	1	69	980	279	43	616	145	158	169	44	177	255
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.98	1.00		0.96	1.00	1.00		1.00	1.00
Fr _t				0.850			0.850		0.969			0.977
Fl _t Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3424	1547	1695	3424	1502	1729	1736	0	1712	1773
Fl _t Permitted		0.950			0.950			0.257			0.625	
Satd. Flow (perm)	0	1716	3424	1510	1694	3424	1440	467	1736	0	1122	1773
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				279			145		13			8
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		10		1	1		10	5		5	5	
Confl. Bikes (#/hr)				2			3			1		
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 (%)	0%	0%	1%	0%	2%	1%	3%	0%	1%	2%	1%	0%
Adj. Flow (vph)	1	69	980	279	43	616	145	158	169	44	177	255
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	70	980	279	43	616	145	158	213	0	177	302
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	20.0	20.0	45.0	45.0	20.0	45.0	45.0	11.0	55.0		44.0	44.0
Total Split (%)	16.7%	16.7%	37.5%	37.5%	16.7%	37.5%	37.5%	9.2%	45.8%		36.7%	36.7%
Maximum Green (s)	14.3	14.3	39.3	39.3	14.3	39.3	39.3	6.7	48.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
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)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		10.2	58.9	58.9	8.5	57.3	57.3	39.2	37.1		26.1	26.1
Actuated g/C Ratio		0.08	0.49	0.49	0.07	0.48	0.48	0.33	0.31		0.22	0.22

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	47
Future Volume (vph)	47
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	3
Peak Hour Factor	1.00
Heavy Vehicles (%)	0%
Adj. Flow (vph)	47
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	



Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

1: Bank Street & Sieveright Avenue
1470 Hunt Club Road

Future (2022) Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	42	446	997	27	31	116
Future Vol, veh/h	42	446	997	27	31	116
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	600	-	-	-	300	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	6	5	8	10	4
Mvmt Flow	42	446	997	27	31	116

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1026	0	-	0	1320 514
Stage 1	-	-	-	-	1013 -
Stage 2	-	-	-	-	307 -
Critical Hdwy	4.14	-	-	-	7 6.98
Critical Hdwy Stg 1	-	-	-	-	6 -
Critical Hdwy Stg 2	-	-	-	-	6 -
Follow-up Hdwy	2.22	-	-	-	3.6 3.34
Pot Cap-1 Maneuver	673	-	-	-	138 500
Stage 1	-	-	-	-	294 -
Stage 2	-	-	-	-	696 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	672	-	-	-	129 499
Mov Cap-2 Maneuver	-	-	-	-	129 -
Stage 1	-	-	-	-	275 -
Stage 2	-	-	-	-	695 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	20.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	672	-	-	-	129	499
HCM Lane V/C Ratio	0.063	-	-	-	0.24	0.232
HCM Control Delay (s)	10.7	-	-	-	41.5	14.4
HCM Lane LOS	B	-	-	-	E	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.9	0.9

2: Site Access & Hunt Club Road
1470 Hunt Club Road

Future (2022) Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Vol, veh/h	1065	38	0	1264	0	14
Future Vol, veh/h	1065	38	0	1264	0	14
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, %	6	0	0	5	0	0
Mvmt Flow	1065	38	0	1264	0	14

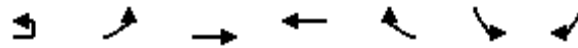
Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	552
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	483
Stage 1	-	-	0	-	-
Stage 2	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	483
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	483	-	-	-
HCM Lane V/C Ratio	0.029	-	-	-
HCM Control Delay (s)	12.7	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

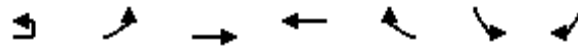
Future (2022) Total Traffic
AM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↘	↕	↕	↗	↘	↗
Traffic Volume (vph)	13	15	1051	1205	54	77	46
Future Volume (vph)	13	15	1051	1205	54	77	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0			45.0	35.0	0.0
Storage Lanes		1			1	1	1
Taper Length (m)		7.6				7.6	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.98	0.99	
Frt					0.850		0.850
Flt Protected		0.950				0.950	
Satd. Flow (prot)	0	1729	3293	3262	1345	1679	1547
Flt Permitted		0.220				0.950	
Satd. Flow (perm)	0	400	3293	3262	1317	1669	1547
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					49		46
Link Speed (k/h)			60	60		50	
Link Distance (m)			163.5	485.0		251.0	
Travel Time (s)			9.8	29.1		18.1	
Confl. Peds. (#/hr)						5	
Confl. Bikes (#/hr)					2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	5%	6%	15%	3%	0%
Adj. Flow (vph)	13	15	1051	1205	54	77	46
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	28	1051	1205	54	77	46
Turn Type	Perm	Perm	NA	NA	Perm	Prot	Perm
Protected Phases			2	6		4	
Permitted Phases	2	2			6		4
Detector Phase	2	2	2	6	6	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	27.5	27.5	37.7	37.7
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%
Maximum Green (s)	76.5	76.5	76.5	76.5	76.5	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	2.4	2.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.7	5.7
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)				10.0	10.0	7.0	7.0
Flash Dont Walk (s)				12.0	12.0	25.0	25.0
Pedestrian Calls (#/hr)				0	0	0	0
Act Effct Green (s)		101.5	101.5	101.5	101.5	10.9	10.9
Actuated g/C Ratio		0.85	0.85	0.85	0.85	0.09	0.09

5212: Hunt Club Road & Cahill Drive
 1470 Hunt Club Road

Future (2022) Total Traffic
 AM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.08	0.38	0.44	0.05	0.51	0.25
Control Delay		4.5	4.1	4.3	0.4	62.8	17.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		4.5	4.1	4.3	0.4	62.8	17.3
LOS		A	A	A	A	E	B
Approach Delay			4.1	4.2		45.8	
Approach LOS			A	A		D	
Queue Length 50th (m)		0.9	21.7	89.2	0.4	17.6	0.0
Queue Length 95th (m)		m4.7	61.2	3.2	m0.0	31.9	10.8
Internal Link Dist (m)			139.5	461.0		227.0	
Turn Bay Length (m)		100.0			45.0	35.0	
Base Capacity (vph)		338	2784	2758	1121	451	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		0.08	0.38	0.44	0.05	0.17	0.10

Intersection Summary























Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.51
 Intersection Signal Delay: 6.2
 Intersection LOS: A
 Intersection Capacity Utilization 49.0%
 ICU Level of Service A
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5212: Hunt Club Road & Cahill Drive



5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

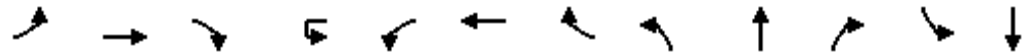
Future (2022) Total Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	58	758	8	21	172	1024	79	6	90	213	42	84
Future Volume (vph)	58	758	8	21	172	1024	79	6	90	213	42	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		45.0		95.0		60.0	40.0		0.0	30.0	
Storage Lanes	1		1		1		1	1		0	1	
Taper Length (m)	7.6				7.6			7.6			7.6	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		0.97	0.99	0.99		1.00	0.99
Frt			0.850				0.850		0.895			0.932
Flt Protected	0.950				0.950			0.950			0.950	
Satd. Flow (prot)	1572	3232	1238	0	1669	3202	1532	1729	1547	0	1695	1520
Flt Permitted	0.244				0.303			0.570			0.210	
Satd. Flow (perm)	404	3232	1206	0	532	3202	1483	1029	1547	0	374	1520
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			78				78		91			32
Link Speed (k/h)		60				60			50			50
Link Distance (m)		200.9				300.4			218.1			176.4
Travel Time (s)		12.1				18.0			15.7			12.7
Confl. Peds. (#/hr)	4		2		2		4	7		2	2	
Confl. Bikes (#/hr)							1					
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 (%)	10%	7%	25%	0%	4%	8%	1%	0%	7%	3%	2%	1%
Adj. Flow (vph)	58	758	8	21	172	1024	79	6	90	213	42	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	758	8	0	193	1024	79	6	303	0	42	153
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases	2		2	6	6		6	8				4
Detector Phase	5	2	2	1	1	6	6	8	8			4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2	29.2
Total Split (s)	25.0	62.0	62.0	25.0	25.0	62.0	62.0	33.0	33.0		33.0	33.0
Total Split (%)	20.8%	51.7%	51.7%	20.8%	20.8%	51.7%	51.7%	27.5%	27.5%		27.5%	27.5%
Maximum Green (s)	19.6	56.5	56.5	19.6	19.6	56.5	56.5	26.8	26.8		26.8	26.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9	2.9
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)	5.4	5.5	5.5		5.4	5.5	5.5	6.2	6.2		6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None	None
Walk Time (s)		14.0	14.0			14.0	14.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)		7.0	7.0			7.0	7.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0			0	0	0	0		0	0
Act Effct Green (s)	78.2	71.2	71.2		85.4	76.6	76.6	21.6	21.6		21.6	21.6
Actuated g/C Ratio	0.65	0.59	0.59		0.71	0.64	0.64	0.18	0.18		0.18	0.18

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	69
Future Volume (vph)	69
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	
Peak Hour Factor	1.00
Heavy Vehicles (%)	22%
Adj. Flow (vph)	69
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

5214: Albion Road South & Hunt Club Road
 1470 Hunt Club Road

Future (2022) Total Traffic
 AM Peak Hour

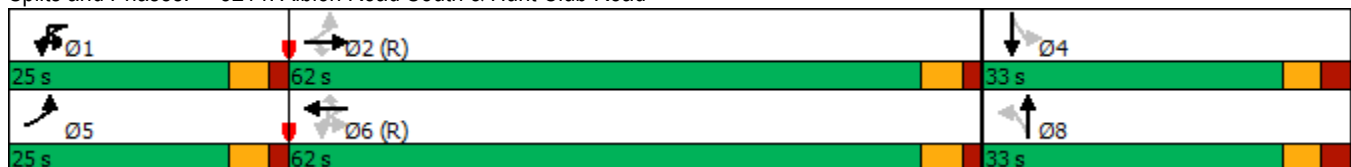


Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio	0.18	0.40	0.01		0.41	0.50	0.08	0.03	0.86		0.63	0.51
Control Delay	7.5	14.9	0.0		5.4	4.0	0.3	61.3	77.6		82.3	39.8
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	7.5	14.9	0.0		5.4	4.0	0.3	61.3	77.6		82.3	39.8
LOS	A	B	A		A	A	A	E	E		F	D
Approach Delay		14.2				4.0			77.2			49.0
Approach LOS		B				A			E			D
Queue Length 50th (m)	3.6	48.2	0.0		3.6	11.4	0.0	1.4	55.8		9.1	25.5
Queue Length 95th (m)	8.4	71.9	0.0		7.7	20.7	0.4	m4.7	77.2		#23.6	44.5
Internal Link Dist (m)		176.9				276.4			194.1			152.4
Turn Bay Length (m)	70.0		45.0		95.0		60.0	40.0			30.0	
Base Capacity (vph)	482	1917	747		570	2043	974	229	416		83	364
Starvation Cap Reductn	0	0	0		0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0		0	0
Reduced v/c Ratio	0.12	0.40	0.01		0.34	0.50	0.08	0.03	0.73		0.51	0.42

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 27 (23%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 19.2
 Intersection LOS: B
 Intersection Capacity Utilization 76.6%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

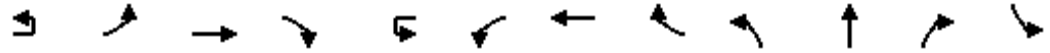
Splits and Phases: 5214: Albion Road South & Hunt Club Road



↙

Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2022) Total Traffic
 1470 Hunt Club Road AM Peak Hour



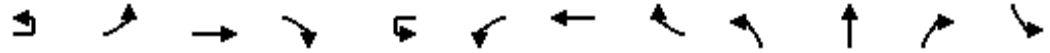
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↘	↕			↘	↕	↘	↘	↘		↘
Traffic Volume (vph)	1	143	972	12	7	19	1044	37	23	18	71	74
Future Volume (vph)	1	143	972	12	7	19	1044	37	23	18	71	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99	1.00			1.00		0.96	1.00	0.99		1.00
Frt			0.998					0.850		0.880		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1647	3223	0	0	1729	3172	1547	1729	1514	0	1712
Flt Permitted		0.950				0.950			0.320			0.699
Satd. Flow (perm)	0	1638	3223	0	0	1722	3172	1477	581	1514	0	1255
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			1					141		71		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		9		6		6		9	4		4	4
Confl. Bikes (#/hr)				1				1				
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 (%)	0%	5%	7%	8%	0%	0%	9%	0%	0%	6%	4%	1%
Adj. Flow (vph)	1	143	972	12	7	19	1044	37	23	18	71	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	144	984	0	0	26	1044	37	23	89	0	74
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	23.0	23.0	66.0		12.0	12.0	55.0	55.0	42.0	42.0		42.0
Total Split (%)	19.2%	19.2%	55.0%		10.0%	10.0%	45.8%	45.8%	35.0%	35.0%		35.0%
Maximum Green (s)	17.1	17.1	60.1		6.1	6.1	49.1	49.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0				0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9				5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		14.6	87.7			6.0	74.5	74.5	12.5	12.5		12.5
Actuated g/C Ratio		0.12	0.73			0.05	0.62	0.62	0.10	0.10		0.10

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2022) Total Traffic
 1470 Hunt Club Road AM Peak Hour



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	7	190
Future Volume (vph)	7	190
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.855	
Flt Protected		
Satd. Flow (prot)	1462	0
Flt Permitted		
Satd. Flow (perm)	1462	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	190	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		4
Confl. Bikes (#/hr)		
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	0%	5%
Adj. Flow (vph)	7	190
Shared Lane Traffic (%)		
Lane Group Flow (vph)	197	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	12.5	
Actuated g/C Ratio	0.10	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2022) Total Traffic
 1470 Hunt Club Road AM Peak Hour

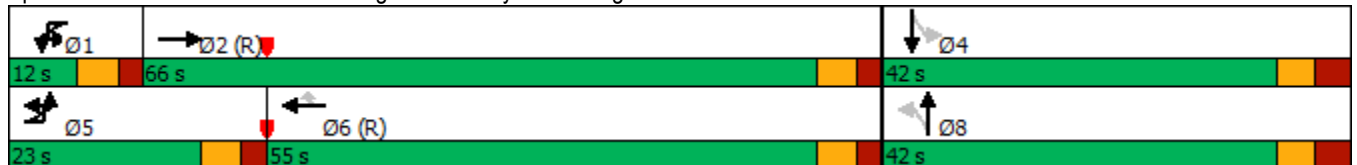


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.72	0.42			0.31	0.53	0.04	0.38	0.40		0.57
Control Delay		65.3	10.0			64.5	15.2	0.1	66.6	20.9		67.0
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		65.3	10.0			64.5	15.2	0.1	66.6	20.9		67.0
LOS		E	A			E	B	A	E	C		E
Approach Delay			17.0				15.8			30.3		
Approach LOS			B				B			C		
Queue Length 50th (m)		32.0	40.8			6.0	70.2	0.0	5.1	3.9		16.9
Queue Length 95th (m)		54.4	87.3			15.4	102.8	0.0	13.3	18.4		31.1
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		234	2356			87	1968	970	170	495		369
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		0.62	0.42			0.30	0.53	0.04	0.14	0.18		0.20

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	86 (72%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	18.4
Intersection LOS:	B
Intersection Capacity Utilization:	75.6%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road

























6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2022) Total Traffic
 1470 Hunt Club Road AM Peak Hour



Lane Group	SBT	SBR
v/c Ratio	0.61	
Control Delay	16.1	
Queue Delay	0.0	
Total Delay	16.1	
LOS	B	
Approach Delay	30.0	
Approach LOS	C	
Queue Length 50th (m)	1.5	
Queue Length 95th (m)	22.5	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	564	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.35	
Intersection Summary		

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Future (2022) Total Traffic
AM Peak Hour

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	20	388	95	30	970	117	298	214	31	27	130
Future Volume (vph)	1	20	388	95	30	970	117	298	214	31	27	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.97	1.00		0.95	1.00	1.00		1.00	0.99
Frt				0.850			0.850		0.981			0.935
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3202	1502	1572	3357	1488	1695	1751	0	1558	1661
Flt Permitted		0.950			0.950			0.296			0.607	
Satd. Flow (perm)	0	1718	3202	1464	1567	3357	1419	526	1751	0	994	1661
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				122			122		9			34
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		14		3	3		14	7		2	2	
Confl. Bikes (#/hr)							1			2		
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 (%)	0%	0%	8%	3%	10%	3%	4%	2%	2%	0%	11%	2%
Adj. Flow (vph)	1	20	388	95	30	970	117	298	214	31	27	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	388	95	30	970	117	298	245	0	27	230
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	11.0	11.0	41.0	41.0	12.0	42.0	42.0	23.0	67.0		44.0	44.0
Total Split (%)	9.2%	9.2%	34.2%	34.2%	10.0%	35.0%	35.0%	19.2%	55.8%		36.7%	36.7%
Maximum Green (s)	5.3	5.3	35.3	35.3	6.3	36.3	36.3	18.7	60.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
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)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		5.3	58.3	58.3	6.1	61.1	61.1	44.5	42.4		19.9	19.9
Actuated g/C Ratio		0.04	0.49	0.49	0.05	0.51	0.51	0.37	0.35		0.17	0.17

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	100
Future Volume (vph)	100
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	1
Peak Hour Factor	1.00
Heavy Vehicles (%)	1%
Adj. Flow (vph)	100
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

↙

Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

1: Bank Street & Sieveright Avenue
1470 Hunt Club Road

Future (2022) Total Traffic
PM Peak Hour

Intersection							
Int Delay, s/veh	1.7						
Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↘	↕	↕		↘	↘
Traffic Vol, veh/h	1	101	1034	580	28	27	105
Future Vol, veh/h	1	101	1034	580	28	27	105
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	600	-	-	-	300	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	1	1	0	4	0
Mvmt Flow	1	101	1034	580	28	27	105

Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	608	608	0	-	0	1315	304
Stage 1	-	-	-	-	-	594	-
Stage 2	-	-	-	-	-	721	-
Critical Hdwy	6.4	4.1	-	-	-	6.88	6.9
Critical Hdwy Stg 1	-	-	-	-	-	5.88	-
Critical Hdwy Stg 2	-	-	-	-	-	5.88	-
Follow-up Hdwy	2.5	2.2	-	-	-	3.54	3.3
Pot Cap-1 Maneuver	599	980	-	-	-	147	698
Stage 1	-	-	-	-	-	509	-
Stage 2	-	-	-	-	-	437	-
Platoon blocked, %			-	-	-		
Mov Cap-1 Maneuver	971	971	-	-	-	132	698
Mov Cap-2 Maneuver	-	-	-	-	-	132	-
Stage 1	-	-	-	-	-	456	-
Stage 2	-	-	-	-	-	437	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	16.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	971	-	-	-	132	698
HCM Lane V/C Ratio	0.105	-	-	-	0.205	0.15
HCM Control Delay (s)	9.1	-	-	-	39.2	11.1
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.7	0.5

2: Site Access & Hunt Club Road
1470 Hunt Club Road

Future (2022) Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Vol, veh/h	1496	23	0	1412	0	42
Future Vol, veh/h	1496	23	0	1412	0	42
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, %	3	0	0	2	0	0
Mvmt Flow	1496	23	0	1412	0	42

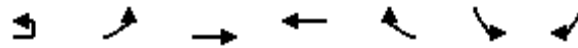
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	760
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	353
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	353
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	353	-	-	-
HCM Lane V/C Ratio	0.119	-	-	-
HCM Control Delay (s)	16.6	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

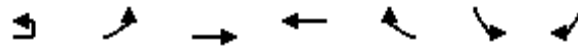
Future (2022) Total Traffic
PM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↙	↕	↕	↘	↘	↘
Traffic Volume (vph)	42	59	1439	1339	103	84	30
Future Volume (vph)	42	59	1439	1339	103	84	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0			45.0	35.0	0.0
Storage Lanes		1			1	1	1
Taper Length (m)		7.6				7.6	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.97	1.00	
Frt					0.850		0.850
Flt Protected		0.950				0.950	
Satd. Flow (prot)	0	1729	3357	3357	1532	1631	1547
Flt Permitted		0.187				0.950	
Satd. Flow (perm)	0	340	3357	3357	1484	1629	1547
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					84		30
Link Speed (k/h)			60	60		50	
Link Distance (m)			163.5	485.0		251.0	
Travel Time (s)			9.8	29.1		18.1	
Confl. Peds. (#/hr)		4			4	1	
Confl. Bikes (#/hr)					1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	3%	3%	1%	6%	0%
Adj. Flow (vph)	42	59	1439	1339	103	84	30
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	101	1439	1339	103	84	30
Turn Type	Perm	Perm	NA	NA	Perm	Prot	Perm
Protected Phases			2	6		4	
Permitted Phases	2	2			6		4
Detector Phase	2	2	2	6	6	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	27.5	27.5	37.7	37.7
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%
Maximum Green (s)	76.5	76.5	76.5	76.5	76.5	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	2.4	2.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.7	5.7
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)				10.0	10.0	7.0	7.0
Flash Dont Walk (s)				12.0	12.0	25.0	25.0
Pedestrian Calls (#/hr)				0	0	0	0
Act Effct Green (s)		100.9	100.9	100.9	100.9	11.5	11.5
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.10	0.10

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

Future (2022) Total Traffic
PM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.35	0.51	0.47	0.08	0.54	0.17
Control Delay		2.3	0.6	13.3	3.0	63.5	18.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		2.3	0.6	13.3	3.0	63.5	18.0
LOS		A	A	B	A	E	B
Approach Delay			0.7	12.6		51.5	
Approach LOS			A	B		D	
Queue Length 50th (m)		0.3	2.0	145.6	5.5	19.2	0.0
Queue Length 95th (m)		m0.4	2.5	183.7	m8.5	34.1	8.7
Internal Link Dist (m)			139.5	461.0		227.0	
Turn Bay Length (m)		100.0			45.0	35.0	
Base Capacity (vph)		286	2822	2822	1261	439	438
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		0.35	0.51	0.47	0.08	0.19	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 22 (18%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 8.1
 Intersection LOS: A
 Intersection Capacity Utilization 63.8%
 ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5212: Hunt Club Road & Cahill Drive



5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Future (2022) Total Traffic
PM Peak Hour

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	3	118	1242	23	12	310	994	65	7	114	237	49
Future Volume (vph)	3	118	1242	23	12	310	994	65	7	114	237	49
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		70.0		45.0		95.0		60.0	40.0		0.0	30.0
Storage Lanes		1		1		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.97				0.97	0.97	0.99		1.00
Frt				0.850				0.850		0.899		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1619	3357	1547	0	1696	3390	1502	1729	1586	0	1601
Flt Permitted		0.275				0.092			0.522			0.184
Satd. Flow (perm)	0	468	3357	1499	0	164	3390	1451	925	1586	0	309
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				78				78		83		
Link Speed (k/h)			60				60			50		
Link Distance (m)			200.9				300.4			218.1		
Travel Time (s)			12.1				18.0			15.7		
Confl. Peds. (#/hr)		5		4		4		5	24		6	6
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 (%)	0%	7%	3%	0%	0%	2%	2%	3%	0%	1%	2%	8%
Adj. Flow (vph)	3	118	1242	23	12	310	994	65	7	114	237	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	121	1242	23	0	322	994	65	7	351	0	49
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases	2	2		2	6	6		6	8			4
Detector Phase	5	5	2	2	1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.4	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2
Total Split (s)	26.0	26.0	55.0	55.0	29.0	29.0	58.0	58.0	36.0	36.0		36.0
Total Split (%)	21.7%	21.7%	45.8%	45.8%	24.2%	24.2%	48.3%	48.3%	30.0%	30.0%		30.0%
Maximum Green (s)	20.6	20.6	49.5	49.5	23.6	23.6	52.5	52.5	29.8	29.8		29.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	1.7	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0			0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.4	5.5	5.5			5.4	5.5	5.5	6.2		6.2
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None
Walk Time (s)			14.0	14.0			14.0	14.0	7.0	7.0		7.0
Flash Dont Walk (s)			7.0	7.0			7.0	7.0	16.0	16.0		16.0
Pedestrian Calls (#/hr)			0	0			0	0	0	0		0
Act Effct Green (s)		64.9	56.2	56.2			83.2	69.0	69.0	25.2	25.2	25.2
Actuated g/C Ratio		0.54	0.47	0.47			0.69	0.58	0.58	0.21	0.21	0.21
v/c Ratio		0.36	0.79	0.03			0.83	0.51	0.07	0.04	0.88	0.77

5214: Albion Road South & Hunt Club Road
 1470 Hunt Club Road

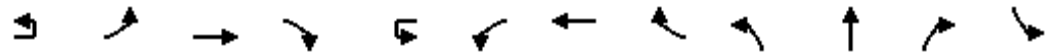
Future (2022) Total Traffic
 PM Peak Hour



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	133	52
Future Volume (vph)	133	52
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.99	
Frt	0.958	
Flt Protected		
Satd. Flow (prot)	1668	0
Flt Permitted		
Satd. Flow (perm)	1668	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	16	
Link Speed (k/h)	50	
Link Distance (m)	176.4	
Travel Time (s)	12.7	
Confl. Peds. (#/hr)		24
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	2%	6%
Adj. Flow (vph)	133	52
Shared Lane Traffic (%)		
Lane Group Flow (vph)	185	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	29.2	
Total Split (s)	36.0	
Total Split (%)	30.0%	
Maximum Green (s)	29.8	
Yellow Time (s)	3.3	
All-Red Time (s)	2.9	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.2	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	7.0	
Flash Dont Walk (s)	16.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	25.2	
Actuated g/C Ratio	0.21	
v/c Ratio	0.51	

5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Future (2022) Total Traffic
PM Peak Hour

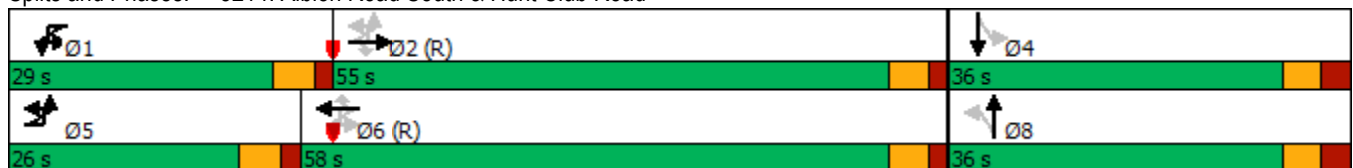


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Control Delay		12.1	33.2	0.1		32.2	29.5	10.2	29.4	52.0		103.2
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		12.1	33.2	0.1		32.2	29.5	10.2	29.4	52.0		103.2
LOS		B	C	A		C	C	B	C	D		F
Approach Delay			30.8				29.2			51.6		
Approach LOS			C				C			D		
Queue Length 50th (m)		9.0	135.1	0.0		65.7	128.1	6.3	1.3	69.1		10.7
Queue Length 95th (m)		16.9	#177.2	0.0		#90.2	149.6	15.3	m4.1	#93.3		#30.7
Internal Link Dist (m)			176.9				276.4			194.1		
Turn Bay Length (m)		70.0		45.0		95.0		60.0	40.0			30.0
Base Capacity (vph)		497	1571	743		414	1949	867	229	456		76
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		0.24	0.79	0.03		0.78	0.51	0.07	0.03	0.77		0.64

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 96 (80%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 34.0
 Intersection LOS: C
 Intersection Capacity Utilization 100.8%
 ICU Level of Service G
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

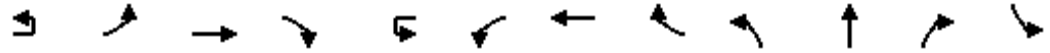
Splits and Phases: 5214: Albion Road South & Hunt Club Road





Lane Group	SBT	SBR
Control Delay	42.3	
Queue Delay	0.0	
Total Delay	42.3	
LOS	D	
Approach Delay	55.1	
Approach LOS	E	
Queue Length 50th (m)	34.7	
Queue Length 95th (m)	55.4	
Internal Link Dist (m)	152.4	
Turn Bay Length (m)		
Base Capacity (vph)	426	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.43	
Intersection Summary		

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2022) Total Traffic
 1470 Hunt Club Road PM Peak Hour



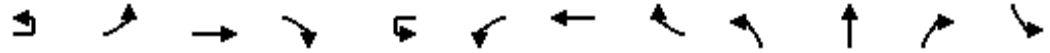
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	248	1242	31	2	61	1266	41	15	18	34	57
Future Volume (vph)	1	248	1242	31	2	61	1266	41	15	18	34	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00						0.97	0.99	0.99		1.00
Frt			0.996					0.850		0.902		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1695	3312	0	0	1729	3390	1547	1729	1596	0	1729
Flt Permitted		0.950				0.950			0.377			0.723
Satd. Flow (perm)	0	1694	3312	0	0	1729	3390	1508	682	1596	0	1315
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			3					141		34		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		2						2	7		1	1
Confl. Bikes (#/hr)												
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 (%)	0%	2%	4%	3%	0%	0%	2%	0%	0%	0%	3%	0%
Adj. Flow (vph)	1	248	1242	31	2	61	1266	41	15	18	34	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	249	1273	0	0	63	1266	41	15	52	0	57
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	29.0	29.0	65.0		13.0	13.0	49.0	49.0	42.0	42.0		42.0
Total Split (%)	24.2%	24.2%	54.2%		10.8%	10.8%	40.8%	40.8%	35.0%	35.0%		35.0%
Maximum Green (s)	23.1	23.1	59.1		7.1	7.1	43.1	43.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0				0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9				5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		21.0	86.4			6.9	69.9	69.9	10.6	10.6		10.6
Actuated g/C Ratio		0.18	0.72			0.06	0.58	0.58	0.09	0.09		0.09

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2022) Total Traffic
 1470 Hunt Club Road PM Peak Hour



Lane Group	SBT	SBR
Lane Configurations	↔	
Traffic Volume (vph)	19	160
Future Volume (vph)	19	160
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.866	
Flt Protected		
Satd. Flow (prot)	1535	0
Flt Permitted		
Satd. Flow (perm)	1535	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	160	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		1
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	19	160
Shared Lane Traffic (%)		
Lane Group Flow (vph)	179	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	10.6	
Actuated g/C Ratio	0.09	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2022) Total Traffic
 1470 Hunt Club Road PM Peak Hour

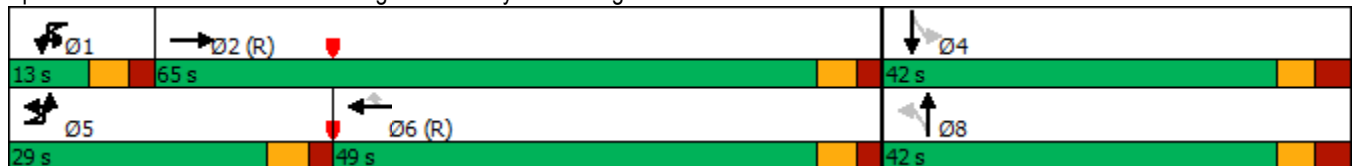


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.84	0.53			0.64	0.64	0.04	0.25	0.30		0.49
Control Delay		63.8	12.9			82.8	19.7	0.1	59.4	28.0		65.2
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		63.8	12.9			82.8	19.7	0.1	59.4	28.0		65.2
LOS		E	B			F	B	A	E	C		E
Approach Delay			21.2				22.0			35.1		
Approach LOS			C				C			D		
Queue Length 50th (m)		45.2	126.9			14.8	103.8	0.0	3.4	4.0		13.0
Queue Length 95th (m)		#90.4	154.6			#34.7	139.8	0.0	10.0	15.5		25.7
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		326	2385			102	1973	937	200	493		386
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		0.76	0.53			0.62	0.64	0.04	0.07	0.11		0.15

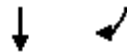
Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 97 (81%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 22.6 Intersection LOS: C
 Intersection Capacity Utilization 82.6% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road



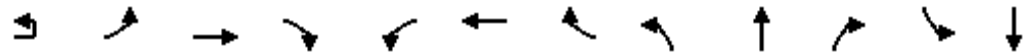
6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2022) Total Traffic
 1470 Hunt Club Road PM Peak Hour



Lane Group	SBT	SBR
v/c Ratio	0.64	
Control Delay	21.1	
Queue Delay	0.0	
Total Delay	21.1	
LOS	C	
Approach Delay	31.8	
Approach LOS	C	
Queue Length 50th (m)	4.2	
Queue Length 95th (m)	25.3	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	564	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.32	
Intersection Summary		

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Future (2022) Total Traffic
PM Peak Hour



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↖	↗	↖	↖	↗	↖	↖	↗		↖	↗
Traffic Volume (vph)	1	69	956	279	45	605	145	158	169	45	177	255
Future Volume (vph)	1	69	956	279	45	605	145	158	169	45	177	255
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.98	1.00		0.96	1.00	1.00		1.00	1.00
Fr _t				0.850			0.850		0.968			0.977
Fl _t Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3424	1547	1695	3424	1502	1729	1734	0	1712	1773
Fl _t Permitted		0.950			0.950			0.257			0.624	
Satd. Flow (perm)	0	1715	3424	1510	1694	3424	1440	467	1734	0	1120	1773
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				279			145		13			8
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		10		1	1		10	5		5	5	
Confl. Bikes (#/hr)				2			3			1		
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 (%)	0%	0%	1%	0%	2%	1%	3%	0%	1%	2%	1%	0%
Adj. Flow (vph)	1	69	956	279	45	605	145	158	169	45	177	255
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	70	956	279	45	605	145	158	214	0	177	302
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	20.0	20.0	45.0	45.0	20.0	45.0	45.0	11.0	55.0		44.0	44.0
Total Split (%)	16.7%	16.7%	37.5%	37.5%	16.7%	37.5%	37.5%	9.2%	45.8%		36.7%	36.7%
Maximum Green (s)	14.3	14.3	39.3	39.3	14.3	39.3	39.3	6.7	48.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
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)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		10.2	58.8	58.8	8.6	57.3	57.3	39.2	37.1		26.1	26.1
Actuated g/C Ratio		0.08	0.49	0.49	0.07	0.48	0.48	0.33	0.31		0.22	0.22

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	47
Future Volume (vph)	47
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	3
Peak Hour Factor	1.00
Heavy Vehicles (%)	0%
Adj. Flow (vph)	47
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

6343: Albion Road South & Bank Street
1470 Hunt Club Road

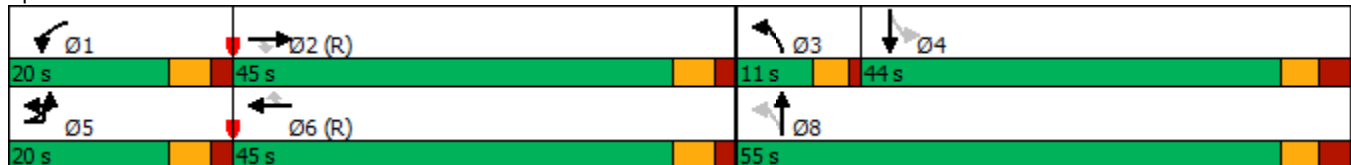
Future (2022) Total Traffic
PM Peak Hour

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio		0.48	0.57	0.32	0.37	0.37	0.19	0.71	0.39		0.73	0.77
Control Delay		62.3	25.9	3.9	61.0	23.4	4.8	47.8	31.5		45.7	42.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		62.3	25.9	3.9	61.0	23.4	4.8	47.8	31.5		45.7	42.2
LOS		E	C	A	E	C	A	D	C		D	D
Approach Delay			23.2			22.1			38.4			43.5
Approach LOS			C			C			D			D
Queue Length 50th (m)		16.0	85.0	0.0	10.3	48.4	0.0	27.4	37.0		43.7	73.3
Queue Length 95th (m)		29.9	128.0	17.0	21.7	76.5	13.5	39.3	51.7		m58.6	m94.8
Internal Link Dist (m)			155.7			56.6			215.7			194.1
Turn Bay Length (m)		35.0		105.0	60.0		85.0	45.0			45.0	
Base Capacity (vph)		206	1676	881	201	1634	763	222	710		350	561
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio		0.34	0.57	0.32	0.22	0.37	0.19	0.71	0.30		0.51	0.54

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 42 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 28.1 Intersection LOS: C
 Intersection Capacity Utilization 79.1% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6343: Albion Road South & Bank Street



↙

Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

1: Bank Street & Sieveright Avenue
1470 Hunt Club Road

Future (2027) Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	42	457	1022	27	31	116
Future Vol, veh/h	42	457	1022	27	31	116
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	600	-	-	-	300	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	6	5	8	10	4
Mvmt Flow	42	457	1022	27	31	116

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1051	0	-	0	1351 527
Stage 1	-	-	-	-	1038 -
Stage 2	-	-	-	-	313 -
Critical Hdwy	4.14	-	-	-	7 6.98
Critical Hdwy Stg 1	-	-	-	-	6 -
Critical Hdwy Stg 2	-	-	-	-	6 -
Follow-up Hdwy	2.22	-	-	-	3.6 3.34
Pot Cap-1 Maneuver	658	-	-	-	132 491
Stage 1	-	-	-	-	285 -
Stage 2	-	-	-	-	691 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	657	-	-	-	123 490
Mov Cap-2 Maneuver	-	-	-	-	123 -
Stage 1	-	-	-	-	266 -
Stage 2	-	-	-	-	690 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	20.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	657	-	-	-	123	490
HCM Lane V/C Ratio	0.064	-	-	-	0.252	0.237
HCM Control Delay (s)	10.9	-	-	-	43.9	14.6
HCM Lane LOS	B	-	-	-	E	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.9	0.9

2: Site Access & Hunt Club Road
1470 Hunt Club Road

Future (2027) Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Vol, veh/h	1092	38	0	1294	0	14
Future Vol, veh/h	1092	38	0	1294	0	14
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, %	6	0	0	5	0	0
Mvmt Flow	1092	38	0	1294	0	14

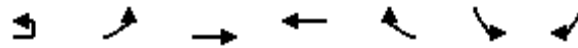
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	565
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	473
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	473
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	473	-	-	-
HCM Lane V/C Ratio	0.03	-	-	-
HCM Control Delay (s)	12.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

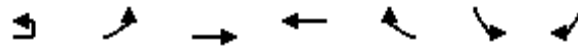
Future (2027) Total Traffic
AM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↘	↕	↕	↗	↘	↗
Traffic Volume (vph)	13	15	1077	1233	54	77	46
Future Volume (vph)	13	15	1077	1233	54	77	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0			45.0	35.0	0.0
Storage Lanes		1			1	1	1
Taper Length (m)		7.6				7.6	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.98	0.99	
Frt					0.850		0.850
Flt Protected		0.950				0.950	
Satd. Flow (prot)	0	1729	3293	3262	1345	1679	1547
Flt Permitted		0.213				0.950	
Satd. Flow (perm)	0	388	3293	3262	1317	1669	1547
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					48		46
Link Speed (k/h)			60	60		50	
Link Distance (m)			163.5	485.0		251.0	
Travel Time (s)			9.8	29.1		18.1	
Confl. Peds. (#/hr)						5	
Confl. Bikes (#/hr)					2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	5%	6%	15%	3%	0%
Adj. Flow (vph)	13	15	1077	1233	54	77	46
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	28	1077	1233	54	77	46
Turn Type	Perm	Perm	NA	NA	Perm	Prot	Perm
Protected Phases			2	6		4	
Permitted Phases	2	2			6		4
Detector Phase	2	2	2	6	6	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	27.5	27.5	37.7	37.7
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%
Maximum Green (s)	76.5	76.5	76.5	76.5	76.5	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	2.4	2.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.7	5.7
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)				10.0	10.0	7.0	7.0
Flash Dont Walk (s)				12.0	12.0	25.0	25.0
Pedestrian Calls (#/hr)				0	0	0	0
Act Effct Green (s)		101.5	101.5	101.5	101.5	10.9	10.9
Actuated g/C Ratio		0.85	0.85	0.85	0.85	0.09	0.09

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

Future (2027) Total Traffic
AM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.09	0.39	0.45	0.05	0.51	0.25
Control Delay		4.8	4.3	4.4	0.4	62.8	17.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		4.8	4.3	4.4	0.4	62.8	17.3
LOS		A	A	A	A	E	B
Approach Delay			4.3	4.2		45.8	
Approach LOS			A	A		D	
Queue Length 50th (m)		0.9	22.6	92.5	0.4	17.6	0.0
Queue Length 95th (m)		m4.8	65.1	3.3	m0.0	31.9	10.8
Internal Link Dist (m)			139.5	461.0		227.0	
Turn Bay Length (m)		100.0			45.0	35.0	
Base Capacity (vph)		328	2784	2758	1121	451	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		0.09	0.39	0.45	0.05	0.17	0.10

Intersection Summary























Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.51
 Intersection Signal Delay: 6.3
 Intersection Capacity Utilization 49.8%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5212: Hunt Club Road & Cahill Drive



5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Future (2027) Total Traffic
AM Peak Hour

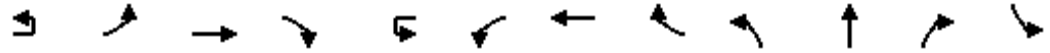
												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	58	777	8	21	172	1048	79	6	90	213	42	84
Future Volume (vph)	58	777	8	21	172	1048	79	6	90	213	42	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		45.0		95.0		60.0	40.0		0.0	30.0	
Storage Lanes	1		1		1		1	1		0	1	
Taper Length (m)	7.6				7.6			7.6			7.6	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		0.97	0.99	0.99		1.00	0.99
Frt			0.850				0.850		0.895			0.932
Flt Protected	0.950				0.950			0.950			0.950	
Satd. Flow (prot)	1572	3232	1238	0	1669	3202	1532	1729	1547	0	1695	1520
Flt Permitted	0.235				0.295			0.570			0.210	
Satd. Flow (perm)	389	3232	1206	0	518	3202	1483	1029	1547	0	374	1520
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			78				78		91			32
Link Speed (k/h)		60				60			50			50
Link Distance (m)		200.9				300.4			218.1			176.4
Travel Time (s)		12.1				18.0			15.7			12.7
Confl. Peds. (#/hr)	4		2		2		4	7		2	2	
Confl. Bikes (#/hr)							1					
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 (%)	10%	7%	25%	0%	4%	8%	1%	0%	7%	3%	2%	1%
Adj. Flow (vph)	58	777	8	21	172	1048	79	6	90	213	42	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	777	8	0	193	1048	79	6	303	0	42	153
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases	2		2	6	6		6	8				4
Detector Phase	5	2	2	1	1	6	6	8	8			4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2	29.2
Total Split (s)	25.0	62.0	62.0	25.0	25.0	62.0	62.0	33.0	33.0		33.0	33.0
Total Split (%)	20.8%	51.7%	51.7%	20.8%	20.8%	51.7%	51.7%	27.5%	27.5%		27.5%	27.5%
Maximum Green (s)	19.6	56.5	56.5	19.6	19.6	56.5	56.5	26.8	26.8		26.8	26.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9	2.9
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)	5.4	5.5	5.5		5.4	5.5	5.5	6.2	6.2		6.2	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None	None
Walk Time (s)		14.0	14.0			14.0	14.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)		7.0	7.0			7.0	7.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0			0	0	0	0		0	0
Act Effct Green (s)	78.2	71.2	71.2		85.4	76.6	76.6	21.6	21.6		21.6	21.6
Actuated g/C Ratio	0.65	0.59	0.59		0.71	0.64	0.64	0.18	0.18		0.18	0.18

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	69
Future Volume (vph)	69
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	
Peak Hour Factor	1.00
Heavy Vehicles (%)	22%
Adj. Flow (vph)	69
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

↙

Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2027) Total Traffic
 1470 Hunt Club Road AM Peak Hour



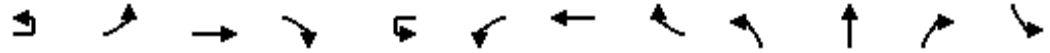
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↘	↕			↘	↕	↘	↘	↘		↘
Traffic Volume (vph)	1	143	996	12	7	19	1069	37	23	18	71	74
Future Volume (vph)	1	143	996	12	7	19	1069	37	23	18	71	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99	1.00			1.00		0.96	1.00	0.99		1.00
Frt			0.998					0.850		0.880		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1647	3224	0	0	1729	3172	1547	1729	1514	0	1712
Flt Permitted		0.950				0.950			0.320			0.699
Satd. Flow (perm)	0	1638	3224	0	0	1722	3172	1477	581	1514	0	1255
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			1					141		71		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		9		6		6		9	4		4	4
Confl. Bikes (#/hr)				1				1				
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 (%)	0%	5%	7%	8%	0%	0%	9%	0%	0%	6%	4%	1%
Adj. Flow (vph)	1	143	996	12	7	19	1069	37	23	18	71	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	144	1008	0	0	26	1069	37	23	89	0	74
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	23.0	23.0	66.0		12.0	12.0	55.0	55.0	42.0	42.0		42.0
Total Split (%)	19.2%	19.2%	55.0%		10.0%	10.0%	45.8%	45.8%	35.0%	35.0%		35.0%
Maximum Green (s)	17.1	17.1	60.1		6.1	6.1	49.1	49.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0				0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9				5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		14.6	87.7			6.0	74.5	74.5	12.5	12.5		12.5
Actuated g/C Ratio		0.12	0.73			0.05	0.62	0.62	0.10	0.10		0.10

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2027) Total Traffic
 1470 Hunt Club Road AM Peak Hour



Lane Group	SBT	SBR
Lane Configurations	↔	
Traffic Volume (vph)	7	190
Future Volume (vph)	7	190
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.855	
Flt Protected		
Satd. Flow (prot)	1462	0
Flt Permitted		
Satd. Flow (perm)	1462	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	190	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		4
Confl. Bikes (#/hr)		
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	0%	5%
Adj. Flow (vph)	7	190
Shared Lane Traffic (%)		
Lane Group Flow (vph)	197	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	12.5	
Actuated g/C Ratio	0.10	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2027) Total Traffic
 1470 Hunt Club Road AM Peak Hour

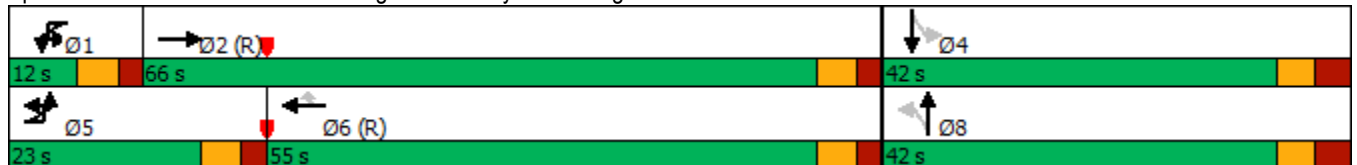


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.72	0.43			0.31	0.54	0.04	0.38	0.40		0.57
Control Delay		65.0	10.3			64.5	15.4	0.1	66.6	20.9		67.0
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		65.0	10.3			64.5	15.4	0.1	66.6	20.9		67.0
LOS		E	B			E	B	A	E	C		E
Approach Delay			17.2				16.0			30.3		
Approach LOS			B				B			C		
Queue Length 50th (m)		32.1	42.5			6.0	72.7	0.0	5.1	3.9		16.9
Queue Length 95th (m)		54.4	90.3			15.4	106.4	0.0	13.3	18.4		31.1
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		234	2357			87	1968	970	170	495		369
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		0.62	0.43			0.30	0.54	0.04	0.14	0.18		0.20

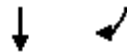
Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 86 (72%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 18.5 Intersection LOS: B
 Intersection Capacity Utilization 76.3% ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road

























6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2027) Total Traffic
 1470 Hunt Club Road AM Peak Hour



Lane Group	SBT	SBR
v/c Ratio	0.61	
Control Delay	16.1	
Queue Delay	0.0	
Total Delay	16.1	
LOS	B	
Approach Delay	30.0	
Approach LOS	C	
Queue Length 50th (m)	1.5	
Queue Length 95th (m)	22.5	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	564	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.35	
Intersection Summary		

6343: Albion Road South & Bank Street
1470 Hunt Club Road

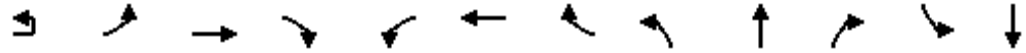
Future (2027) Total Traffic
AM Peak Hour

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	20	397	95	30	994	117	298	214	31	27	130
Future Volume (vph)	1	20	397	95	30	994	117	298	214	31	27	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.97	1.00		0.95	1.00	1.00		1.00	0.99
Frt				0.850			0.850		0.981			0.935
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3202	1502	1572	3357	1488	1695	1751	0	1558	1661
Flt Permitted		0.950			0.950			0.296			0.607	
Satd. Flow (perm)	0	1718	3202	1464	1567	3357	1419	526	1751	0	994	1661
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				122			122		9			34
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		14		3	3		14	7		2	2	
Confl. Bikes (#/hr)							1			2		
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 (%)	0%	0%	8%	3%	10%	3%	4%	2%	2%	0%	11%	2%
Adj. Flow (vph)	1	20	397	95	30	994	117	298	214	31	27	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	397	95	30	994	117	298	245	0	27	230
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	11.0	11.0	41.0	41.0	12.0	42.0	42.0	23.0	67.0		44.0	44.0
Total Split (%)	9.2%	9.2%	34.2%	34.2%	10.0%	35.0%	35.0%	19.2%	55.8%		36.7%	36.7%
Maximum Green (s)	5.3	5.3	35.3	35.3	6.3	36.3	36.3	18.7	60.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
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)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		5.3	58.3	58.3	6.1	61.1	61.1	44.5	42.4		19.9	19.9
Actuated g/C Ratio		0.04	0.49	0.49	0.05	0.51	0.51	0.37	0.35		0.17	0.17

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	100
Future Volume (vph)	100
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	7
Confl. Bikes (#/hr)	1
Peak Hour Factor	1.00
Heavy Vehicles (%)	1%
Adj. Flow (vph)	100
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Future (2027) Total Traffic
AM Peak Hour

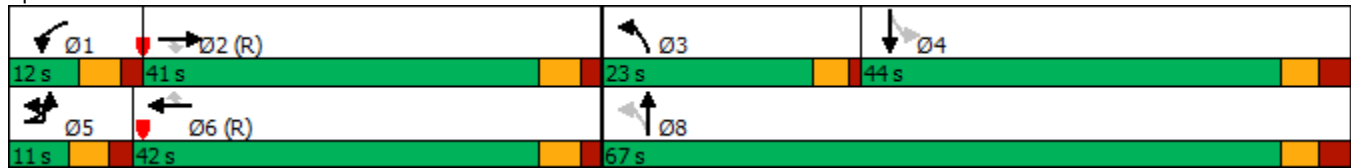


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
v/c Ratio		0.28	0.26	0.12	0.38	0.58	0.15	0.80	0.39		0.16	0.76
Control Delay		64.9	21.0	2.4	68.5	24.6	4.2	45.0	28.9		44.3	57.8
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		64.9	21.0	2.4	68.5	24.6	4.2	45.0	28.9		44.3	57.8
LOS		E	C	A	E	C	A	D	C		D	E
Approach Delay			19.4			23.7			37.7			56.4
Approach LOS			B			C			D			E
Queue Length 50th (m)		4.9	30.7	0.0	7.0	76.9	0.0	52.6	41.0		6.3	47.8
Queue Length 95th (m)		13.3	47.3	6.4	16.9	131.7	10.7	69.7	56.2		m14.8	69.6
Internal Link Dist (m)			155.7			56.6			215.7			194.1
Turn Bay Length (m)		35.0		105.0	60.0		85.0	45.0			45.0	
Base Capacity (vph)		76	1556	774	82	1710	782	376	888		311	543
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0
Reduced v/c Ratio		0.28	0.26	0.12	0.37	0.58	0.15	0.79	0.28		0.09	0.42

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 29.3 Intersection LOS: C
 Intersection Capacity Utilization 77.6% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6343: Albion Road South & Bank Street



↙

Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

1: Bank Street & Sieveright Avenue
1470 Hunt Club Road

Future (2027) Total Traffic
PM Peak Hour

Intersection							
Int Delay, s/veh	1.7						
Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↘	↕↕	↕↕		↘	↘
Traffic Vol, veh/h	1	101	1060	594	28	27	105
Future Vol, veh/h	1	101	1060	594	28	27	105
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	600	-	-	-	300	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	1	1	0	4	0
Mvmt Flow	1	101	1060	594	28	27	105

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	622	622	0	-	0	1342
Stage 1	-	-	-	-	-	608
Stage 2	-	-	-	-	-	734
Critical Hdwy	6.4	4.1	-	-	-	6.88
Critical Hdwy Stg 1	-	-	-	-	-	5.88
Critical Hdwy Stg 2	-	-	-	-	-	5.88
Follow-up Hdwy	2.5	2.2	-	-	-	3.54
Pot Cap-1 Maneuver	587	969	-	-	-	141
Stage 1	-	-	-	-	-	500
Stage 2	-	-	-	-	-	431
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	960	960	-	-	-	126
Mov Cap-2 Maneuver	-	-	-	-	-	126
Stage 1	-	-	-	-	-	447
Stage 2	-	-	-	-	-	431

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	960	-	-	-	126	691
HCM Lane V/C Ratio	0.106	-	-	-	0.214	0.152
HCM Control Delay (s)	9.2	-	-	-	41.2	11.1
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.8	0.5

2: Site Access & Hunt Club Road
1470 Hunt Club Road

Future (2027) Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Vol, veh/h	1534	23	0	1446	0	42
Future Vol, veh/h	1534	23	0	1446	0	42
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, %	3	0	0	2	0	0
Mvmt Flow	1534	23	0	1446	0	42

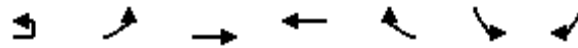
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	779
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	343
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	343
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	17
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	343	-	-	-
HCM Lane V/C Ratio	0.122	-	-	-
HCM Control Delay (s)	17	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

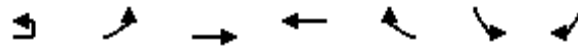
Future (2027) Total Traffic
PM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↘	↕	↕	↗	↘	↗
Traffic Volume (vph)	43	59	1474	1372	103	84	30
Future Volume (vph)	43	59	1474	1372	103	84	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0			45.0	35.0	0.0
Storage Lanes		1			1	1	1
Taper Length (m)		7.6				7.6	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.97	1.00	
Frt					0.850		0.850
Flt Protected		0.950				0.950	
Satd. Flow (prot)	0	1729	3357	3357	1532	1631	1547
Flt Permitted		0.180				0.950	
Satd. Flow (perm)	0	328	3357	3357	1484	1629	1547
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					82		30
Link Speed (k/h)			60	60		50	
Link Distance (m)			163.5	485.0		251.0	
Travel Time (s)			9.8	29.1		18.1	
Confl. Peds. (#/hr)		4			4	1	
Confl. Bikes (#/hr)					1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	3%	3%	1%	6%	0%
Adj. Flow (vph)	43	59	1474	1372	103	84	30
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	102	1474	1372	103	84	30
Turn Type	Perm	Perm	NA	NA	Perm	Prot	Perm
Protected Phases			2	6		4	
Permitted Phases	2	2			6		4
Detector Phase	2	2	2	6	6	4	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	27.5	27.5	37.7	37.7
Total Split (s)	82.0	82.0	82.0	82.0	82.0	38.0	38.0
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%	31.7%	31.7%
Maximum Green (s)	76.5	76.5	76.5	76.5	76.5	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	2.4	2.4
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.5	5.5	5.7	5.7
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)				10.0	10.0	7.0	7.0
Flash Dont Walk (s)				12.0	12.0	25.0	25.0
Pedestrian Calls (#/hr)				0	0	0	0
Act Effct Green (s)		100.9	100.9	100.9	100.9	11.5	11.5
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.10	0.10

5212: Hunt Club Road & Cahill Drive
1470 Hunt Club Road

Future (2027) Total Traffic
PM Peak Hour



Lane Group	EBU	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio		0.37	0.52	0.49	0.08	0.54	0.17
Control Delay		2.8	0.7	13.5	2.9	63.5	18.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		2.8	0.7	13.5	2.9	63.5	18.0
LOS		A	A	B	A	E	B
Approach Delay			0.8	12.8		51.5	
Approach LOS			A	B		D	
Queue Length 50th (m)		0.3	1.9	151.8	5.4	19.2	0.0
Queue Length 95th (m)		m0.3	2.4	188.2	m8.1	34.1	8.7
Internal Link Dist (m)			139.5	461.0		227.0	
Turn Bay Length (m)		100.0			45.0	35.0	
Base Capacity (vph)		275	2822	2822	1260	439	438
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		0.37	0.52	0.49	0.08	0.19	0.07

Intersection Summary





















Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 22 (18%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 8.2
 Intersection Capacity Utilization 64.8%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service C
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5212: Hunt Club Road & Cahill Drive



5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Future (2027) Total Traffic
PM Peak Hour

												
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	3	118	1273	23	12	310	1018	65	7	114	237	49
Future Volume (vph)	3	118	1273	23	12	310	1018	65	7	114	237	49
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		70.0		45.0		95.0		60.0	40.0		0.0	30.0
Storage Lanes		1		1		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.97				0.97	0.97	0.99		1.00
Fr _t				0.850				0.850		0.899		
Fl _t Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1619	3357	1547	0	1696	3390	1502	1729	1586	0	1601
Fl _t Permitted		0.265				0.085			0.522			0.184
Satd. Flow (perm)	0	451	3357	1499	0	152	3390	1451	925	1586	0	309
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				78				78		83		
Link Speed (k/h)			60				60			50		
Link Distance (m)			200.9				300.4			218.1		
Travel Time (s)			12.1				18.0			15.7		
Confl. Peds. (#/hr)		5		4		4		5	24		6	6
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 (%)	0%	7%	3%	0%	0%	2%	2%	3%	0%	1%	2%	8%
Adj. Flow (vph)	3	118	1273	23	12	310	1018	65	7	114	237	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	121	1273	23	0	322	1018	65	7	351	0	49
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases	2	2		2	6	6		6	8			4
Detector Phase	5	5	2	2	1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.4	10.4	30.5	30.5	10.4	10.4	30.5	30.5	29.2	29.2		29.2
Total Split (s)	26.0	26.0	55.0	55.0	29.0	29.0	58.0	58.0	36.0	36.0		36.0
Total Split (%)	21.7%	21.7%	45.8%	45.8%	24.2%	24.2%	48.3%	48.3%	30.0%	30.0%		30.0%
Maximum Green (s)	20.6	20.6	49.5	49.5	23.6	23.6	52.5	52.5	29.8	29.8		29.8
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	1.7	1.7	1.8	1.8	1.7	1.7	1.8	1.8	2.9	2.9		2.9
Lost Time Adjust (s)		0.0	0.0	0.0			0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.4	5.5	5.5			5.4	5.5	5.5	6.2		6.2
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None
Walk Time (s)			14.0	14.0			14.0	14.0	7.0	7.0		7.0
Flash Dont Walk (s)			7.0	7.0			7.0	7.0	16.0	16.0		16.0
Pedestrian Calls (#/hr)			0	0			0	0	0	0		0
Act Effct Green (s)		64.9	56.2	56.2			83.2	69.0	69.0	25.2	25.2	25.2
Actuated g/C Ratio		0.54	0.47	0.47			0.69	0.58	0.58	0.21	0.21	0.21
v/c Ratio		0.37	0.81	0.03			0.84	0.52	0.07	0.04	0.88	0.77

5214: Albion Road South & Hunt Club Road
 1470 Hunt Club Road

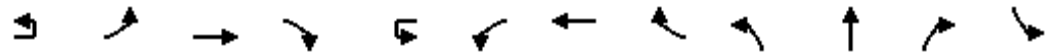
Future (2027) Total Traffic
 PM Peak Hour



Lane Group	SBT	SBR
Lane Configurations	↔	
Traffic Volume (vph)	133	52
Future Volume (vph)	133	52
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.99	
Frt	0.958	
Flt Protected		
Satd. Flow (prot)	1668	0
Flt Permitted		
Satd. Flow (perm)	1668	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	16	
Link Speed (k/h)	50	
Link Distance (m)	176.4	
Travel Time (s)	12.7	
Confl. Peds. (#/hr)		24
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	2%	6%
Adj. Flow (vph)	133	52
Shared Lane Traffic (%)		
Lane Group Flow (vph)	185	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	29.2	
Total Split (s)	36.0	
Total Split (%)	30.0%	
Maximum Green (s)	29.8	
Yellow Time (s)	3.3	
All-Red Time (s)	2.9	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.2	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	7.0	
Flash Dont Walk (s)	16.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	25.2	
Actuated g/C Ratio	0.21	
v/c Ratio	0.51	

5214: Albion Road South & Hunt Club Road
1470 Hunt Club Road

Future (2027) Total Traffic
PM Peak Hour

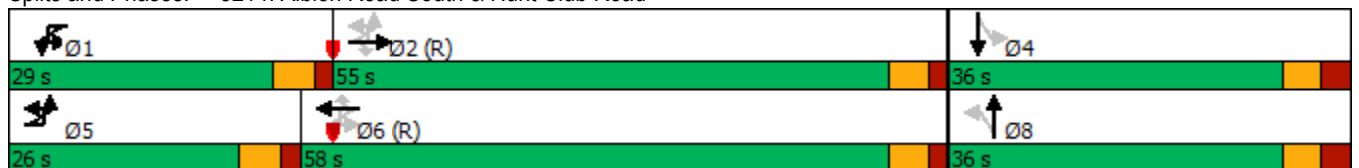


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Control Delay		12.4	34.1	0.1		33.5	29.5	9.8	29.4	52.0		103.2
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		12.4	34.1	0.1		33.5	29.5	9.8	29.4	52.0		103.2
LOS		B	C	A		C	C	A	C	D		F
Approach Delay			31.7				29.5			51.6		
Approach LOS			C				C			D		
Queue Length 50th (m)		9.0	140.6	0.0		63.0	131.3	6.0	1.3	69.1		10.7
Queue Length 95th (m)		16.9	#191.5	0.0		#93.8	153.0	14.8	m4.1	#93.3		#30.7
Internal Link Dist (m)			176.9				276.4			194.1		
Turn Bay Length (m)		70.0		45.0		95.0		60.0	40.0			30.0
Base Capacity (vph)		489	1571	743		409	1949	867	229	456		76
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		0.25	0.81	0.03		0.79	0.52	0.07	0.03	0.77		0.64

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 96 (80%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 34.5
 Intersection LOS: C
 Intersection Capacity Utilization 101.7%
 ICU Level of Service G
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

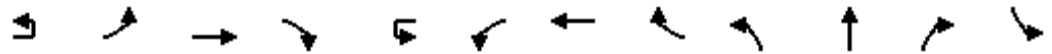
Splits and Phases: 5214: Albion Road South & Hunt Club Road





Lane Group	SBT	SBR
Control Delay	42.3	
Queue Delay	0.0	
Total Delay	42.3	
LOS	D	
Approach Delay	55.1	
Approach LOS	E	
Queue Length 50th (m)	34.7	
Queue Length 95th (m)	55.4	
Internal Link Dist (m)	152.4	
Turn Bay Length (m)		
Base Capacity (vph)	426	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.43	
Intersection Summary		

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2027) Total Traffic
 1470 Hunt Club Road PM Peak Hour



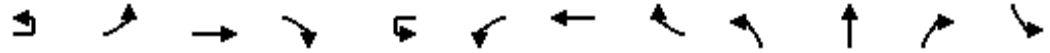
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	248	1272	31	2	61	1297	41	15	18	34	57
Future Volume (vph)	1	248	1272	31	2	61	1297	41	15	18	34	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		100.0		0.0		100.0		125.0	25.0		0.0	45.0
Storage Lanes		1		0		1		1	1		0	1
Taper Length (m)		7.6				7.6			7.6			7.6
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00						0.97	0.99	0.99		1.00
Frt			0.996					0.850		0.902		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1695	3312	0	0	1729	3390	1547	1729	1596	0	1729
Flt Permitted		0.950				0.950			0.377			0.723
Satd. Flow (perm)	0	1694	3312	0	0	1729	3390	1508	682	1596	0	1315
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			3					141		34		
Link Speed (k/h)			60				60			40		
Link Distance (m)			485.0				279.4			63.5		
Travel Time (s)			29.1				16.8			5.7		
Confl. Peds. (#/hr)		2						2	7		1	1
Confl. Bikes (#/hr)												
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 (%)	0%	2%	4%	3%	0%	0%	2%	0%	0%	0%	3%	0%
Adj. Flow (vph)	1	248	1272	31	2	61	1297	41	15	18	34	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	249	1303	0	0	63	1297	41	15	52	0	57
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0
Minimum Split (s)	10.9	10.9	27.9		10.9	10.9	27.9	27.9	41.7	41.7		41.7
Total Split (s)	29.0	29.0	65.0		13.0	13.0	49.0	49.0	42.0	42.0		42.0
Total Split (%)	24.2%	24.2%	54.2%		10.8%	10.8%	40.8%	40.8%	35.0%	35.0%		35.0%
Maximum Green (s)	23.1	23.1	59.1		7.1	7.1	43.1	43.1	35.3	35.3		35.3
Yellow Time (s)	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.3	3.3		3.3
All-Red Time (s)	2.2	2.2	2.2		2.2	2.2	2.2	2.2	3.4	3.4		3.4
Lost Time Adjust (s)		0.0	0.0				0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.9	5.9				5.9	5.9	6.7	6.7		6.7
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Walk Time (s)			8.0				8.0	8.0	10.0	10.0		10.0
Flash Dont Walk (s)			14.0				14.0	14.0	25.0	25.0		25.0
Pedestrian Calls (#/hr)			0				0	0	0	0		0
Act Effct Green (s)		21.0	86.4			6.9	69.9	69.9	10.6	10.6		10.6
Actuated g/C Ratio		0.18	0.72			0.06	0.58	0.58	0.09	0.09		0.09

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2027) Total Traffic
 1470 Hunt Club Road PM Peak Hour



Lane Group	SBT	SBR
Lane Configurations	↔	
Traffic Volume (vph)	19	160
Future Volume (vph)	19	160
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	0.98	
Frt	0.866	
Flt Protected		
Satd. Flow (prot)	1535	0
Flt Permitted		
Satd. Flow (perm)	1535	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	160	
Link Speed (k/h)	50	
Link Distance (m)	103.4	
Travel Time (s)	7.4	
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		1
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	0%	1%
Adj. Flow (vph)	19	160
Shared Lane Traffic (%)		
Lane Group Flow (vph)	179	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	
Minimum Split (s)	41.7	
Total Split (s)	42.0	
Total Split (%)	35.0%	
Maximum Green (s)	35.3	
Yellow Time (s)	3.3	
All-Red Time (s)	3.4	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.7	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	10.0	
Flash Dont Walk (s)	25.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	10.6	
Actuated g/C Ratio	0.09	

6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2027) Total Traffic
 1470 Hunt Club Road PM Peak Hour

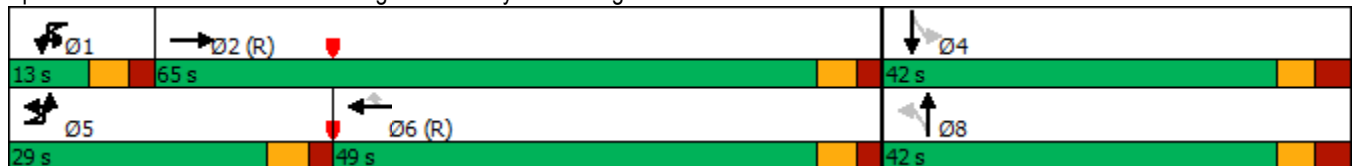


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.84	0.55			0.64	0.66	0.04	0.25	0.30		0.49
Control Delay		64.4	13.0			82.8	20.1	0.1	59.4	28.0		65.2
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		64.4	13.0			82.8	20.1	0.1	59.4	28.0		65.2
LOS		E	B			F	C	A	E	C		E
Approach Delay			21.3				22.3			35.1		
Approach LOS			C				C			D		
Queue Length 50th (m)		45.6	132.3			14.8	107.8	0.0	3.4	4.0		13.0
Queue Length 95th (m)		#90.5	160.1			#34.7	145.1	0.0	10.0	15.5		25.7
Internal Link Dist (m)			461.0				255.4			39.5		
Turn Bay Length (m)		100.0				100.0		125.0	25.0			45.0
Base Capacity (vph)		326	2385			102	1973	937	200	493		386
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		0.76	0.55			0.62	0.66	0.04	0.07	0.11		0.15

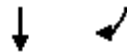
Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 97 (81%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 22.8 Intersection LOS: C
 Intersection Capacity Utilization 83.5% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road

























6098: Sable Ridge Drive/Lorry Greenberg Drive & Hunt Club Road Future (2027) Total Traffic
 1470 Hunt Club Road PM Peak Hour



Lane Group	SBT	SBR
v/c Ratio	0.64	
Control Delay	21.1	
Queue Delay	0.0	
Total Delay	21.1	
LOS	C	
Approach Delay	31.8	
Approach LOS	C	
Queue Length 50th (m)	4.2	
Queue Length 95th (m)	25.3	
Internal Link Dist (m)	79.4	
Turn Bay Length (m)		
Base Capacity (vph)	564	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.32	
Intersection Summary		

6343: Albion Road South & Bank Street
1470 Hunt Club Road

Future (2027) Total Traffic
PM Peak Hour

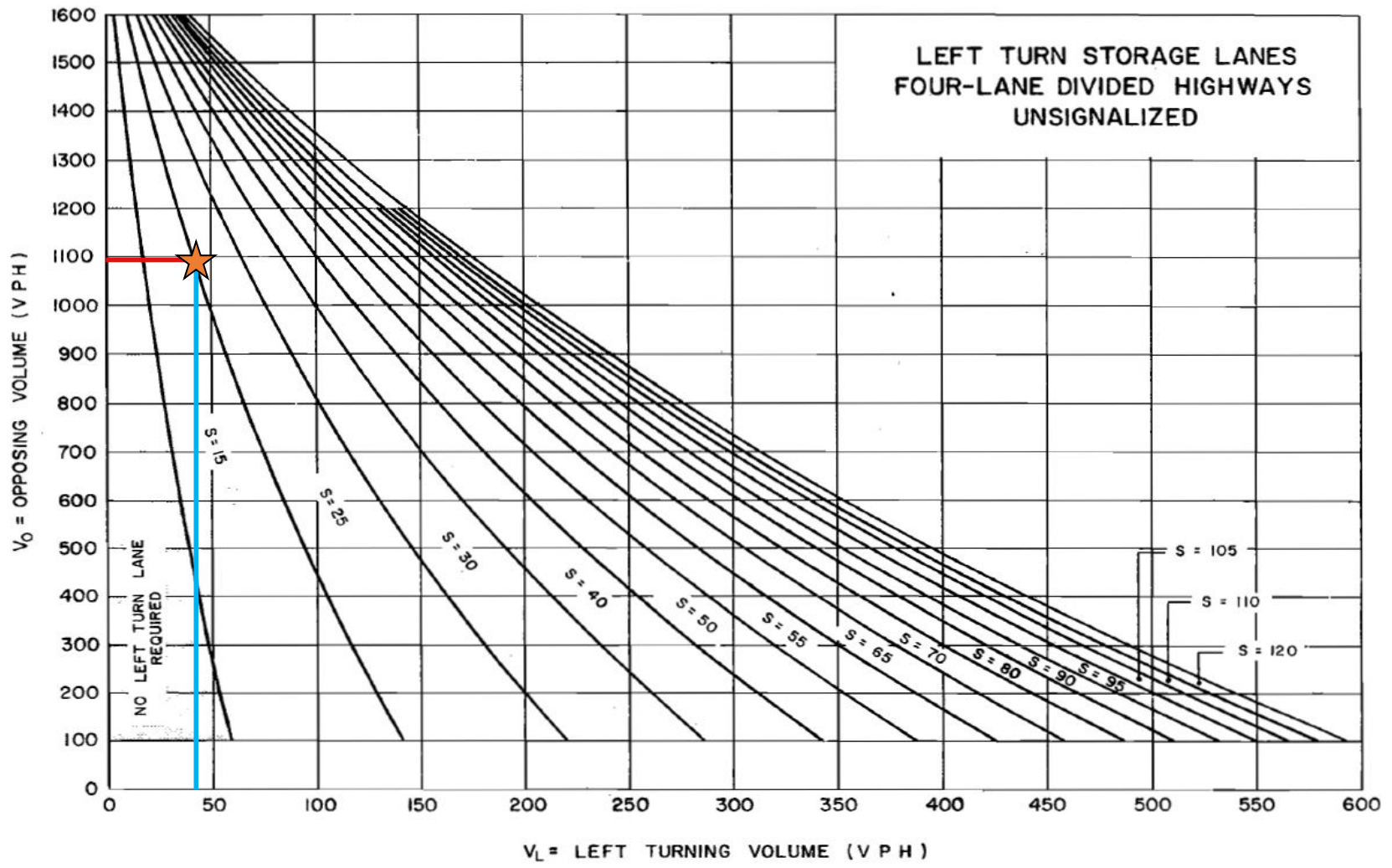
												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	69	980	279	45	620	145	158	169	45	177	255
Future Volume (vph)	1	69	980	279	45	620	145	158	169	45	177	255
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		35.0		105.0	60.0		85.0	45.0		0.0	45.0	
Storage Lanes		1		1	1		1	1		0	1	
Taper Length (m)		7.6			7.6			7.6			7.6	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.98	1.00		0.96	1.00	1.00		1.00	1.00
Fr _t				0.850			0.850		0.968			0.977
Fl _t Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	1729	3424	1547	1695	3424	1502	1729	1734	0	1712	1773
Fl _t Permitted		0.950			0.950			0.257			0.624	
Satd. Flow (perm)	0	1716	3424	1510	1694	3424	1440	467	1734	0	1120	1773
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				279			145		13			8
Link Speed (k/h)			60			60			50			50
Link Distance (m)			179.7			80.6			239.7			218.1
Travel Time (s)			10.8			4.8			17.3			15.7
Confl. Peds. (#/hr)		10		1	1		10	5		5	5	
Confl. Bikes (#/hr)				2			3			1		
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 (%)	0%	0%	1%	0%	2%	1%	3%	0%	1%	2%	1%	0%
Adj. Flow (vph)	1	69	980	279	45	620	145	158	169	45	177	255
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	70	980	279	45	620	145	158	214	0	177	302
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases				2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	3	8		4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	10.7	10.7	38.7	38.7	10.7	38.7	38.7	9.5	43.4		43.4	43.4
Total Split (s)	20.0	20.0	45.0	45.0	20.0	45.0	45.0	11.0	55.0		44.0	44.0
Total Split (%)	16.7%	16.7%	37.5%	37.5%	16.7%	37.5%	37.5%	9.2%	45.8%		36.7%	36.7%
Maximum Green (s)	14.3	14.3	39.3	39.3	14.3	39.3	39.3	6.7	48.6		37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.1		3.1	3.1
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)		5.7	5.7	5.7	5.7	5.7	5.7	4.3	6.4		6.4	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None
Walk Time (s)			20.0	20.0		20.0	20.0		10.0		10.0	10.0
Flash Dont Walk (s)			13.0	13.0		13.0	13.0		27.0		27.0	27.0
Pedestrian Calls (#/hr)			0	0		0	0		0		0	0
Act Effct Green (s)		10.2	58.8	58.8	8.6	57.3	57.3	39.2	37.1		26.1	26.1
Actuated g/C Ratio		0.08	0.49	0.49	0.07	0.48	0.48	0.33	0.31		0.22	0.22

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	47
Future Volume (vph)	47
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	3
Peak Hour Factor	1.00
Heavy Vehicles (%)	0%
Adj. Flow (vph)	47
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	

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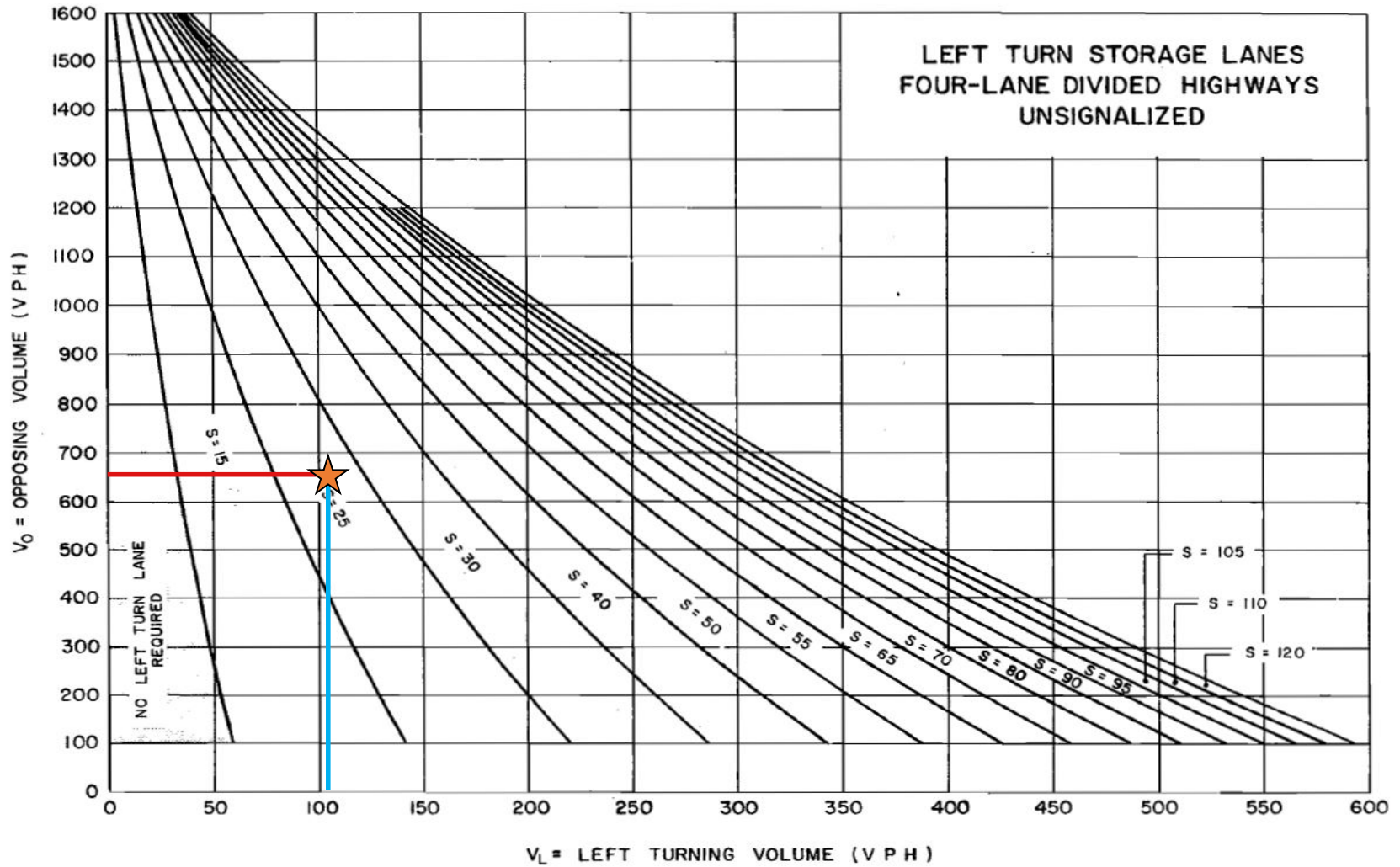
Lane Group	SBR
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Appendix L – Auxiliary Lane Analysis



- Opposing Volume
- Left Turning Volume

Bank Street & Sieveright Avenue - Eastbound Left-Turn - AM Peak Hour



- Opposing Volume
- Left Turning Volume

Bank Street & Sieveright Avenue - Eastbound Left-Turn - PM Peak Hour